Research Methods: Replicability Strikes Psychology

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-- Snip out stuff like contact info for TAs --

# Course goals:

*We’ve arranged a global civilization in which most crucial elements profoundly depend on science and technology. We have also arranged things so that almost no one understands science and technology.*

*--Carl Sagan*

The purpose of this course is to acquaint you with the methodological toolkit of psychological research. In a narrow sense, this will help you better understand and apply scientific principles when thinking about social psychological research. For example, many students take this course to learn about research methods in the hope of creating their own research in the future (e.g., graduate school). More broadly, however, this course is very important because it will give you a solid foundation to help you think critically about the world. How do we come to know what we know about the human mind? Which claims should we trust? Which should we treat more skeptically? How can we become more informed as consumers of social psychological research, and scientific information in general? In name, this is a course about research methods in social psychology. It is my hope that the course can also serve the broader goal of helping you all develop and strengthen the critical thinking skills that you will be able to apply to many areas of your life.

We will review basic concepts in psychology research methods and statistics and use this as a framework to evaluate psychological research in light of recent trends in psychological methodology. It is my goal that this course will allow you to critically evaluate media coverage of research, as well as tell which published scientific reports are likely to be robust and which prove more flimsy. For the key lab component of the study, you will be able to conduct a large replication study of a published piece of social psychological research.

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| Course Description: |
| An advanced course in research methods in social psychology. Emphasis will be placed on learning and applying experimental and nonexperimental methods to social psychological issues. In the laboratory component, students will expand their methodological and statistical skills while conducting our own independent replication effort of a published study. Lecture/ discussion, three hours per week; laboratory, two hours per week. Prerequisites: Declared major in Psychology, PSY 215, 216, and 314 |
| Student Learning Outcomes: |
| After completing this course, the student will be able to: |
| 1. Locate and describe primary research articles 2. Critically evaluate popular accounts of scientific research 3. Describe, apply, and integrate the principles of the scientific method 4. Design and execute social psychological research 5. Effectively communicate the results of social psychological research |
| Required Materials: |
| **Required Text:**  Chambers, C. (2017). *The 7 Deadly Sins of Psychology*: *A manifesto for reforming the culture of scientific practice.* Princeton University Press.  There may also be occasional required readings posted on Canvas. |
| Description of Course Activities and Assignments |
| This course contains both a lecture component and a lab component. During the lecture, you will learn about various aspects of social psychological research, as well as the ways that various biases can creep into the research process. Along the way, I’ll try to give you both a broad overview of the concepts of research methods, as well as a cutting-edge view of methods and debates occurring today.  The lab component of the course will encompass a number of separate activities. ***However, all of these activities are broadly directed towards a single, overriding lab project in which you will preregister, design, and run a large-scale replication project (using Mechanical Turk participants) of a published research article. Finally, you will write up the results of your project.***  In an effort to make the assessments in this class more reflective of the kinds of tasks that social psychological researchers actually need to do to be successful, this course will NOT follow a typical exam format. Researchers rarely, if ever, take exams. They are judged primarily on the strength of their ideas, and their effectiveness at communicating those ideas. As a result, the majority of the assignments in this course are communicative in nature. That is, they rely on writing and on other forms of presentation. There will not be a midterm exam. There will not be a final exam. To gauge understanding of lecture material, there will be a number of topically-focused (read: not cumulative) quizzes. In addition, there will be one short Critical Evaluation paper, two Lab Assignments, and a final paper. This course will have roughly the same amount of work as other courses. It just breaks that work up into small chunks, rather than relying on two or three giant assignments that require intense bursts of cramming and stress. |
| Course Assignments |
| The point breakdown for each assessment is as follows: |
| * 6 quizzes (worth 30% total. Only best 5 count) * 1 short Critical Evaluation paper (worth 10%) * Class participation (5%) * Discussion Questions (5%) * 1 Final Paper (worth 25%) * 2 Lab Assignments (worth 10% each) * Lab attendance/participation (5%) |
| Summary Description of Course Assignments This course contains both lecture-based assignments and lab-based assignments. Each accounts for 50% of your final grade.  Lecture Assignments |
| **Quizzes:** Instead of relying on two or three giant, stressful exams to assess your learning, this course will have six brief quizzes. Each quiz will take only ~15 minutes of time to complete, and each quiz will only focus on material covered since the previous quiz. The quizzes are NOT cumulative in nature. Instead, they will assess only what we have covered in class in the most recent week or two. In addition, only your top five scores will count towards your final grade. Every student gets to drop one quiz. This means that (unlike courses with a midterm and a final exam) one bad day cannot sink your boat. **Quizzes will account for 35% of your total grade.** The quizzes are individually brief, but **do not take them for granted**. In a normal class, you’d spend a lot of time studying for a midterm and a final. The six quizzes combined should take about as much preparation as you’d normally allot to a midterm and a final exam, just broken into six chunks rather than two.  **Critical Evaluation (CE) paper:** This course teaches you about social psychology research methods. Beyond this, however, this course aims to equip you to more critically consume scientific information. The **Critical Evaluation paper will account for 15% of your total grade.** For the Critical Evaluation paper, you will track down some popular press coverage of a psychological finding (via newspapers, web, etc). Then you will track down the initial research as published in a scholarly journal (via Google Scholar, UK libraries, etc). Finally, you will critique the press piece based on how accurately it portrays the original research.  **Discussion Questions:** Each week, you must submit 3 discussion questions by the end of the day on Tuesday. This is worth **5% of your grade** and will help facilitate Thursday’s discussions.  **Participation:** Most weeks, Thursdays will be devoted to class activities and discussion. Your participation is vital, and worth **5% of your grade**.  Lab Assignments  Throughout the lab, you will design, run, analyze, and communicate the results of an actual research project. During lab, you will work within teams to conduct high-fidelity replication studies of actual published research. Although designing and conducting the experiment is a team project, all assessments will be based on individual assignments. A key component of the research process is communicating your ideas to your peers in the scientific community. Lab assessments are designed with this in mind. Two **Lab Assignments** serve as building blocks on the way to the final paper, and combined account for **20% of your final grade.** For the first Lab Assignment, you will write up a preregistration document outlining your methods and planned analyses for your replication project. For the second Lab Assignment, you will present a draft of the Results of your replication study.  **Final Paper:** Research articles are the primary medium in which scientific findings are disseminated. Each student will prepare an APA format manuscript to report the results of their own research. Because the Final Paper is the most comprehensive and important assignment in the course, it will **be worth 30% of your final grade.** The paper will be due by midnight on Wednesday December 11. The Final paper will be an APA manuscript detailing your entire replication study.  **Attendance/Participation**: Attendance and participation in lab are vital. They will be worth **5% of your final grade.** |

--snip out a ton of boilerplate policy stuff --

# Tentative Lecture Schedule

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| Lecture Week | Dates | Topic | Assignments |
| 1 | 8-24 | Introduction to course | -- |
| 2 | 8-29  8-31 | Methods Review |  |
| 3 | 9-5  9-7 | Stats Review |  |
| 4 | 9-12  9-14 | Philosophy of Science | Quiz 1 |
| 5 | 9-19  9-21 | Scientific Method  2011 to today… |  |
| 6 | 9-26  9-28 | Bias  **Ch 1** | Quiz 2 |
| 7 | 10-3  10-5 | Flexibility  **Ch 2** |  |
| 8 | 10-10  10-12 | Unreliability  **Ch 3** | Quiz 3 |
| 9 | 10-17  10-19 | Hoarding  **Ch 4** |  |
| 10 | 10-24  10-26 | Corruptibility  **Ch 5** | Quiz 4 |
| 11 | 10-31  11-2 | Internment  **Ch 6** |  |
| 12 | 11-7  11-9 | Bean Counting  **Ch 7** | Quiz 5 |
| 13 | 11-14  11-16 | Generalizability  **Canvas: WEIRD people** |  |
| 14 | 11-21  11-23 | Thanksgiving |  |
| 15 | 11-28  11-30 | Redemption  **Ch 8** | Critical Evaluation paper |
| 16 | 12-5  12-7 | Design a science/  Integration | Quiz 6 |
| Finals Week | 12-13 |  | Final papers |

# Tentative Lab Schedule

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|  | Lab Week | Activity |
| 8-28 | 1 | Introduction to lab. Overview Introductions |
| 9-4 | 2 | holiday |
| 9-11 | 3 | Introduce Replication topics. Sort into groups. Discuss methods/review |
| 9-18 | 4 | Stats review. P-vals, t-tests, effect sizes. JASP demo |
| 9-25 | 5 | Introduction to JASP. Work through |
| 10-2 | 6 | Find and summarize materials and methods. Draft demo email asking for more info |
| 10-9 | 7 | Plan analyses |
| 10-16 | 8 | Work on preregistration draft |
| 10-23 | 9 **LA1 due** | Fun with p-hacking/ file drawers! |
| 10-30 | 10 | Collate feedback on LA1. Work on correcting in lab |
| 11-6 | 11 | Compare and contrast different publication models |
| 11-13 | 12 | Troubleshoot analyses & interpretation |
| 11-20 | 13 **LA2 due** | Go over final paper format in detail |
| 11-27 | 14 | Generalizability activities & results feedback. |
| 12-4 | 15 | Troubleshoot final papers. |
| 12-13 |  | Final papers due |