Thinking and Decision Making
Psych S2235 (3 points)
Summer 2016

Course Information
Term I: July 5- August 12
Tuesdays & Thursdays, 1:00 pm – 4:10 pm
Location: 614 Schermerhorn Hall

Instructor Information
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Description of the Summer 2016 Course
This course serves as an introduction to the psychology of judgment and decision making. It will cover several normative, prescriptive, and descriptive theories of judgment and choice; models of decision processes and the effects of context, experience, memory, and information on decision making; biases and heuristics; and real-world applications of these topics.

Prerequisites
Science of Psychology (1001) or Mind, Brain, & Behavior (1010), or equivalent intro psych course. Students who have not taken one of these courses will need instructor permission to register.

Motivating Questions
1. How do we make decisions: what are the processes through which we weigh options and make choices, and how might these differ from the “ideal” or “typical” processes suggested by decision theories? When are the “ideal” decision processes not so ideal after all?
2. How can we distinguish between cases where people have true preferences, vs. choices for which their revealed preference depends on the context of the decision, their ability to remember past experiences at the time of decision, and even the way the various options are presented to them?
3. How might we make “better” decisions—and how do we even define a “good decision?” Is it one in which we used a sound decision process, or one that led to a good outcome, or both—or maybe neither?
4. How could an understanding of decision science be applied to real-world situations from marketing and healthcare to public policy and disaster preparedness?

Course Overview
All of us make hundreds of decisions every day. Many are simple and almost automatic: how many times to snooze our alarm, what to eat for breakfast, whether to cross the street or not on a blinking “don’t-walk” sign. Other decisions, like whether to carry an umbrella on a cloudy day or to put off an assignment in favor of going out for a drink with friends, require a bit more conscious weighing of information. Still others require complicated calculations or deliberation: where to travel for spring break, which college or grad school to attend, whether to jump into a new romantic relationship.

Each of these decisions invokes a set of related cognitive processes, and researchers from several fields (psychology, economics, and neuroscience, among others) study these processes. This course will examine the ways we judge situations and decision options, and how we go about making choices. We will consider many different sources of evidence, from behavioral observation to cognitive models to the firings of neurons in the brain.
We will discuss different decision modes and decision strategies. We'll consider normative decision models (ones that identify the “best” decision to make), prescriptive decision models (those that indicate what people ought to do), and descriptive decision models (those that illustrate the ways that people actually do make decisions). We'll discuss the difference between studying questions like: “why don’t people follow the normative or prescriptive model?” vs. “why do people follow the descriptive models that they do?” The first approach tends to identify what we call cognitive biases, fallacies, or paradoxes, while the second question more often leads to development of decision heuristics—we’ll talk in depth about many of these heuristics, biases, fallacies, and paradoxes.

We will connect all of these topics by considering their real-world applications. Many different fields require their practitioners to have an in-depth understanding of decision and judgment theory—notably marketing and advertising, which deploy psychology and behavioral economics findings to maximize earnings. Other fields are beginning to realize the benefits of incorporating decision theory into their efforts—the health and disaster preparedness professions, for example, are right now actively working to better understand the ways that people judge and use health or hazard information. These efforts often draw on the concept of “decision architecture,” or the way that the format of the options can be altered to influence and (perhaps) improve people’s decision processes.

Course Organization

Class

Class meetings. Each three-hour course meeting will consist mostly of lecture, plus demonstrations of decision phenomena and in-class exercises. Questions and discussion are encouraged. We will take a break midway through each session.

Schedule. This class will meet twice a week, on Tuesdays and Thursdays.

Reading Responses

Since the summer semester goes by so quickly, it's important not to fall behind. To help you keep current with our topics, you will be asked to submit two responses to CourseWorks about each day’s readings before each class meeting.

Your responses can be either questions about the readings, or observations of one of the reading topics at work in your life. You can post two questions, or two observations, or one of each, and they don’t need to be long or very in-depth.

Questions. When you post a question, try to be specific about what it is you’re asking. For example, “I don’t understand Prospect Theory” is a very vague question—it’s one you could ask without engaging with the material at all, and it doesn’t help us pinpoint how we can help you understand the topic better. A better question might be, “How did they figure out the Prospect Theory prediction that people are risk-averse in the gain domain, but risk-seeking in losses?” or “What does the slope of the Prospect Theory value function have to do with the way people actually act when making choices?” That said, your questions don’t need to be long or complex! Anything you genuinely want to know the answer to is fine.

Observations. An observation can be any connection you see between your own life and the topics in the readings. It could be an example of a time you used a specific heuristic or fell prey to a particular cognitive bias, or it could be about another person who seem to have acted in a way that might have been caused by the cognitive effects we’re reading about. For example, when we read about perceptions of probability, you might notice that your friend seemed to be exhibiting optimism bias when she chose not to carry an umbrella on a day with a 10% chance of rain, even though she’s the kind of person who likes to buy lottery tickets.

Your two reading responses will be due by Noon the day before each class, posted to that day’s CourseWorks message board. This will give us time to make sure that we address your questions in that day’s lecture. Reading responses are required for 10 of our 12 class meetings (you don’t have to post responses for the first day of class or for the day of the final).
In-Class Problem Sets
During the last 15-20 minutes of each class meeting.

Midterm Quizzes
Instead of one in-class midterm, this course will have five take-home midterm quizzes, one at the end of every week. These quizzes will be open-book, and will consist of short-answer and short-essay questions about the topics from the previous two lectures. They will cover concepts we discussed in class, and topics from the required readings (even if we didn’t directly discuss them in class). There will be one quiz for each of the first five weeks of class, to be submitted by 5:00pm on Friday as a PDF or Word file via the CourseWorks assignments widget. They will be designed to take about 30-60 minutes, assuming you have done the reading and paid attention in class.

The purpose of having lots of small quizzes, instead of one big midterm, is to help you keep up with the quick pace of the class, and to make sure you understand each week’s material before we build on it in the following week. Completing these weekly quizzes will also help you identify areas you will need to study more before the final, and allow you to get used to types of exam questions we write, and how we grade them.

Note: while you are free to use your readings, notes, and the internet for these midterms, you must turn in responses that are your own work. The questions will be designed to make you think and to connect concepts, so if your answers are essentially cut-and-pasted text from your book or an internet source, you likely won’t get full credit. You may not work with other students on the quizzes.

Exam
There will be one final exam, which will cover the material from the whole course. It will consist of multiple-choice and short-answer questions. The short-answer questions will be similar to the types of questions you answered throughout the semester on your quizzes—and the grading will be similar as what you’ve seen for those quizzes—but the final will be closed-book and written during class.

Grading
Your grade will be calculated as follows:

Reading responses: 10 points (10 total, 1 point each)
In-class problem sets: 30 points (11 total, of which your top 10 scores will count for 3pts each)
Midterm quizzes: 30 points (5 open-book quizzes, 6 points each)
Final: 30 points
Total: 100 points

Class Policies

Absences and Make-up Work. You are expected to attend every class meeting, and to participate in class discussions. Excused absences (with a note from your doctor or advising dean) won’t count against your grade as long as you turn in your reading responses and in-class problem set for the class you missed before the following class meeting. For unexcused absences, you can receive up to 2 points (out of 3) on the in-class problem set that you missed by turning it in before the following class meeting. If you have an unexcused absence, you will still need to submit your reading responses by the normal deadline in order to receive credit.

Of course, unexpected illnesses or emergencies can always come up, so we allow every student one free unexcused absence. This free pass doesn’t get you out of doing your reading responses or in-class problem set, but it will allow you get full credit on both if you submit them by the following class meeting.

Late assignments. Late reading responses will not be accepted for credit, although you are of course still encouraged to ask questions at any time, if there’s a concept you’d like more help on. Late quizzes
will lose 1 point if turned in after 5:00 pm but before 11:59 pm on their due date, and one point for each additional day late. Quizzes will not be accepted after one week following their due date.

Our **final exam** is scheduled for August 11th, 1:00 pm – 4:10 pm. If you have a conflict with that time, you should not take this class. Early exams will not be offered; **make-up exams** will only be allowed for students who have a note from their doctor or dean, and must take place by Friday, August 12th.

**Class Conduct.** Cell phone use is not allowed. Laptops are fine for taking notes, but please respect your classmates and instructor by limiting yourself to class-related activities. Though you may have a preternatural ability to multi-task, using a laptop for purposes other than taking notes can be distracting to those around you.

**Academic Integrity.** Academic honesty includes presenting only your own work in exams and assignments, and correctly attributing others’ ideas where appropriate. Taking credit for work that is not your own is a serious violation within the academic community, and anyone found to be cheating or plagiarizing in this class will be reported to the university. Detailed definitions and examples of academic dishonesty (and a rundown of the consequences) are available in Columbia’s Guide to Academic Integrity (http://www.college.columbia.edu/academics/integrity). It might not be the most riveting bit of text, but you’re expected to follow it, so you should probably know what it says.

We assume you’re all here because you’re interested in the course topics and enthusiastic to learn as much as you can. But we know that in real life, stuff happens. We always prefer to deal with any issues before they get so bad that they become overwhelming, or so bad that a student feels that depending on someone else’s work is his or her best (or only) option. So please do come to us if you’re feeling stressed out about the class workload or if there’s a concept you’re just not getting based on how the readings and lectures explained it. If you have an issue that you’d rather not talk about with either of us, you could speak with your academic advisor or dean; with Lois Putnam, the Psychology Department’s Director of Undergraduate Studies (putnam@psych.columbia.edu); or with the counselors at Columbia’s CPS (http://health.columbia.edu/services/cps).

**Students with Disabilities.** Students with special needs who may require classroom and/or test accommodations should make an appointment to see us as soon as possible, at least by the end of the first week of class. If you have not already done so, stop by the Office of Disability Services (ODS) on the 7th floor of Lerner Hall to register for support services. Students who are eligible for extra exam time will need to fill out paperwork with ODS—please also let us know via email so we can make sure we’ll be ready to accommodate you. ODS often requires two weeks to process an application, so please contact them as soon as you can, preferably before the course begins.

**Readings**
We have tried to keep the readings mostly short, since the pace of the course is so fast, but that means it’s even more important that you finish all of the reading before each class meeting. All of the chapters in our textbook are short (~10-15 pages), and often only parts of a chapter will be assigned. The readings listed here are a tentative guide—please keep an eye on our CourseWorks syllabus section for the most up to date reading lists, as well as reading notes and guidelines.

**Textbook:**
There is one required textbook from this class. It is available at Book Culture on Broadway, but I recommend ordering it from Amazon, where it’s much cheaper and where used copies are currently selling for only about $30.

Other required reading:
The assigned chapters from Baron (2000) will be made available through Courseworks, so you will only need to buy this book if you’re interested in expanding upon what we learn in class.


These additional readings (see the calendar, below) will be posted to Courseworks as well.
- Klein, G. (1999). *Sources of power: How people make decisions*. Cambridge MA, MIT Press. (Ch. 2: Learning from the firefighters, Ch. 3: The recognition-primed decision model, & Ch. 4: The power of intuition)

Suggested reading:
*Note: This is an older book, but it is a great resource for basic explanations of our course topics. If you’re having trouble with the way Hardman discusses a topic, I recommend seeing how Plous explains it, and then going back to Hardman for a more up-to-date perspective on it. We’ve indicated in italics below which Plous chapters are most relevant to each day’s topics.*


**Tentative Calendar of Topics & Readings**

<table>
<thead>
<tr>
<th>Class</th>
<th>Date</th>
<th>Topics</th>
<th>Tentative reading assignments (supplemental readings in italics)</th>
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<tbody>
<tr>
<td>WEEK 1:</td>
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<tr>
<td>1</td>
<td></td>
<td>Introduction and overview of choice &amp; judgment</td>
<td>• Hardman, Chapter 1 (Plous, Chapters 1-4)</td>
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| 2     |      | Normative theories of choice & judgment (prospect theory & utility theory) | • Hardman, Ch. 3 (pp. 26-29)  
• Hardman, Ch. 7 (pp. 65-69)  
• Baron, Ch 10 (pp. 233-255) (Plous, Chapters 7-8 & 12) |
| WEEK 2: |      |        |                                                               |
| 3     |      | Descriptive theories of judgment | • Hardman, Ch 3 (pp. 19-25)  
• Hardman, Ch 4  
• Hardman, Ch 6  
• Hardman, Ch 9 (Plous, Ch 10, 11, 14, 15, 19) |
|   | Descriptive theories of choice | • Hardman, Ch 7 (pp. 69-75)  
  • Hardman, Ch 8  
  *(Plous, Chapters 5-6 & 9)  
  (Iyengar & Lepper, 2000)* |
|---|---|---|
| **WEEK 3:** | **5** | Judgment of risk & probability, and decisions under uncertainty  
  • Hardman, Ch 7 (review)  
  • Hardman, Ch 12  
  *(Plous, Chapters 1-4, 8, 12)* |
|   | **6** | Time & distance  
  Decision architecture  
  • Hardman, Ch 10  
  • Baron, Ch 19 (pp. 471-496) |
| **WEEK 4:** | **7** | Emotion  
  Individual differences  
  • Hardman, Ch 12 (review)  
  • Lerner et al., 2004  
  • Wilson & Gilbert, 2005 |
|   | **8** | Decision modes  
  Process models  
  • Hardman, Ch 7 (pp. 75-6)  
  • Hardman, Ch 6 (p. 61)  
  • Klein, Ch 2-4 (pp. 7-44) |
| **WEEK 5:** | **9** | Decision making by groups & by individuals within groups  
  • Hardman, Ch 13  
  • Baron, Ch 18 (p. 441-469)  
  *(Plous, Chapters 16 & 17)* |
|   | **10** | Social dilemmas  
  Decision making in the brain  
  • Hardman, Ch 14  
  • Hardman, Ch 15 (pp.180-86) |
| **WEEK 6:** | **11** | Real-world applications: environmental, financial, & health-related decision making  
  • Hardman, Ch 11  
  • CRED Guide (p. 1-43) |
|   | **12** | Final Exam |