A theory of human rationality “must be as concerned with procedural rationality – the ways in which decisions are made – as with substantive rationality – the content of those decisions” (Herbert A. Simon, 1981).

How do people make decisions? How can judgments and choices be improved? Together those two questions define the field of Behavioral Decision Research (BDR). The purpose of this course is to provide students with an introduction to behavioral decision research and its applications. Note, a growing trend in Behavioral Decision Research is the use of behavioral insights from studies of how people make decisions (sometimes referred to as BDR 1.0) to help people make better decisions (sometimes referred to as BDR 2.0).

Behavioral decision research is intensely interdisciplinary, employing concepts and tools from economics, statistics, and other disciplines, as well as the core discipline of psychology. Behavioral decision research (BDR) has been applied to business problems in management, marketing, operations, accounting, and finance. In addition, BDR has had an impact on the fields of medicine, law, military science, environmental sciences, and a variety of public policy areas. Throughout the course I will draw examples of decision problems from business, public policy, and personal decision making.

The course is organized as follows: The first class session will provide an overview of the theory of BDR. In particular, I will introduce the idea of Bounded Rationality and the idea of two systems of thought (System 1 and System 2). These two ideas are currently the main conceptual frameworks for research on judgment and choice.

Our second to fourth classes will focus on the topic of decision making under risk (uncertainty) where there are tradeoffs to be made between how much of a good thing one receives (or how little of a bad thing) and also the probability of receiving an outcome (good or bad). It is historically the first major area of decision research. Some of the basic ideas can be traced back centuries. It is also an area of research that well illustrates the interplay between theories of how a person should behave (normative models) and theories reflecting how people actually behave (descriptive models). The classic business example is the tradeoff between return and risk in investment.

We will then spend several weeks reviewing research on the psychology of beliefs (probability) judgments about uncertain events. Since the 1970s this topic area has gotten much press in terms of the biases that people often exhibit in making forecasts about future events.
The fourth section of the course will deal with the psychology of preferences. Unfortunately, the world is not structured so that we can have everything we desire at once. How do people make decisions between options that are both better (and worse) than other alternatives in meeting one’s objectives. This section on the behavioral research on preferences will again take 3 to 4 weeks to cover. While this topic area has had wide application, its primary business related applications have been in the field of marketing.

The material covered on risky choice behavior, the psychology of beliefs, and the psychology of preferences represent the heart of behavioral decision research, and this course. However, if time permits, we will also touch on the use of groups rather than individuals to make decisions and explore issues related to trying aid (improve) decision making. Please be aware that the extent of the coverage of this material will depend on how fast we are able to complete our review of prior sections of the course.

Our first class meeting will meet on Wednesday, August 26, 2015 in DeSanctis Seminar Room. Class will meet from 9 a.m. – 11:30 a.m.

Please get the readings for the first class from my assistant, Bobbie Clinkscales (919-660-7862), workspace A422B Academic Center, prior to the class on August 26th. Future readings will be in the classroom before class begins. Each week we will discuss approximately 4 to 5 articles.

The articles to be read will be a mixture of “classic” and recent papers. One thing we will discuss is how the field of BDR has changed over the past 60 years. Also, because the schedule of class topics is tentative, it will reflect the amount of class discussion, please be sure to check with me each week on what papers most need to be read for the following week.

In addition to the readings I will provide a set of Power Point slides for each section of the course, an online version may be viewed at: http://faculty.fuqua.duke.edu/~jpayne/ba925.htm. (Warning, I overdo the use of Power Point slides.) Classes will involve lecture and, hopefully, lots of discussion. Students will be expected to take an active role in the class sessions. You should think about a few questions and/or comments about each article before coming to the class. You should also think about “real world” examples of the judgment/decision phenomenon described in each paper.

There is no book required for the course. However, I strongly encourage students to purchase a copy of Kahneman, D. (2011). Thinking, Fast and Slow. Danny Kahneman won the Nobel Prize in 2002 for his work on the psychology of decision making with Amos Tversky. This book will be referred to throughout the course, and you will be asked to read a few chapters. It is available as an e-book.

Your grade will be based primarily on a paper written by you on a BDR topic of your choice and also to a lesser extent on your participation in class discussion. I encourage you to talk with me about possible topics before you begin work on your paper. For most students, the paper should be some form of a literature review. It can be a paper that goes into depth on a topic like overconfidence in judgment or relates an area of BDR to an applied topic such as the environment. The paper is due Wednesday, December 9, 2015. The paper should between 20 and 30 pages double-spaced. Please use American Psychological Association (APA) style guidelines for how to handle an abstract, references, headings, etc. Several of the papers we will read for the class are examples of good theory-based literature reviews.
Schedule of Topics and Readings

**This schedule is tentative. We will take longer than one class session on some topics depending on class interest. We may also read a few additional papers depending on student interest. Therefore, if you have to miss a class be sure to check with me or one of your fellow students on what will be needed to be read for the following week.**

**Class Session #1** (8/26) - Introduction: 1) Course Overview, 2) Bounded Rationality, and 3) Two Systems of Thought. Depending on how much time is spent on the introduction, we may start the section on decision making under risk.


Questions to think about:

a. How would you judge a decision as a “good” one? More generally, what defines “rationality” in judgment and choice?

b. What does the concept of “bounded rationality” mean? How does it differ from the assumptions about decision making found in most economic textbooks?

c. What are some of the differences between System 1 and System 2 thinking? How might those two systems interact in making judgments and choices?

d. What is a judgment heuristic?

**Class Sessions #2 (9/2)** – Decisions Under Risk. Please treat the next 3 class sessions as one unit. The three papers listed below are the ones that most need to be read for the first class in this unit of the course.


2. Kahneman, D. & Tversky, A. (1979). Prospect theory: An analysis of decision under risk. Econometrica, 47, 263-291. [This article is the most cited article ever in this leading economics journal.]

Questions to think about:

a. What are the differences and similarities between expected utility theory and prospect theory?
b. How important is the distinction between risk and uncertainty?
c. How might problems that you are interested be thought of in terms of decision making under risk (uncertainty)?

Class Session #3 (9/9) – Alternative Perspectives on Risk Taking. Note, I need to leave this class early (around 10:15 am) for a trip to California.

1. Pachur, T., Hertwig, R., & Wolkewitz, R. (2014). The affect gap in risky choice: Affect-rich outcomes attenuate attention to probability information. Decision, 1, 64-78. (This article illustrates how of the key concepts of Prospect Theory has been expanded over the years. It also illustrates some nice experimental work.)


Questions to think about

a. What kinds of heuristics might people use in solving risky decision problems?
b. How might eye-tracking be used in studying decision problems of interest to you?

Class Session # 4 (9/16). Wrap class on Decisions under Risk and Uncertainty.


Questions to think about:

a. How do the motivational factors involved in risky choice relate to the earlier papers on affect and reason?
b. How might emotions and cognition relate to risk taking?
c. What are decision behaviors beyond endowment effects that might be influenced by loss aversion?
d. What cross-cultural differences in decision behavior might exist?
Class Session #5 (9/23) – Probabilistic Reasoning I: Heuristics and Biases. (This material will most likely extend over the next three class sessions.)

1. Tversky, A. & Kahneman, D. (1974). Judgment under uncertainty: Heuristics and biases. Science, 185, 3-20. (This may be the most influential article on subjective probability judgments ever written. If there is one article that is responsible for the popularity of BDR this is it.)


4. Simmons, J. P. & Nelson, L. D. (2006). Intuitive confidence: Choosing between intuitive and nonintuitive alternatives. Journal of Experimental Psychology; General, 135, 409-428. (This paper illustrates the use of a mixture of experimental and “real-world” data. Some of the best papers over the past decade have used a mixture of methods of study.)

Questions to think about:

a. What areas of business, law, medicine, etc., might be influenced by overconfidence effects?

b. With probability judgments, how you ask the question matters a lot. Try to think of examples applied to your area of study.

c. What tasks in the applied fields you are interested in are most likely to be influenced by judgmental heuristics?

Class Session #6 (9/30) – Probabilistic Reasoning II.


Questions to think about:

a. What is your opinion about the research approaches of Kahneman and Tversky and Gigerenzer? Why, for example, might the use of heuristics that use less information, computation, and time might improve judgmental accuracy as well as lead to systematic biases?

b. Recently it was argued that “If one were to attempt to identify a single problematic aspect of human reasoning that deserves attention above all others, the confirmation bias would have to be among the candidates for consideration” Do you agree? Why?

c. What are some of the unanswered questions that you see in terms of probabilistic reasoning? Please come to class with questions you have about this section of the course.

**Class Session #7** (10/7) – Judgment with Multiple Cues and Summary of the section on thinking under uncertainty. (Social Judgment Theory (SJT) or “policy capturing” is one of the most active areas of BDR. The first two papers for this week illustrate the SJT approach.)


2. Harries, P., Tomlinson, C, Notley, E., Davies, M., & Gihooly, K. (2012). Effectiveness of a decision-training aid on referral prioritization capacity: A randomized control trial. *Medical Decision Making*. (This is a newer policy capturing paper. It is not a major paper but it does illustrate the ongoing application of policy capturing methods.)

3. Kuncel, N.R., Klieger, D.M., & Ones, D. S. Algorithm for hiring. (May, 2014). *Harvard Business Review*. (This is a very short article but it does illustrate the argument for replacing a man with a model for decision making.)

4. Stanovich, K. E. & West, R. F. (2008). On the relative independence of thinking biases and cognitive ability. *Journal of Personality and Social Psychology*, 94, 672-695. (The topic of individual differences in decision making has taken on renewed importance in the last few years with efforts to improve decision making.)

5. Hogarth, R. M., Mukherjee, K., & Soyer, E. (2013). Assessing the chances of success: Naïve statistics versus kind experience. *Journal of Experimental Psychology, Learning, Memory, and Cognition*, 39, 14-32. (This paper makes at least three points worth thinking about. The first is the use of an additive strategy rather than the proper multiplicative strategy in judging success probabilities. Second, the paper illustrates the application of subjective probability judgments to entry decisions faced by entrepreneurs and others. Third, it talks about different types of decision aids.)

Questions to think about:

a. What tasks (problems) that you are interested in could be studied using the methods (policy capturing) of Lusk and Hammond?

b. Might there be cultural as well as individual differences in rational thought?
Depending on how quickly we cover material, the sessions on probabilistic reasoning may be extended. If the section on probabilistic reasoning is extended then the three following classes will be pushed back a week.

Class Session #8 (10/14) – Preferences and dealing with Conflicting Objectives: Basic Tasks, Models, and Modes of Thought. [This class will extend over to the next week.]

2. Payne, J.W., Bettman, J.R., & Johnson, E.J. (1988). Adaptive strategy selection in decision making. Journal of Experimental Psychology: Learning, Memory and Cognition, 14, 534-552. (This paper and the next one also represent a “package.” Again, also think about the multiple methods that are being used.)
4. Dijksterhuis, A., Bos, M. W., Nordgren, L. F., & van Baaren, R. B. (2006). On making the right choice: The deliberation-without-attention effect. Science, 311, 1005-1007. (This paper has generated a lot of follow-on research and a lot of attention in the press. It and the following paper should be read together.)

Questions to think about:

a. A compensatory process is often viewed as the “rational” way to deal with problems involving conflicting objectives. Do you agree? If not, why not?
b. Why would people use noncompensatory decision strategies even if the strategies are not fully rational?
c. What is the difference between output and process methods in the study of decisions?
d. How might conscious and unconscious thought differ in terms of decision making? When might one form of thought be better?

Class Session #9 (10/21) – Task and Context Effects. (The great influence that seemingly minor changes in decision tasks and contexts play in decision behavior is one of the key findings of BDR.)

5. Halpern, S.D., et. al. (2013) Default options in advance directives influence how patients set goals for end-of-life care. Health Affairs, 32, 2, 408-417. (This is an example of an attempt to test a “nudge” to impact decisions.)

Questions to think about:

a. If A is preferred to B under some circumstances while B is preferred to A under other circumstances, do people really have preferences to be measured?

b. What factors should impact the size of task and context effects?

c. Does the Halpern et al. paper raise ethical questions related to nudging people?

Class Session #10 (10/28) – Emotions and Other Issues in Multi-Attribute Judgment and Choice.


Questions to think about:

a. What are the differences between cognitive and emotional factors in decision-making?

b. How do affect and reason interact in judgment and choice?

c. This is the last class for this part of the course, you should think about questions you might have about the material that has been covered.

Again, we may need to push the following classes on decisions under risk back a week depending on how quickly we cover the previous material.

Class Session #11 (11/4) – Time preferences (discounting the future). This is a particular form of trade-off decision that has gotten a lot of attention in the literature both from theoretical and applied perspectives.


Class Session #12 (11/11) – Outsmarting Biases. (I will make reference to efforts to improve decision making throughout the course but this session will focus on this topic.)


5. Blumenthal-Barby, J.S., et. al. (2013) Decision aids: When ‘nudging’ patients to make a particular choice is more ethical than balanced, nondirective content. *Health Affairs, 32*, 2, 303-310. (This article puts forward a controversial perspective on nudges.)

Questions to think about:

a. What are the implications of the psychology of decision behavior for efforts to improve decisions? In particular, what do you think about the relative merits of trying to change the decision maker versus changing the decision environment in trying to improve human decisions?

b. Why might people not use decision aids?

c. Are there ethical issues in the use of nudges that may reflect System 1 thinking?

**Class Session #13** (11/18) – Group Decision Behavior. A complete course could be done on this topic. This class will provide just a brief introduction. (We may not get to this class depending on how quickly we cover the material above.)


Some questions to think about:

a. When will 2 or more heads be better than 1 head in making a decision?

b. When might groups amplify biases in judgment and choice?

c. What could be done to improve group decision processes?

d. What 3 decision problems do you think should be investigated next by the BDR field?

**Class Session #14** (12/2) Wrap Up. This class will be used for a wrap session and to finish up any topics not covered. There are no readings for this class.
RECOMMENDED BOOKS

**Popular Books:** Below are some popular books that are based on behavioral decision research. These books are highly recommended. The past few years has seen a rapid growth in best-selling books written for the general public that deal with behavioral decision research topics.


Lewis, M. (2004). *Moneyball: The art of winning an unfair game*. (Paperback version.) This is not a book on decision behavior research. However, it is a fun read on intuitive judgment versus statistical reasoning. I encourage you to watch the 2011 movie based on this book.

Benartzi, S., & Lewin, R. (2012). *Save More Tomorrow: Practical Behavioral Solutions to Improve 401 (k) Plans*. Portfolio/Penguin. This book applies BDR concepts to the important problem of helping people to save for their retirement. I helped in the writing of this book so I am not an unbiased evaluator but I do think it provides a good example of how the ideas presented in this class are now being used to try and improve people’s lives.


**Research and Text Books:**


Payne, J. W., Bettman, J. R., & Johnson, E. J. (1993). *The Adaptive Decision Maker*. Cambridge University Press. (This book is getting old but it provides a framework for understanding when, and how, people decide how to decide. Perhaps to be expected, much of the course will draw upon the concepts in this book.)