Experimental Psychology: Thinking and Decision Making
PSYC UN1490
Preliminary Syllabus for Fall 2017

Course Information

Points: 4
Students must register for both UN1490 and one of the lab sections of UN1491.

Lecture time: Monday 2:10-4pm
Lecture location: 200b Schermerhorn

Lab 1: Monday 4:10-6pm (200b Schermerhorn)
Lab 2: Monday 4:10-6pm (200c Schermerhorn)

Instructor Information

Katherine Fox-Glassman
Office: 314 Schermerhorn
Office Hours: Thursdays, 1:30-3:30pm
email: kjt2111@columbia.edu

TA Information

Please check our CourseWorks homepage for the most updated list of TA contact info and office hours.

Grad TAs:
Maneeza Dawood (md2811@columbia.edu)
Office: 200D Schermerhorn
Office Hours: Wednesdays, 2-4pm

Hale Forster (haf2124@columbia.edu)
Office: 419 Schermerhorn
Office Hours: Tuesdays, 3-5pm

Bulletin Description

Introduces research methods employed in the study of the cognitive and social determinants of thinking and decision making. Students gain experience in the conduct of research, including: design of simple experiments; observation and preference elicitation techniques; the analysis of behavioral data, considerations of validity, reliability, and research ethics; and preparation of written and oral reports.

Note: Fee: $70. Attendance at the first class is essential.

Prerequisites

Science of Psychology (PSYC 1001) or Mind, Brain, & Behavior (PSYC 1010), or equivalent intro psych course, and an introductory statistics course (e.g., PSYC 1610, or STAT 1001, 1111, or 1211). Students who have not taken both of these prerequisites need instructor permission to register. Students are *not* required to have taken PSYC 2235 (Thinking & Decision Making), but as we will draw many examples from the field of judgment and decision making, you will find advantages to having taken either PSYC 2235 or another 2000-level psychology lecture course that introduces related topic areas (e.g., PSYC 2220 or PSYC 2640).

In semesters when space is limited, priority for enrollment will go first to Psychology majors, post-bac students in the Psychology Certificate program, and Neuroscience & Behavior majors.

Role in the Psychology Curriculum
This course is designed primarily to introduce students to experimental methods in psychology, and as such fulfills the following requirements:

- the Laboratory (Research Methods) requirement of the Psychology major, and of the Psychology Post-Bac certificate program;
- the P3 (Research Methods / Statistics) requirement of the Neuroscience & Behavior major.

As a research methods course focused on topics in cognition, thinking, and decision making, this course can also count toward the Group I (Perception & Cognition) requirement of the Psychology major and concentration. It cannot be double-counted toward both the Laboratory (Research Methods) requirement and the Group I requirement, however, and priority will be given to students taking it to fulfill their Laboratory (Research Methods) requirement.

Motivating Questions

1. How do we design, carry out, analyze, and communicate the results of research in the field of cognitive psychology?
2. What makes a psychology study good—how can we measure the reliability and validity of the methods used and results obtained, and how can we judge the usefulness of those results?
3. What are the common tradeoffs researchers face when trying to conduct good research, and what measures can we take as scientists to conduct research responsibly, accurately, and ethically?
4. What are the differences among data, results, and inferences? Why do these distinctions matter?

Course Overview

In many science courses, it's easy to see how we've come to the knowledge we have about the field. We know a chemical reaction has occurred when the reagents change temperature, color, or state of matter; we can calculate the velocity of a particle by measuring the distance it traveled and the time that journey took. But in psychology, it isn't always obvious how we know the things we know—for example, why are we confident that cognitive dissonance exists, and that it can influence people's attitudes and behavior? How did Kahneman & Tversky come up with Prospect Theory, and why do so many people (including the Nobel Prize committee) accept that it's one of the best ways of describing people's preferences in risky choice? How can cognitive researchers justify telling climate scientists or emergency managers that one method for presenting scientific information to the public is more or less effective than another?

Research methods and experimental design are the backbone of the study of psychology, and are what classify it as a scientific discipline. This course is designed to introduce students to the basics of conducting research into questions of human behavior and judgment. This goal is shared by each of the Experimental Psychology courses at Columbia (PSYC 1420, 1450, 1455, and 1490): each of these courses covers the same general principles of hypothesis testing, methodology, experimental design, data analysis & interpretation, and theory building. The differences in these methods courses are the perspectives from which each approaches those same topics; in PSYC UN1490, our perspective is the cognitive topics of thinking, judgment, and decision making. As such, we will be taking most of our examples from classic studies in the fields of heuristics & biases, decisions under risk and uncertainty, intertemporal choice, social dilemmas, group decision making, decision architecture, and environmental decision making.

Course Organization

Lecture
Our weekly class meeting will consist of a mixture of lecture, discussion, and group work. Lectures are designed to clarify and add depth to the assigned readings, so please come to class each week having already completed the required readings for that day.

Laboratory
For the first half of the semester, laboratory sections will be a space to expand on topics from lecture, practice applying the concepts we discuss in class (e.g., reliability, validity) to specific research papers and studies, and to begin learning some basics of data analysis.

In the second half of the semester, the focus of lab will shift toward work on your own research projects: you will each propose a study that could be carried out within the constraints of our class (see Research Projects, below, for more details), and each lab section will choose 4-5 student-proposed studies to work on in small groups. With your group, you will finalize your hypotheses and methods, design your study instruments (e.g., surveys, online tasks, etc.), implement your study on real participants, analyze your data, and interpret your results. Much of this work will be done during lab meetings, with input and help from your TA, though you will likely also need to work with your group outside of lab time in some weeks.

The first couple of lab assignments, as well as the analysis of your group's study data, will require you to use R, the free, open-source statistical software package. Although R has a reputation for having a steep learning curve, don't be afraid of it—your lab assignments are designed to introduce you to R in an intuitive way, and the analyses you'll be doing for this class won't get very complex. Plus, your TAs will be there to help guide you. R is an incredibly powerful tool, and although it can be frustrating at times (no matter how experienced you are at data analysis!), it's very much worth the time it takes to learn to use it.

Course Requirements

Grading
I don't grade on a curve in this class, so your grade will be determined only by your own work, not by how well you do relative to the other students. There is no pre-determined proportion of students who will receive As, Bs, Cs, etc.—if every student does A-level work, then everyone will receive an A in the course. Your grade will be calculated out of a total of 1000 points, about half (480) from the laboratory component of the course, and about half (520) from the lecture component, as follows:

Lecture		
Class intro survey:	25 points	(due before class on Monday, Sept. 11)
Clicker participation:	45 points	(during every class)
Midterm exam:	175 points	(held in class Monday, Oct. 30)
Final exam:	200 points	(projected date: Monday, Dec. 18)
Group Presentation:	100 points	(presented in class/lab Monday, Dec. 11)
Laboratory		
Lab attendance	60 points	(5 points per lab meeting)
Lab assignments	120 points	(5 assignments due across the first 6 lab meetings)
Research Proposal:	100 points	(due in lab Oct. 23)
Final Research Paper:	150 points	(due Dec. 15th)
Total:	1000 points	

The cutoffs for each letter grade are as follows:

990* – 1000 points = A+
930 – 989.9 points = A
900 – 929.9 points = A-
870 – 899.9 points = B+
830 – 869.9 points = B
800 – 829.9 points = B-
770 – 799.9 points = C+
730 – 769.9 points = C
700 – 729.9 points = C-
600 – 699.9 points = D
0 – 599.9 points = F

*If no students score above 990 points, then the cutoff for the grade of A+ will be lowered.

Class intro survey. You will fill out a decision survey before class starts, and we'll use your (anonymous) responses on this survey as example datasets for both lecture and lab. To receive full points for the intro survey, you must complete it before the beginning of the first class (Monday, September 11, at noon).

Clicker participation. You will earn your lecture participation grade (45 points out of 1000 total) by responding with your i>clicker to questions during class. These questions will serve several purposes: (1) to give me real-time feedback on what concepts you're understanding and which topics we might want to spend a little more time on; (2) to help you engage with the material and encourage you to be active learners; (3) to help you gauge your own understanding as we go; and (4) to augment the results of the class intro survey with polls and questions that are better asked "live" than in an online survey.

To receive the maximum 45 points for clicker participation, you must respond to at least 90% of the questions posed during 9 of the 10 lectures for which we count participation. (We will use clickers during the first class meeting, but participation won't be counted for that day, so you may use it to test out your clicker and troubleshoot any technical issues.)

For every lecture for which you responded to at least 90% of clicker questions, you will receive 5 points; for lectures during which you responded to more than half of the clicker questions (but fewer than nine out of 10), you will receive 2 points. I will drop your lowest participation score when calculating your final participation grade.

> You may purchase an i>clicker at the Columbia Bookstore (the two different models that will work for our class are both listed there for our course), or online; or you may use the same clicker you used for past classes. The two models to look for are the 2nd Edition i>clicker (ISBN 9780716779391) and the i<clicker+ (ISBN 9781464120152).
>
> A handout with instructions on how to register your i>clicker is available for download on CourseWorks.

Note: while you will earn participation points for each class by responding to clicker questions, it is possible to lose those participation points for a particular class period if you are disrupting class or distracting those around you (e.g., by having conversations with your friends during class time). The vast majority of students come to class prepared to participate and learn, so it is very rare for students to lose points in this way, but unfortunately it occasionally does happen. You've been warned!

Lab assignments. Your lab assignments will range in format, but will each be designed with the same aim: to allow you to practice, combine, and question the concepts you've learned about in lecture and lab. There will be 5 assignments, worth a total of 120 points:

- R Assignment I (15 points)
- R Assignment II (20 points)
- Class Data Analysis Project (30 points)
- Literature Search Writeup (25 points)
- Research Proposal First Draft (30 points)

Research proposal. Midway through the semester, you will submit a research proposal to your lab section. This assignment will consist of two components: (1) a formal written proposal of an experiment you think would be interesting (and feasible!) to carry out within the context of this class, and (2) a short oral presentation designed to explain your research question, proposed methods, and expected results. In the written proposal, worth 75 points, you'll have the chance to demonstrate to your TA how much you've absorbed about asking a good research question, laying out sound experimental logic, and designing a valid and reliable study. The purpose of the oral presentation (25 points) is to convince your lab-mates that your idea is worth carrying out in reality—after these presentations, you'll all rank the proposals you'd most like to work on, and your TAs will use these rankings to create the groups that you'll be working in for the rest of the semester.

Group presentation. We'll finish off the semester with a research fair: each group will have 8-12 minutes to present their study to the rest of the class. These presentations will start during our regular class meeting time on the final day of classes (Dec. 11), and finish up during the usual lab meeting time. Your grade for the presentation will total 100 points, which will be based both on the content and quality of your group's PowerPoint slides, and on your individual success at communicating your portion of the presentation. You won't, however, be graded on whether or not your group's experiment "succeeded" in finding an effect.

Final research paper. At the end of the semester, you'll submit a paper that summarizes your group's research. Using APA format, your paper will cover the background literature, motivating question, hypotheses and experimental logic, methodology, results, and inferences that you used/made in your group project. **The final paper is due on Friday, December 15,** and is worth 150 points.

Although the original idea for the project may not have been yours alone, and although you will likely have worked very closely with your fellow group members on elements of study design, analysis, and interpretation, **your final paper must represent your own original work, and only your work**. This means that you will need to be extremely careful about using your own words when writing up your study's results, attributing ideas to their appropriate source, and coming to original conclusions about your group's study results. We'll discuss methods for identifying and avoiding plagiarism in a lot more detail in both class and lab, but please also take the time now to carefully read the section in this syllabus about Academic Integrity, below.

Exams. We will have one in-class midterm and one final exam, which will consist primarily of short-answer questions. The final will cover the material from the whole course, with a greater emphasis on topics covered after the midterm. The dates for the two exams are:

Midterm: Monday, October 30
Final: Monday, Dec. 18 (projected exam date for 2017)

If you know that you will have a conflict with the final exam date, you should not take this class. Although it is subject to change up until the Registrar confirms final exam dates midway through the semester, the ultimate exam date is almost always the same as the projected one. Please take this date into consideration when making travel plans for the end of the semester, since Columbia University only allows final exams to be taken outside of the scheduled slot in extreme circumstances such as a medical or family emergency. If you are a student athlete and anticipate that you might be

traveling during one or both of the exam dates, please come talk to me *before the end of the second week of class* to make plans for you to take your midterm on the road.

For students whose grades improve from the midterm to the final, I will change the relative weighting of the two exams such that the midterm is worth 150 points and the final is worth 225 points.

Extra Credit. You may earn up to 10 points of extra credit in this class (which will add up to 1% to your grade) by submitting thoughtful review questions in advance of each of our lectures after Week 1. You can earn 1 point per week during Lectures 2-11 by submitting one good question, based on the textbook chapter(s) assigned for that class, up to 24 hours before the class meeting in question (i.e., before 2:10pm on the Sunday before that class). Awarding of points (or no points) for each question is at the instructor's discretion, and questions submitted late are not eligible for points. Really good questions may be used in lecture to help check whether everyone has understood the readings—the default is that they'll be reproduced anonymously, but if you want to claim credit, just let me know!

Class Policies

Lecture

Lecture attendance. Attending lectures and actively participating is a fundamental element of this course. Lectures will go into more depth on topics covered in the readings, and cover some material that is not included in the readings. We will break frequently for discussions, group exercises, and other activities. If you miss a class, make sure you go over the lecture slides, and come to office hours to ask questions about any topics you think you may need help catching up on.

You cannot make up clicker participation credit for classes you missed, even if those absences are excused. I also cannot give individual students credit for participation for days when they forget their i>clicker, or when their i>clicker ran out of batteries or was malfunctioning. It's your responsibility to make sure that you bring your clicker to class and confirm that your votes are being recorded (we'll use our first class meeting, during which clicker participation doesn't officially count, for everyone to test their clicker). Since there will be 10 lectures for which we do count participation, but only 9 of those will count toward your final grade, that leaves one "freebie"—use it wisely!

Lecture notes. We will post slides after each class, so you do not need to copy down everything that's written on each slide. The slides are numbered, to help you keep track of which slide your class notes refer to.

Class Conduct. Please turn your cell phone ringer off during class, and keep it safely stowed in your pocket or bag. Laptops are fine for taking notes, but please respect your classmates and instructor by limiting yourself to class-related activities. Using a laptop for purposes other than taking notes is disruptive to those around you. If you anticipate using your laptop for non-course-related activities, please sit in the back of the classroom to avoid distracting your classmates.

Laboratory

Lab attendance. Lab meetings are active and interactive, and to get the most out of this course you need to attend and participate in all of them. You will receive 5 points toward your lab participation grade for each of the 12 lab meetings that you attend and actively participate in. Up to 10 points of lab attendance can be made up by bringing a friend or friends with you to the Data Collection Event: you'll receive 5 points per friend who attends and completes the surveys.

Late assignments. Assignments are generally due at the beginning of lab meetings, in hardcopy. Late assignments will receive a 10% penalty per day (24 hours) past their deadline. Extensions may be

accepted with a dean's or doctor's note, but must be requested in advance of the assignment's due date and cleared with the instructor.

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. Using another student's clicker on their behalf, or asking another student to use your clicker for you, is also considered a breach of academic honesty. 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 will be held to it, so you should read it carefully.

Academic honesty is important to every course, but is perhaps even more so for a course like ours, which involves major writing assignments based on group work, and which will touch directly (though briefly) on the topics of honesty in conducting and presenting research. **Your final paper for this course should represent entirely your own work, even though it summarizes a project that depends heavily on the contributions of a group of your peers.** It can sometimes be challenging to ensure that you're presenting your own unique work in your final paper when you've been consulting closely with a group throughout the rest of your project—if you're having trouble with this at any point, please reach out to your TAs for help. It's a common problem, both in this course and in the greater field of research, and this course is a good opportunity to learn good habits in research ethics, attribution, and communicating shared ideas.

Your TAs and I 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 one of us, you could speak with your academic advisor or dean; with a Psychology Program Advisor (DUS); 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 me as soon as possible. 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 me know via email so we can make sure we'll be ready to accommodate you. ODS often requires a few weeks to process an application, so please contact them as soon as you can. The procedures for registering with ODS can be found at http://health.columbia.edu/services/ods or by calling (212) 854-2388 (Voice/TTY).

Readings
The readings listed here are a tentative guide—after the semester begins, please **keep an eye on our CourseWorks syllabus section for the most up to date reading lists**.

Textbook:

There is one required textbook for this class. Unless otherwise indicated, each chapter listed in the reading assignments below refers to this text. **Most chapters are 30-35 pages long, but a few are longer—these longer chapters are flagged in the reading assignments below.** Plan on allowing yourself plenty of time to spend on each reading, because even the shorter chapters include a lot of information and many new concepts and definitions of terms. You'll benefit most from each lecture if you've allowed yourself time to work through each reading at a comfortable pace before we expand on these topics in class.

- Passer, M. W. (2017). *Research Methods: Concepts and Connections, 2nd ed.* New York: MacMillan. ISBN: 978-1-4641-0600-2.

Other required reading:

The other required reading for this class will consist mostly of empirical papers (published writeups of psychology studies), from which we'll be drawing the examples we use in class to discuss various aspects of study design, validity, reliability, etc. Detailed citations are listed for each after the table of topics and readings, and the papers will all be made available on CourseWorks as PDFs.

I recommend reading briefly through each of the assigned empirical articles before class, using the strategies we'll be discussing in our first lecture and lab meeting. Then, you'll benefit from going back to each paper to read it more carefully in light of what we've discussed in that week's class. Exam questions for this class can draw from these readings in two ways: some questions will be directly about the studies described in these papers, and other questions will ask you to provide examples for class concepts (e.g. specific types of experimental design), which these studies will provide.

Supplemental reading:

In class, we'll discuss some examples that come from studies that aren't required reading, but which you may be curious to learn more about. For each class, those relevant papers will be listed as supplemental reading—these studies are always optional, and will not be tested on (except to the extent that they were discussed in class).

Tentative List of Topics & Readings

Week/Date	*Topics*	*Tentative reading assignments (supplemental readings in italics)*
Week 1 Monday, Sept. 11	**Lecture:** Introduction to the Course & to Experimental Methods • the goals of research in cognitive psychology • psychology is science: the scientific method **Lab:** Introduction to lab; exercise on asking good questions; introduction to R & review of our class dataset (from the Intro Survey) **Assignments:** R Assignment I (assigning variables, descriptive statistics) **Due:** Intro Survey (due at noon on Monday, Sept. 11)	• Chapter 1
Week 2 Monday, Sept. 18	**Lecture:** Hypothesis Testing • psychology is exploration: asking questions • theories vs. hypotheses • confirming vs. disconfirming evidence **Lab:** How to read a scientific paper; analyzing our class dataset **Assignments:** R Assignment II (correlations, t-tests) **Due:** R Assignment I (assigning variables, cleaning data)	• Chapter 2 • Festinger & Carlsmith, 1959 • Bem, 1974 (p. 2-21)
Week 3 Monday, Sept. 25	**Lecture:** Experimental Design • moving from hypothesis to experimental logic • pieces of a study: IVs, DVs, and how they're defined • types of experimental design: correlations, experiments, & validity **Lab:** Developing & testing hypotheses using our class dataset **Assignments:** Class Data Mini-Writeup (use your R analyses to write up a mini research paper on a question that can be answered using our class dataset) **Due:** R Assignment II (correlations, t-tests)	• Chapter 4 (Sections 4.1 and 4.2) • Chapter 8 • Zanna & Cooper, 1974 • Iyengar & Lepper, 2000

Week 4 Monday, Oct. 2	**Lecture:** Measurement • types of scales & measures • reliability, validity, & accuracy • sources of error • influence of the experiment(er): demand characteristics & the effects of observation **Lab:** How to find & evaluate primary sources (literature search); APA format **Assignments:** Literature search on a topic of interest to you **Due:** Class Data Project Writeup	• Chapter 4 (Sections 4.3 and 4.4) • Chapter 10 • Johnson, Häubl, & Keinan, 2007 • Boldero & Higgins, 2011
Week 5 Monday, Oct. 9	**Lecture:** Types of Experiments • surveys vs. experiments • between- vs. within-group comparisons • factorial designs, counterbalancing **Lab:** Going from literature review to motivating question to research methods **Assignments:** Research project proposal **Due:** Writeup of literature search	• Chapters 5 & 9 • Wilson & Gilbert, 2005 • Hardisty et al., 2013
Week 6 Monday, Oct. 16	**Lecture:** Samples, Participants, & Populations • sampling methods, validity of samples • attrition, motivations for participation, & randomness • bias, noise, and individual differences **Lab:** Going from research methods to projected results; how to create a good presentation; 60-second surprise slide presentation exercise **Assignments:** Final draft of research project proposal **Due:** Draft of written research project proposal	• Chapter 6 • Li, Johnson, & Zaval, 2011

Week 7 Monday, Oct. 23	**Lecture:** Studying the Real World • external & ecological validity, revisited • field studies & observational data • quasi-experiments & big data • case studies, small data, & "anecdata" **Lab:** Presentation of research project proposal **Assignments:** Submit at least one good question to the discussion board for the midterm review session. **Due:** Research project proposal (written, in hardcopy to your TA; oral, to be given in lab)	• Chapters 6 & 11 • Fischhoff et al., 1978 • Weber, Blais, & Betz, 2002 • Gneezy et al., 2012
Week 8 Monday, Oct. 30	**Midterm Exam** (in class, 2:10-4pm) **Lab:** Group work on research project (finalizing study questions, starting work on study design & instruments) **Assignments:** Meet with your group as necessary to prepare your study. Final study materials are due Friday, Nov. 10. **Due:** -	• no readings (but see midterm review sheet posted on CourseWorks to help guide your studying)

Fall Break Monday, Nov. 6	**No class or lab due to academic holiday** **Assignments:** Continue meeting with your group and/or TA as necessary finalize your study materials. **Due:** final study materials due to your TA (noon on Friday, November 10)	

Week 9 Monday, Nov. 13	**Lecture:** Interpreting Results I • main effects & interactions • power & types of error • confounds and "non-founds," noise vs. nuisance **Lab:** Data Collection Fair! (You'll be participating in the studies from the other lab group, along with any friends/roommates you can convince to come.) **Assignments:** Enter, code, & clean your study's data as necessary before next lab meeting. **Due:** -	• Statistics Modules: Modules 1-9 and 12-13, plus any others that are relevant to your group project's analysis (leave lots of time for this reading, even if you're already very comfortable with stats!) • Tversky & Kahnemann, 1991 • Hardisty, Johnson, & Weber, 2009 • Hau et al., 2008
Week 10 Monday, Nov. 20	**Lecture:** Interpreting Results II • interpreting multivariate designs • mediation & moderation • meta-analysis **Lab:** Analyze data, work on outline for group presentation **Assignments:** Finish analyzing your data before next lab meeting **Due:** Bring a cleaned dataset to lab, ready for analysis	• Chapter 10 (review) • Chernev et al., 2015
Week 11 Monday, Nov. 27	**Lecture:** Replicability & Research Ethics • results vs. inferences • the replicability crisis: sloppy science vs. fraud • how can we know what is real? **Lab:** Work with TA to interpret your study's results, work on group presentation **Assignments:** Research paper: final draft **Due:** Bring your fully analyzed group study results to lab	• Chapter 3 • Appendix B • Smaldino & McElreath, 2016 • Aschwanden, 2015 • Anderson et al., 2016

Week 12 Monday, Dec. 4	**Lecture:** Writing Up Research & Crafting a Presentation • science as storytelling • the science of communicating science • the peer review process **Lab:** Practicing presentations: feedback from your TA and peers **Assignments:** Polish your presentation for next week's research showcase! **Due:** Come to lab ready to present a near-final version of your group presentation to the rest of the lab section	• Appendix A
Week 13 Monday, Dec. 11	**Lecture:** Presentations of group projects! **Lab:** Presentations of group projects! **Assignments:** Finish research paper (due Friday, Dec. 15)	
Friday, Dec. 15	**Due:** Final draft of Research Paper (individual writeup of group project)	
Monday, Dec. 18	**Final Exam:** projected date for this course is Monday, Dec. 18	

Citations for Required Empirical Papers

The empirical papers listed in the reading assignments above will all be posted on CourseWorks, but you may find this list useful if you are interested in getting a head start on our readings before you've joined our CourseWorks site, or just to get a sense for how much reading to plan for each week.

Anderson, C. J., Bahník, Š., Barnett-Cowan, M., Bosco, F. A., Chandler, J., Chartier, C. R., ... & Della Penna, N. (2016). Response to comment on "estimating the reproducibility of psychological science". *Science*, *351*(6277), 1037-1037.

Aschwanden, C. (2015). Science Isn't Broken. https://fivethirtyeight.com/features/science-isnt-broken/

Boldero, J. M., & Higgins, E. T. (2011). Regulatory focus and political decision making: When people favor reform over the status quo. *Political Psychology*, *32*(3), 399-418.

Chernev, A., Böckenholt, U., & Goodman, J. (2015). Choice overload: A conceptual review and meta-analysis. *Journal of Consumer Psychology*, *25*(2), 333-358.

Fischhoff, B., Slovic, P., Lichtenstein, S., Read, S., & Combs, B. (1978). How safe is safe enough? A psychometric study of attitudes towards technological risks and benefits. *Policy sciences*, *9*(2), 127-152.

Gneezy, A., Gneezy, U., Riener, G., & Nelson, L. D. (2012). Pay-what-you-want, identity, and self-signaling in markets. *Proceedings of the National Academy of Sciences*, *109*(19), 7236-7240.

Hardisty, D. J., Johnson, E. J., & Weber, E. U. (2009). A dirty word or a dirty world? Attribute framing, political affiliation, and query theory. *Psychological Science, 21, 86-92.*.

Hardisty, D. J., Thompson, K. F., Krantz, D. H., & Weber, E.U. (2013). How to measure time preferences: An experimental comparison of three methods. *Judgment and Decision Making*, *8*(3), 236-249.

Hau, R., Pleskac, T. J., Kiefer, J., & Hertwig, R. (2008). The description–experience gap in risky choice: The role of sample size and experienced probabilities. *Journal of Behavioral Decision Making*, *21*(5), 493-518.

Iyengar, S. S., & Lepper, M. R. (2000). When choice is demotivating: Can one desire too much of a good thing?. *Journal of personality and social psychology*, *79*(6), 995-1006.

Johnson, E. J., Häubl, G., & Keinan, A. (2007). Aspects of endowment: a query theory of value construction. *Journal of experimental psychology: Learning, memory, and cognition*, *33*(3), 461-474.

Li, Y., Johnson, E. J., & Zaval, L. (2011). Local warming daily temperature change influences belief in global warming. *Psychological science*. Apr;22(4):454-9. doi: 10.1177/0956797611400913.

Smaldino, P. E., & McElreath, R. (2016). The natural selection of bad science. *Royal Society Open Science*, *3*(9), 160384, (41 pages).

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