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 at the individual level. 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 815 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 highlights potential errors in the way that individuals process information and make risk-based decisions. 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.

Prerequisites: Graduate standing or permission of instructor

Course Objectives:
This course is designed to help students...

1. Develop an understanding of the theory that underlies judgment and decision-making in multi-objective, risk-based policy and management contexts.
2. Develop an understanding of the decision analytic techniques designed to improve decision-making in these contexts.

Course Format: Classes will combine lecture with discussion and group activities. An interactive approach such as this makes your attendance a crucial component of achieving success in this course.

Assignments and Exams:

1. Applications – Each student will be required to sign up for 2 days where they will find a study based on the theoretical topic for the day. They will be required to write a one-page summary of this article and present the summary in class (focusing on the theoretical and practical implications). The summary should include potential discussion questions for the class.

2. Memo and Paper – A 10-15 page, double-spaced paper will be due toward 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 decision making, and how we might work to resolve it through the use of decision analytic techniques.
The first half of the paper will require that you identify a multi-objective, multi-stakeholder environmental problem and think about how your new understanding of the individual decision making process might help to explain how this problem may have developed, or why people are acting (or failing to act) in a certain way. The second half of the paper should focus more on how this problem could be addressed or resolved given your knowledge of how individuals make decisions (e.g., employing structured processes that help people avoid biases in their decision making, etc.).

A 3-5 page, double spaced memo will be required several weeks into the term where you will outline your potential topic of interest and the applications you plan to draw on from the course, this memo will be an opportunity for you to get initial feedback on your paper ideas before the final paper is due.

3. **SDM Workshop** – Students will participate in a structured decision making workshop at the end of the term. The work for this particular assignment will largely occur in-class, but as an individual participant you will be responsible for turning in your efforts to document your active participation in the exercise (this will require some time outside of class). The workshop assignment will be graded out of 100, with a portion of your grade dependent on individual effort and a portion on group effort.

4. **Attendance and Participation** – Each day you need to bring a sheet of paper with three questions and/or applications you have drawn from the readings. You will use these in class and turn them in for daily participation points.

**Grading:**

- Applications 15%
- Memo 15%
- Final Paper 35%
- SDM Workshop 20%
- Attendance and Participation 15%
- **TOTAL** 100%

The course syllabus, schedule, and assigned readings are subject to change. The syllabus can be made available in alternative formats upon request; students with disabilities are responsible for making their needs known to the instructor and for seeking available assistance in a timely manner.

**Class Readings:**

There is one required course textbook:


The text is available from most online retailers (not currently available in the OSU bookstore). Other required readings in the form of journal articles are listed below; these will all be available through CARMEN.
Make-up and Late Assignments: In-class assignments or participation points cannot be made up, if they are not turned in by the assigned deadline then they will not be accepted. Late papers will be accepted, but will be docked 5 points for each day that they are late.

Academic Misconduct: It is expected that all students have read and understand the University’s Code of Student Conduct, 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.

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:
- The Committee on Academic Misconduct web pages (http://oaa.osu.edu/coam.html)
- Ten Suggestions for Preserving Academic Integrity (http://oaa.osu.edu/coamtensuggestions.html)
- Eight Cardinal Rules of Academic Integrity (http://www.northwestern.edu/provost/students/integrity/rules.html)
Class Schedule and Readings

Introduction to Risk

Session 1 (1/8) – Introduction to Course Concepts

Session 2 (1/10) – Understanding Risk Assessment

Session 3 (1/15) – Ecological Risk Perception

Session 4 (1/17) – Cultural Cognition

Session 5 (1/22) – Risk and Psychological Distance

How do individuals process information when making decisions?

Session 6 (1/24) – Dual Process Theory

Session 7 (1/29) – Affect and Emotions

Session 8 (1/31) – Expected Utility and Bounded Rationality
Session 9 (2/5) – Descriptive Models of Decision Making
- No readings

Session 10 (2/7) – Information Processing and Decision Making Wrap-up

What are some of the common errors in information processing that lead to “bad” decisions?

Session 11 (2/12) – Probability Biases: Representativeness & Availability

Session 12 (2/14) – Probability Biases: Anchoring, Randomness & Correlation

Session 13 (2/19) – Decision Making Biases: Discounting, Loss Aversion & Probability Neglect

Session 14 (2/21) – Decision Making Biases: Confirmation Bias & Selective Perception

Session 15 (2/26) – Social Biases: Attribution Errors

Session 16 (2/28)– Social Biases: Ingroup Biases & Outgroup Homogeneity

Paper Memo Due – Sunday, March 3rd, Midnight
How can we help individuals and groups make better decisions?

Session 17 (3/5) – Foundations of Structured Decision Making
- Gregory et al. - pp. 1-68

Session 18 (3/7)- Objectives and Performance Measures
- Gregory et al. – pp. 69 – 121

SPRING BREAK (March 11-15)

Session 19 (3/19) – Incorporating Uncertainty
- Gregory et al. – pp. 122-149

Session 20 (3/21) – Alternatives and Consequences
- Gregory et al. – pp. 150-207

Session 21 (3/26) – Making Tradeoffs and Learning
- Gregory et al. – pp. 208-261

Session 22 (3/28) – SDM Wrap-up
- Gregory et al. – pp. 262-288
- Workshop Readings TBD

Final Paper Due - Monday, April 1st, Midnight

Putting It Into Practice

Session 23 (4/2) – SDM Workshop
- No readings

Session 24 (4/4) –SDM Workshop
- No readings

Session 25 (4/9) – SDM Workshop
- No readings

Session 26 (4/11) – SDM Workshop
- No readings

Session 27 (4/16) – SDM Workshop
- No readings

Session 28 (4/18): Wrap-up: Lessons Learned
- No readings

SDM Workshop Materials Due – Friday, April 19th, Midnight

Final Exam – Tuesday, April 30, 2-3:45 – Reserved for Workshop
Wrap-up or Paper Presentations