Experimental Psychology: Human Behavior
W1420 – Spring 2019

Instructor Information:

Patricia Lindemann

Office:	358 Schermerhorn
Office hours:	Tues/Thurs 11-12, or by appointment
E-mail:	PGL2@columbia.edu
Lecture:	Mon: 4:10-6:00, 614 Schermerhorn

Lab Time	Lab Instructor
Lab Sec 1: Mon 6:10-8:00, 200B Sch	Zachary Bucknoff
Lab Sec 2: Mon 6:10-8:00, 200C Sch	Michelle VanTieghem
Lab Sec 3: Mon 8:10-10:00, 200B Sch	Basak Akdogan
Lab Sec 4: Tues 4:10-6:00, 200B Sch	Michelle VanTieghem

See Courseworks for Psyc 1421 for lab-related information specific to your own section.

Brief Course Description

An introduction to research methods employed in the study of human behavior in psychology with a focus on studies in the areas of cognition and perception. Students will gain experience in the design and conduct of research, including ethical issues, observation and measurement techniques, interpretation of data, and preparation of written and oral reports.

A previous course in statistics is required. Without some background in statistics, it would be very difficult to get the most out of this course. The basics of statistical methods necessary to understand the data analysis will be covered/reviewed in this course. We will be using R for statistical analysis.

Learning Objectives:

Research is a process and in this course you will learn about that process in a variety of ways. The foundational skills that you will develop in this course will be useful to you whether you are a beginning researcher yourself or are assessing the research of others. The goals of the course align with the psychology department's program goals for our students which are available on the psychology department web site.

By actively engaging in this course, you will be able to:

- understand and apply basic research methods and experimental design principles
- develop and carry out a research study
- identify appropriate statistical tools
- use R to for basic analyses and to create visual representations of data
- interpret and draw conclusions from basic analyses
- report research in both oral and written form
- critically evaluate research conducted by others

Course Structure

This course has a lecture component and a lab component. Both are required. Generally speaking, the lecture and lab components will be related so that the concepts introduced in lecture will be important for lab and reinforced by the lab experience.

Readings

For textbook reading, the emphasis will be on knowing how to use the critical vocabulary. This is more than simply memorizing definitions. The terms represent important concepts and we expect you to be able to apply those concepts. There is a vocabulary list on courseworks highlighting the essential terms. You can focus your attention on the parts of the text that are related to this vocabulary.

Textbook:

Passer, M.W., (2014 or 2017). *Research Methods: Concepts and Connection*. New York: Worth. (Note: page numbers listed are from the 2014 edition)

Note: Additional weekly readings will be listed (and posted) on the Courseworks class website.

Course Outline, Readings, and Assignments

Date	Lecture	Lab	Readings
PART 1 – BASIC FOUNDATIONS			
WEEK 1			
Jan 28	Theories and hypotheses From the broad to the specific: Focus on introductions Statistics: Introducing R	<u>Introduction</u> • Group decision making task <u>Project 1 – Mini-lab</u> • Introduction to R	• Chapter 1: Science and Psychology
WEEK 2			
Feb 4	Getting Specific Focus on methods and results. Example from Lab project Statistics: Descriptive Statistics, Correlations,	<u>Project 1 – Mini-lab</u> • Developing hypotheses • The variables in your data • Descriptive statistics • Correlations	• Statistics Modules - 1-5 and 12. Note that we will be returning to the intervening modules. This is to get your feet wet. • Chapter 5: Correlation and Correlational Research - (Basic Concepts pp. 134-141) • Appendix A: Communicating Research Results - pg A1 - A14. • Additional articles

Date	Lecture	Lab	Readings
WEEK 3			
Feb 11	From the specific to the broad: Focus on results and discussion Interpreting results: Confirmation and Disconfirmation Statistics: t-tests	<u>Project 1 - Mini lab</u> • Developing more hypotheses • T-tests vs. correlations • How to write up your lab report	• Statistics Modules 6-9 • Chapter 8: Single Factor Experimental Designs (Read The Logic of Experimentation and Manipulating Independent Variables, pp. 229-239, Skim Between-Subjects Designs and Within-Subjects Designs for the gist, pp. 239-258. We will return to these sections later.) • Appendix A: Communicating Research Results - pg A1 - A14. (review and use as a resource for paper writing) • see OWL online for final word on formatting guidelines!! • Additional articles
WEEK 4			
Feb 18	Is this a good study? Measurement and Validity Statistics: One Way ANOVA	*<u>Project 1 - Mini-lab</u> • Mini-lab report DUE <u>Project 2 – Full-lab</u> • Project Development	• Chapter 4: Defining and Measuring Variables • Chapter 10: Experimentation and Validity • Additional article(s)
WEEK 5			
Feb 25	Revisiting data and how to present it Factorial Designs Tables and Figures Statistics: 2X2 ANOVA	*<u>Project 1 – Mini-lab</u> • Lab reports will be returned this week. Revisions will be due next week date TBD. <u>Project 2 – Full-lab</u> • Data collection • Understanding 2X2 ANOVA • Presenting data (tables and figures)	• Statistics Modules: Review 1-9 and 12, Read 10-11, 13-16 • Chapter 9: Factorial Designs • Additional article(s)

WEEK 6			
Mar 4	**Midterm 1 – 1 hour** (covering everything up to this point **except** 2X2 ANOVA) ------------------ Statistics: ANOVA	Project 1 - Mini-lab • Final questions about revisions (due date TBD) Project 2 – Full-lab • 2X2 ANOVA Analysis • Lab report due in lab next week	

PART 2 – CREATING YOUR OWN STUDY			
WEEK 7			
Mar 11	Developing Research Ideas Statistics: Planning Statistics, Review – correlation, t-tests, ANOVA, mediators vs moderators	*Project 2 - Full-lab • Lab report due Project 3 - Proposals • Brainstorming • Literature Search • Strategies for a successful oral presentation	• Chapter 2: Conducting Psychological Research • Chapter 5: Correlation and Correlational Research - (Review pp. 133-141, Read pp. 141-163)
WEEK 8			
Mar 25	Creating good surveys	*Project 3 – Your proposal • (Brief) Oral Presentations	• Chapter 7: Survey Research • Chapter 8: Single-Factor Experimental Designs - (Review pp. 229-239, Read pp. 239-258)
WEEK 9			
April 1	Research Design: Case-Studies and Observational Research	*Project 3 – Your proposal • Written proposal DUE Project 4 – Group Project • Group formation • Project development • Materials development	• Chapter 6: Case-Studies and Observational Research
WEEK 10			
April 8	**Midterm 2 – 1 hour** (cumulative) ---------------------- Lecture: Quasi Experimental Design	Project 4 – Group Project • Pilot testing • Peer feedback on materials	• Chapter 11: Quasi Experimental Design

PART 3 – HOW ARE WE DOING AS RESEARCH PSCHOLOGISTS?			
WEEK 11			
April 15	Ethical Issues	Project 4 – Group Project • Additional pilot testing and feedback • Finalizing materials • Planning statistical tests • *submit final materials to your lab TA by Friday Apr 13	• Chapter 3: Conducting Ethical Research • Appendix B: APA Ethical Principles)
WEEK 12			
April 22	Data Collection Day!	Project 4 – Group Project • Organizing, Entering and Analyzing your data	
WEEK 13			
April 29	Replicability and Open Science	Project 4 – Group Project • Data Analysis	• TBA
WEEK 14			
May 6 4-8pm		Group Project Research Symposium Student Presentations (and baked goods) **Final lab reports DUE May 9**	
WEEK 15			
Mon, May 13 4:10-7pm		**Final Exam (cumulative)**	

Course Requirements

Each week, you will attend a two-hour lecture on Monday afternoon and a two-hour lab section later in the week. There will be participation components in both lecture and lab. Both will be factored into your final grade (see "Grading" below). If you will be absent from lecture or lab for a medical or personal emergency, please be sure to check in with us. We will excuse absences with your dean's support.

Lecture

In the lecture component of the course we will discuss the theory behind research methods. We will also review statistical concepts and consider how to apply them. We will engage in many in class activities to facilitate your learning of these concepts. Please do the reading before attending class. Some in class activities will involve submitting the work produced in class. These will be graded on a pass/fail basis and will be incorporated into your class participation grade.

<u>Lab – Hands on Research Experience</u>

In the lab component of the course you will be conducting several research projects from beginning to end. This will give you exposure to all aspects of the research experience including study design and development, data analysis and the presentation of your findings. Attendance for lab sections is mandatory. If you have unexcused absences, points will be taken off your participation grade. For the first lab project ONLY, it will be ok to attend a section that is not your regular section.

Lab participation will be assessed based on attendance, completion of statistical assignments, and quality of participation. Full attendance, completion of all statistical assignments and regular participation will earn a grade of 95. Exceptional participation can earn additional points. If you are unsure about what is expected in terms of lab participation or find it difficult to talk during class, please speak to your TA. We want to find ways to make it comfortable for everyone to contribute and have their questions addressed during lab.

We will be using R in lab for statistical analysis. R has several advantages. First, it is free to download, so you can use it at your convenience on your own computer. Second, it is very commonly used, so having basic knowledge of R is a useful skill. Third, in order to use it, you really have to understand what you are doing. This last is a double edged sword. On the positive end, as instructors, we know that if you are able to complete your assignments in R, you have a certain level of basic understanding. On the negative end, students who are confused can become overwhelmed with R. Also, students who have no programming experience may find using R to be a bit of a foreign experience – like learning a new language. In order to help you acclimate, we will be introducing you to basic concepts in lab. Slowly. We will also be very available to help you during office hours and by appointment to provide you with additional support. As you are learning, revisiting R in between classtimes will be very important for helping you retain the material from one week to the next. More on that in class.

<u>Lab Projects:</u>

There will be four lab projects:
- Mini-lab – "Mini" decision making lab project (analyzing results from an existing survey)
- Full-lab – "Full" perception lab project developed by your lab as a group
- Project Proposal – Your individual research proposal
- Group Project – A fully developed study by you and your group mates

You will be writing APA style reports for each lab project. For the final project, you will be fully immersed in the development, design, execution, analysis, and presentation of your unique research study. You will present your findings to the class in our final research symposium.

Grades

Grading is determined as follows:

<u>Exams (42% of final grade)</u>
Midterm 1	10%
Midterm 2	12%
Final (cumulative)	20%

<u>Lab and Class Participation (8% of final grade)</u>   8%

<u>Lab Projects (50% of final grade)</u>
Project 1 - Mini-lab	5%
Project 2 – Full-lab	10%
Project 3 – Your proposal (oral)	5%
Project 3 – Your proposal (written)	10%
Project 4 – Group project (oral)	5%
Project 4 – Group project (written)	15%

Academic Integrity

"The intellectual venture in which we are all engaged requires of faculty and students alike the highest level of personal and academic integrity. As members of an academic community, each one of us bears the responsibility to participate in scholarly discourse and research in a manner characterized by intellectual honesty and scholarly integrity. . . . In practical terms, this means that, as students, you must be responsible for the full citations of others' ideas in all of your research papers and projects; you must be scrupulously honest when taking your examinations; you must always submit your own work and not that of another student, scholar, or internet agent."
From the Faculty Statement on Academic Integrity -
https://www.college.columbia.edu/academics/integrity-statement

Cheating on assignments or exams and plagiarism are very serious violations within the academic community. You are expected to do your own work on all tests and assignments for this class. Neglecting to cite sources in a paper is considered plagiarism. Copying text from another student is considered plagiarism. So is writing a paper together, even if each of you put it in your own words. This can be confusing when it comes to labs you work on with a partner or group projects, so please check with me or your TA if you have any questions about what is or is not OK. Here are some basics:

OK:
- You can discuss ideas with others (your lab partner, your TA, your mom).
- You can work on statistical analyses with others especially your lab partner.
- You SHOULD please use the templates we give you for presenting statistical analyses. You CAN copy this language exactly without citations.
- Feel free to double check formatting rules with others. Remember the Purdue OWL website for APA formatting is the final word on formatting for this class.
- You can have a friend proofread or go to the writing center.

Remember - IF YOUR PAPER IS VERY SIMILAR TO YOUR LAB PARTNER'S, IT LOOKS LIKE PLAGIARISM. THE BEST WAY TO AVOID THIS IS TO AVOID PLANNING/WORKING ON YOUR PAPERS TOGETHER. If you don't plan the papers together, you won't use the same arguments, structure, or format, even if you are using the same data.

Some things that are NOT OK:
- Don't work together when you write your paper. Your arguments may end up so similar that it will constitute plagiarism.
- If you are working with a partner on a project, do not share an outline. There are many ways to present the same basic story. We expect yours to be your own.
- Don't copy figures or tables from someone else. Make your own.
- For group projects - Don't copy from the slides used for group presentations.
- For group projects - Don't copy text or specific arguments from the project proposal.
- And don't forget proper citations! ALWAYS cite other people's work. If in doubt, cite.

If you have any question about whether or not something is acceptable in your written work, please ask. As noted above, these rules can sometimes be confusing, especially when you are working with one or more partners in the lab section.

And finally, as part of this academic community you are expected to always act in accordance with the Columbia honor code. Any student found cheating or plagiarizing in this class will be reported to Columbia's Office of Judicial Affairs and Community Standards for evaluation and academic discipline. If you have questions about any aspect of academic integrity at Columbia, please refer to the following link: https://www.college.columbia.edu/academics/integrity and if you have specific questions about sanctions or the judicial process: see https://www.college.columbia.edu/academics/disciplinaryprocess

Students with Disabilities:

From the office of Disability Services:

> 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.
>
> Refer to the appropriate website for information regarding deadlines, disability documentation requirements, and ***drop-in hours***(Columbia)/***intake session*** (Barnard).

Once you are registered with DS:

> For this course, students are <u>not</u> required to have testing forms or accommodation letters signed by faculty. However, students must do the following:
> - The Instructor section of the form has already been completed and does not need to be signed by the professor.
> - The student must complete the Student section of the form and submit the form to Disability Services.
> - Master forms are available in the Disability Services office or online: ***https://health.columbia.edu/services/testing-accommodations***

Additional Resources for Students:

Columbia University Writing Center	https://www.college.columbia.edu/core/uwp/writing-center
Tutoring Service	https://www.cc-seas.columbia.edu/csa/tutoring
Health Services	https://health.columbia.edu/
Go Ask Alice! (answers to health questions)	https://goaskalice.columbia.edu/
Counseling and Psychological Services (CPS)	https://health.columbia.edu/content/counseling-and-psychological-services For appointments, call 212-854-2878. For after-hours assistance, call 212-854-9797 or contact Public Safety at 212-854- 5555.
Office of Disability Services	Columbia - https://health.columbia.edu/content/disability-services Barnard - https://barnard.edu/disabilityservices
Office of University Chaplain	http://ouc.columbia.edu/