<div align="center">

Experimental Psychology: Cognition & Decision Making
PSYC UN1490
Tentative Syllabus for Fall 2019

</div>

<u>Course Information</u>
Points: 4
Students must register for both UN1490 and one of the lab sections of UN1491.

Lecture time: Monday 4:10-6pm
Lecture location: 614 Schermerhorn

Lab Section 1: Monday 6:10-8pm (200b Schermerhorn)
Lab Section 2: Monday 6:10-8pm (200c Schermerhorn)
Lab Section 3: Tuesday 4:10-6pm (200b Schermerhorn)
Lab Section 4: Tuesday 4:10-6pm (200c Schermerhorn)
Lab Section 5: Monday 8:10-10pm (200b Schermerhorn)

We will finalize all lab-section assignments during the first week of the fall semester.

<u>Instructor Information</u>
Katherine Fox-Glassman
Office: 314 Schermerhorn
Fall Office Hours: see our Canvas homepage
email: kjt2111@columbia.edu

<u>TA Information</u>
This course has four graduate TAs: **Natalie Biderman**, **Paul Bloom**, **Hannah Tarder-Stoll**, and **Monica Thieu**. Our Canvas homepage will always have the most up-to-date list of TA contact info and office hours. You may stop by any TA's office hours for help—you're not limited to your section leader!

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
- PSYC 1001 (Science of Psychology) or PSYC 1010 (Mind, Brain, & Behavior), or equivalent intro psych course.*
- An introductory statistics course (e.g., PSYC 1610, or STAT 1001, 1111, or 1211).*
- 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., Developmental Psychology or Social Cognition).

*Students who have not taken both of these prerequisites need instructor permission to register.

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.

This course may no longer be used to fulfill the Group I requirement. It is now considered overlapping with the other Research Methods courses in the Psychology Department (e.g., 1420, 1450, 1455), so if you have taken one of those courses already, you should not take this course—you may not apply more than one course numbered in the 1400s toward the major or concentration.

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 do 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 between data and results, and between 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 was a groundbreaking way of describing people's preferences in situations involving 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 the reason we 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, memory, 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, but they do not duplicate the assigned reading material. 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.), collect data from real participants, and analyze and interpret the 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 two 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. R has a reputation for having a steep learning curve, but 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, roughly half each from the laboratory component of the course and from the lecture component, as follows:

<u>Lecture</u>

Class intro survey:	25 points	(due before class on Monday, Sept. 9)
Clicker participation:	45 points	(during every class)
Midterm exam:	175 points	(held in class Monday, Oct. 28)
Final exam:	200 points	(projected date: Monday, Dec. 16)
Group Presentation:	100 points	(presented in class/lab Monday, Dec. 9)

<u>Laboratory</u>

Lab attendance	60 points	(5 points per lab meeting)
Lab assignments	145 points	(5 assignments due across the first 6 lab meetings)
Research Proposal:	100 points	(due Friday, Oct. 25)
Final Research Paper:	150 points	(due Dec. 13)

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

*An A+ grade is a rare distinction indicating exceptional work. If no students score above 990 points, then the cutoff for the grade of A+ will be lowered at the instructor's discretion.

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 noon on Monday, September 9.

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**, which means you have one free absence. You also have a separate free pass for "forgot my clicker / dead batteries" situations where you are present but for some reason not able to submit clicker responses: to use this, you must check in with a TA at the beginning and end of class.

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).

We also have a limited supply of i>clickers available to loan out to students who are unable to buy one. Let your TA or the instructor know if you would like to borrow one for the semester.

A handout with instructions on how to register your i>clicker is available for download on Canvas.

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 145 points:
- R Assignment I (15 points)
- R Assignment II (20 points)
- Class Data Analysis Project (30 points)
- Literature Search Writeup (30 points)
- Research Proposal First Draft (50 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 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 8-10 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 (December 9), and finish up during the usual meeting time of the first lab sections. 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 13,** 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, both of which will consist primarily of short-answer questions. The final will cover the material from the whole course. The dates for the two exams are:

Midterm: Monday, October 28
Final: Monday, Dec. 16 (projected exam date for 2019)

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 see if there will be a possibility of making alternate testing plans.

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). More details will be discussed in our first class and posted on our Canvas site closer to the start of the fall semester.

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. 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! (You don't need to contact us to use this free absence: I will automatically drop your lowest score when I calculate your final grade.)

It's your responsibility to make sure that you bring your clicker to each class meeting and confirm that your votes are being recorded (at our first class meeting, during which clicker participation doesn't officially count, everyone will have the chance to test their clicker). However, accidents befall the best of us, so you also have a one-time "freebie" for a case when you are present in class but forgot your clicker, or if your clicker runs out of batteries or is malfunctioning. To use this option, check in with a TA before and after class.

Lecture notes. We will post slides after each class, so you do not need to copy down everything (or anything!) 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. Note, though, that your total lab attendance score cannot exceed 60 points.

Late assignments. Assignments are generally due at 4:10pm on Mondays for the Monday lab sections, and at 4:10pm on Tuesdays for the Tuesday sections. (You'll receive the instructions for each assignment in during the previous week's lab period.) 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** and will be reported to the Office of Student Conduct. 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 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

In order to receive disability-related academic accommodations for this course, students must first be registered with their school Disability Services (DS) office. Detailed information is available online for both the Columbia and Barnard registration processes.

For this course, Columbia students are **not** required to have testing forms or accommodation letters signed by faculty—you need only complete the Student section of the form and submit the form to DS, since they already have the Instructor info in their system. DS often requires a few weeks to process an application, so please contact them as soon as you can. Refer to your school's DS website for information regarding deadlines, disability documentation requirements, and drop-in hours (Columbia) or intake sessions (Barnard).

Readings

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

Textbook:

There is one required textbook for this class. A loose-leaf edition will be available at Book Culture on 112th St. It is also available directly from the publisher as an e-book and for rental; note that the Kindle edition available through Amazon appears to have issues with not showing all pages. There are also several copies on reserve in the Science Library in the Northwest Corner Building.

Unless otherwise indicated, each chapter listed in the reading assignments below refers to this text.

Looseleaf edition:

Passer, M. W. (2017). *Research Methods: Concepts and Connections - looseleaf, 2nd ed.* New York: MacMillan. ISBN: 978-1-31903-560-0.

Rental/e-book edition:

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

If you cannot find a copy of the second edition, **you should be okay getting the 1st edition** of the same book (ISBN 978-0716776819). But there are some differences between the editions—they're usually, though not always, minor, and they are summarized in a file available on our Canvas site.

Since we only meet once a week, **the readings for each class meeting will often be heavier than you may be used to for psychology lecture courses**. Most chapters are around 30-35 pages long, and **you'll be reading most of the textbook over the first half of the semester**. 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.

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. Each of these papers will be made available on Canvas as a PDF.

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 can 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. Those relevant papers are always cited on the slides that reference them, and many of them are available in the Files section of Canvas—but if you can't find one that you're interested in, just let us know. These supplemental articles are always optional, and will not be tested on (except to the extent that they were discussed in class).

Tentative List of Topics & Readings

The most current list of readings can always be found on Canvas.

Week/Date	Topics	Tentative reading assignments (supplemental readings in italics)
Week 1 Monday, Sept. 9	**Lecture 1:** Introduction to the Course & to Experimental Methods • the goals of research in cognitive psychology • psychology is science: the scientific method **Lab 1:** Introduction to lab; exercise on asking good questions; introduction to R & review of our class dataset (from the Intro Survey) **Assigned:** R Assignment 1 (assigning variables, descriptive statistics) **Due:** Intro Survey (due at noon on Monday, Sept. 9)	• Chapter 1 • this syllabus!

Week 2
 	
Monday,
Sept. 16
	Lecture 2: Hypothesis Testing
	
	• introduction of the QuALMRI structure
	• psychology as exploration: asking questions
	• psychology as science:
	   ○ theories vs. hypotheses
	   ○ confirming vs. disconfirming evidence
	
	Lab 2: How to read a scientific paper; analyzing our class dataset
	
	Assignments: R Assignment 2 (correlations, *t*-tests)
	
	Due: R Assignment 1 (assigning variables, cleaning data)
		• Chapter 2
		• Festinger & Carlsmith, 1959
		• Bem, 1974 (p. 2-21)

Week 3 Monday, Sept. 23	**Lecture 3:** Experimental Logic & Measurement • moving from hypothesis to experimental logic • pieces of a study: IVs, DVs, and how they're defined • measurement scales & reliability **Lab 3:** Developing & testing hypotheses using our class dataset **Assigned:** Assignment 3 - Class Data Project Writeup (use your R analyses to write a mini research paper using our class dataset) **Due:** R Assignment 2 (correlations, t-tests)	• Chapter 4 • Fazio, Zanna & Cooper, 1974 • Iyengar & Lepper, 2000
Week 4 Monday, September 30	**Lecture 4:** Validity & Sources of Error • test validity • survey research & correlational designs • sources of error **Lab 4:** How to find & evaluate primary sources (literature search); APA format **Assigned:** Literature search on a topic of interest to you **Due:** Assignment 3 - Class Data Project Writeup	• Chapter 5 • Chapter 10 • Chapter 7 (Section 7.3) • Lerner, Small, & Loewenstein, 2004
Week 5 Monday, Oct. 7	**Lecture 5:** Experimental Designs • experimental validity & control • factorial designs, counterbalancing • designing a study **Lab 5:** Going from literature review to motivating question to research methods **Assigned:** Assignment 5 - Draft of written research project proposal **Due:** Assignment 4 - Literature Search Writeup	• Chapter 8 • Chapter 9 • "The Lifespan of a Lie"

Week 6 Monday, Oct. 14	**Lecture 6:** Samples, Participants, & Populations • populations • sampling • participation • special populations **Lab 6:** Going from research methods to projected results; how to create a good presentation; 60-second surprise slide presentation exercise **Assigned:** Assignment 6 - Final draft of research project proposal **Due:** Assignment 5 - Draft of written research project proposal	• Chapter 3 • Chapter 7 (Sections 7.1-7.2 & 7.4) • Deci, 1971 • The Belmont Report
Week 7 Monday, Oct. 21	**Lecture 7:** Studying the Real World • field studies • observational studies & big data • case studies & "anecdata" **Lab 7:** Presentation of research project proposal **Assigned:** Submit at least one good question to the discussion board for the midterm review session. **Due:** Assignment 6 - Research project proposal (written, via Canvas; oral, to be presented in lab)	• Chapter 6 • Chapter 11 • Schultz, et al., 2018
Week 8 Monday, Oct. 28	**Midterm Exam** (in class, 4:10-6pm) **Lab 8:** Group work on research project (finalizing study questions, starting work on study design & instruments) **Assigned:** Meet with your group as necessary to prepare your study. Final study materials are due Friday, Nov. 8. **Due:** -	• no readings (but see midterm review sheet posted on Canvas to help guide your studying)

Fall Break Monday, Nov. 4	**No class or lab due to academic holiday** **Assigned:** 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 8)	• If you're not all that comfortable with stats, this week would be a good time to get a head start on readings for Week 9.

Week 9
 	
Monday,
Nov. 11
	Lecture 8: Interpreting Results I
	
	  • error & power
	  • confounds and "non-founds," noise vs. nuisance
	  • main effects & interactions
	
	Lab 9: 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.)
	
	Assigned: Enter, code, & clean your study's data as necessary before next lab meeting.
	
	Due: -
		• Statistics Modules: any topics that are relevant to your group project's analysis. You're most likely to find what you need in Modules 1-9 and/or 12-13. (Leave lots of time for this reading, even if you're already very comfortable with stats!)
		• Hertwig & Erev, 2009
		• Goodwin, et al., 1969
		• Gigerenzer, 2004

Week 10
 	
Monday,
Nov. 18
	Lecture 9: Interpreting Results II
	
	  • main effects & interactions, redux
	  • mediation & moderation
	  • meta-analysis
	  • media accounts of research
	
	Lab 10: Analyze data, work on outline for group presentation
	
	Assigned: Finish analyzing your data before next lab meeting
	
	Due: Bring a cleaned dataset to lab, ready for analysis
		• Smith & Vela, 2001 (skim)
		• Johnson, Häubl, & Keinan, 2007

Week 11
 	
Monday,
Nov. 25
	Lecture 10: Replicability & Research Ethics
	
	- doing research ethically
	  - fraudulent science
	  - sloppy science
	  - the replication crisis
	- treating your participants ethically
	
	Lab 11: Work with TA to interpret your study's results, work on group presentation
	
	Assigned: Assignment 7 - Final Group Presentation; Assignment 8 - Final Research Paper
	
	Due: Bring your fully analyzed group study results to lab
		- Open Science Collaboration, 2015
		- Anderson et al., 2016
		- Dominus, 2017
		- Aschwanden, 2015
		- Any 3 of the following 6 short blog posts from Data Colada:
		  - http://datacolada.org/3
		  - http://datacolada.org/4
		  - http://datacolada.org/7
		  - http://datacolada.org/11
		  - http://datacolada.org/12
		  - http://datacolada.org/13

Week 12 Monday, Dec. 2	**Lecture 11:** Communicating Your Results - writing about science ethically - writing about science effectively - the publication process **Lab 12:** Practicing presentations: feedback from your TA and peers **Assigned:** 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 - Irizarry, 2019 - Tufte, Chapter 1
Week 13 Monday, Dec. 9	**Lecture 12:** Presentations of group projects! **Lab 13:** Presentations of group projects! **Assigned:** - **Due:** Assignment 7 - Final Group Presentation	
Friday, Dec. 13	**Due:** Assignment 8 - Final Research Paper (individual writeup of group project)	
Monday, Dec. 16	**Final Exam:** projected date for this course is Monday, Dec. 16, 4:10pm	