

PSYC 314L: Experimental Research Methods

Units: 4

Term—Day—Time: Fall 2018—Tues & Thurs—8:00–9:20 am

Lab Sections Day—Time:

(Section 52517R) Thurs—2:00–3:50 pm

(Section 52523R) Wed—10:00–11:50 am

Location: SGM 601

Lab Locations:

(Section 52517R) WPH B36

(Section 52523R) KOH 208

Instructor: Hok Chio (Mark) Lai

Office: SGM 621

Office Hours: Tues & Thurs 9:30–10:30 am

Email: hokchiol@usc.edu

(will respond to all emails within 48 hours)

Phone: (213) 740-0538

Teaching Assistant and Lab Instructor: Tianyi Zhu

Office: HNB 316

Office Hours: Wed & Thurs 12:30–1:30 pm

Email: zhu990@usc.edu

(will respond to all emails within 48 hours)

Blackboard Help: <http://studentblackboardhelp.usc.edu/>

Contact Info: blackboard@usc.edu, 213-740-5555

Course Description

You probably have learned a lot of fascinating findings from previous psychology courses, but how do we know those findings are true? Actually, the credibility of such findings is largely based on psychology being a science. Science requires specific methods that test, support, or disconfirm hypotheses to provide supporting or disconfirming evidence to a theory. The experimental method, in particular, is at the core of the scientific methods used by psychologists. Therefore, the course you are about to take is one of the most important courses in psychology. Although this course is not content-specific, the knowledge and content of the course can be applied to any specific course in psychology and neuroscience. In this course, you will learn about the philosophy of science, the different components of psychological research, different experimental designs, the writing of a research proposal adhering to the Publication Manual of the American Psychological Association, and data analysis of experimental data, through lectures, class discussions, and lab exercises.

Learning Objectives

After the successful completion of this course, students will be able to . . .

1. Describe the scientific foundation of psychological research and the importance of experimental methods in psychology;
2. Critically evaluate reports of psychological studies in both scientific papers and popular media;
3. Perform scholarly activities in the research process, including peer review, data analysis, revision, pre-registration, etc.;
4. Design a rigorous psychological experiments;
5. Communicate their research in the forms of academic research report and oral presentation.

Prerequisite(s): PSYC 100: Introduction to Psychology, PSYC 274: Statistics

Co-Requisite(s): None

Concurrent Enrollment: None

Recommended Preparation: Experience with statistical software (SPSS, R, etc.) and APA style

Course Notes

For class sessions, students are expected to finish the reading assignments before class and actively participate in class discussions and activities. There will be a weekly quiz due Tuesday mornings on Blackboard before class meetings. A typical class section may include lectures, video clips, small-group discussions/activities, exercises, and so forth. Lecture slides/notes will be posted on Blackboard before class meetings, but please note that the lecture slides only serve to guide class discussions and cannot replace the assigned readings.

For lab sessions, the goal is for you to acquire the knowledge, skills, and tools to finish the lab assignments. The lab instructor will give demonstrations and short lectures to build your skills, and you will spend the remaining times to work on the assignments.

Communication

I want you to feel comfortable asking questions and giving me feedback on the course. If you have questions or comments, please speak to me or Tianyi directly after class or during my posted office hours, or schedule an appointment with Tianyi. You can also email me (hokchiol@usc.edu) or Tianyi (zhu990@usc.edu). We will respond to all emails within 48 hours.

Technological Proficiency and Hardware/Software Required

Blackboard

This course requires the use of Blackboard for accessing lecture materials and additional readings, taking quizzes, and submitting assignments. Please make sure you have stable Internet speed when taking quizzes. The course site is [https://blackboard.usc.edu/\(20183_psync_314_52524\)](https://blackboard.usc.edu/(20183_psync_314_52524))

Statistical Software

You will need to use either SPSS, R, or JASP to complete some of the lab assignments.

Other Software

Microsoft Word, PDF reading program, etc.

Required Readings and Supplementary Materials

Goodwin, K. A., & Goodwin, C. J. (2016). *Research in Psychology: Methods and Design* (8th ed.). Hoboken, NJ: Wiley.

Other required and supplemental readings will be provided weekly on Blackboard.

Description and Assessment of Assignments

Weekly Quizzes (10%) [For learning objectives #1, #4]

To ensure you complete the reading assignments before each week's class meetings, starting from week 2, every week you will complete a quiz on Blackboard, except for the two weeks of exams. There will be a total of 11 quizzes. All quizzes are due Tuesdays, 7:59 am Pacific Time. Each quiz typically consists of 4 to 8 multiple choice questions drawn from the assigned readings. To accommodate any technical issues and to facilitate your learning, for each quiz you will have two attempts, and only the one of a higher score counts towards your final grade. Also, the lowest scoring quiz will be dropped.

Participation (Class + Lab, 10%) [For learning objectives #1, #2, #4]

As a record of active participation and attendance, the instructor may require the completion of small, in-class work products individually or in groups, through submission of a summary before the class ends. Lab participation will be graded based on the completion of a specific lab assignment or demonstration that will take place each lab.

Examinations (10% × 2) [For learning objective #1]

There will be two in-class exams to test your understanding of the course materials. The first exam will take place on Thursday, September 20, and will cover materials from Week

1-4. The second exam will take place on Thursday, October 18, and will cover materials from Week 5-9. The exams will consist of multiple choices and short answer questions based on the lecture material, textbook, class discussions, and lab assignments. Unlike quizzes, you cannot use any course material during the exams.

Lab Assignments (25%) [For learning objectives #2, #3, #4, #5]

For each lab session there will be an assignment designed to equip yourself with the necessary knowledge, skills, and tools to complete your research proposal and final research paper. Each lab assignment typically targets a specific component of psychological research methods, such as literature search, ethical analyses, and data analysis. Some lab assignments will be individual work while others will be completed by the same groups as for the final research paper and the presentation. Each lab assignments should be submitted through Blackboard before the next lab session (i.e., 1:59 pm Pacific Time for those in the Thursday lab sessions and 9:59 am Pacific Time for those in the Wednesday lab sessions). A detailed instructions for completing each lab assignment will be provided during the lab session, and it is your responsibility to read them carefully and follow the instructions.

Research Proposal (10%) [For learning objectives #2, #4, #5]

A major assignment of this course is the completion of a research report by collaborating with your peers, and a good research proposal is a crucial step for that. Each group will consist of 3 to 4 people, and the group will work collaboratively throughout the semester on some lab assignments, submissions of the research proposal and the final research report, as well as the proposal presentation. In your research proposal, you should clearly state the research problem, review key literature in the broader theoretical framework, explain how your proposed study builds on the existing literature, specify your research questions and hypotheses, report your proposed research design and measurement of variables, formulate a plan for data analysis, and discuss any limitations. For each group, your proposed experiment has to employ a factorial design and includes two independent variables. Your proposal should adhere to the Publication Manual of the American Psychological Association (APA 6th ed., 2010), and 5 to 12 pages long (double-spaced, excluding title page, abstract, references, tables and figures, footnotes, appendices, and any other supplemental materials). The proposal will be due on Blackboard on Tuesday, 11/6, 11:59 pm Pacific Time.

Research Presentation (10%) [For learning objectives #4, #5]

During the last week of class, that is, Tuesday, November 27 and 29, each group will give a presentation of their research design and findings in a professional conference setting. You are required to listen to everyone's presentation and ask thoughtful questions. A grading rubric on the research presentation will be posted on Blackboard.

Final Research Report (15%) [For learning objectives #2, #4, #5]

After submission of the research proposal, each group will receive feedback on the proposal by their peers (as part of the peer review lab assignment), and should prepare

their final research report by incorporating the peer feedback that they think helps improve their research. In addition to describing the rationale and design of the study, the final research report should also include the data analysis results, and discussion of those results in relation to the research questions. In other words, the final research report should include the introduction, method, results, and discussion sections. Because of time constraints you will not be collecting actual data for your study; instead, you will be provided simulated data for their data analysis, *as-if* the specified procedures have actually been executed. The final research report will be due on Blackboard on Tuesday, 12/11, 6:00 pm Pacific Time (which is the designated final exam time for this course), should be 10 to 25 pages long (double-spaced, excluding title page, abstract, references, tables and figures, footnotes, appendices, and any other supplemental materials), and should also include a one-page response letter summarizing the responses to the comments from peers.

Grading Breakdown

Assignment	% of Grade
Weekly Quizzes	10
Participation (Class + Lab)	10
Examinations	
Exam 1	10
Exam 2	10
Lab Assignments	25
Research Proposal	10
Final Research Report	15
Research Proposal Presentation	10
Total	100

Grading Scale

Course final grades will be determined using the following scale.

A	93.5-100	B-	79.5-83	D+	66.5-69
A-	89.5-93	C+	76.5-79	D	63.5-66
B+	86.5-89	C	73.5-76	D-	59.5-63
B	83.5-86	C-	69.5-73	F	59.5 and below

Course-specific Policies (Assignment Submission, Grading Timeline, Late work, and Technology)

Assignment Submission

The lab assignments and research proposal drafts should be submitted through Blackboard.

Grading Timeline

Generally all graded work will be returned no later than two weeks from the submission deadline.

Late work

In general, late work will not be accepted. In rare, exceptional circumstances (where appropriate documentation is provided), the exams or assignments may be accepted late at the sole discretion of the instructor. Please obtain prior, written consent if possible. Quizzes will never be accepted late; however, the lowest quiz score will be dropped to allow for unforeseen circumstances that may occasionally prevent timely submission.

Technology in the classroom

Phones

Your phone should be turned off or in silent mode (not on vibrate), and should not be used in the classroom.

Tablets and Laptops

Use of tablets and laptops for purposes not related to the course is prohibited. Use of tablets and laptops for note taking are strongly discouraged as recent research (Mueller & Oppenheimer, 2014) has shown that note taking by handwriting is better than typing for improving conceptual learning, and use of such devices may distract both yourself and your peers (Sana, Weston, & Cepeda, 2013).

Academic integrity

Cheating on course assignments, including quizzes, lab assignments, and examinations, will result in an F grade for the course. For individual assignments, each student is expected to complete their own work. For group assignments, each group member is expected to provide equal input.

Attendance

Students are expected to attend all class and lab sessions on time.

Classroom norms

- Listen actively and attentively without interrupting
- Respect each other's views
- Support critique with evidence, or speak from personal experience
- Don't dominate the discussion

Course evaluation

Student feedback is absolutely essential to the instructors and the Department to keep improving this course. Students are encouraged to share their feedback and suggestions in an early-term feedback survey on Blackboard in week 5, and respond to the standard USC course evaluation survey at the end of the semester.

Course Schedule: A Weekly Breakdown (Class)

	Topics/Daily Activities	Readings and Homework	Deliverable/ Due Dates
Week 1 8/21 & 8/23	<ul style="list-style-type: none"> • Course overview • Psychology as a science 	<ul style="list-style-type: none"> • Syllabus • Goodwin chapter 1 	
Week 2 8/28 & 8/30	<ul style="list-style-type: none"> • Ethics in psychological research 	<ul style="list-style-type: none"> • Goodwin chapter 2 	<ul style="list-style-type: none"> • Quiz 1 (due 8/28)
Week 3 9/4 & 9/6	<ul style="list-style-type: none"> • Developing research ideas • Reading psychological research reports 	<ul style="list-style-type: none"> • Goodwin chapter 3 • Locke et al. (2011) chapter 	<ul style="list-style-type: none"> • Quiz 2 (due 9/4)
Week 4 9/11 & 9/13	<ul style="list-style-type: none"> • Validity of psychology studies • Measurement and construct validity 	<ul style="list-style-type: none"> • Goodwin chapter 4 & 5 (pp. 96--109; pp. 143--148) 	<ul style="list-style-type: none"> • Quiz 3 (due 9/11)
Week 5 9/18 & 9/20	<ul style="list-style-type: none"> • Introduction to Experimental Research Methods • Review week 1-4 	<ul style="list-style-type: none"> • Goodwin chapter 5 (pp. 130—136) 	<ul style="list-style-type: none"> • Exam 1 (9/20)
Week 6 9/25 & 9/27	<ul style="list-style-type: none"> • Threats to internal validity • Between-subjects designs 	<ul style="list-style-type: none"> • Goodwin chapter 5 (pp. 149--158) • Goodwin chapter 6 (pp. 160—166) 	<ul style="list-style-type: none"> • Quiz 4 (due 9/25)
Week 7 10/2 & 10/4	<ul style="list-style-type: none"> • Within-subject designs • Methodological controls 	<ul style="list-style-type: none"> • Goodwin chapter 6 (pp. 167--188) 	<ul style="list-style-type: none"> • Quiz 5 (due 10/2)
Week 8 10/9 & 10/11	<ul style="list-style-type: none"> • External validity: sampling and generalizability • Effect size and sample size planning 	<ul style="list-style-type: none"> • Goodwin chapter 4 (pp. 93--95; pp. 110--128) • Additional reading on effect size and hypothesis testing 	<ul style="list-style-type: none"> • Quiz 6 (due 10/9)
Week 9 10/16 & 10/18	<ul style="list-style-type: none"> • Single-factor designs • Review week 5-8 	<ul style="list-style-type: none"> • Goodwin chapter 7 (pp. 189--197) 	<ul style="list-style-type: none"> • Exam 2 (10/18)
Week 10 10/23 & 10/25	<ul style="list-style-type: none"> • Single-factor designs (cont'd) • Data analysis for experimental research 	<ul style="list-style-type: none"> • Goodwin chapter 7 (pp. 198--218) • Notes on data screening visualization, and assumption checking? 	<ul style="list-style-type: none"> • Quiz 7 (due 10/23)
Week 11 10/30 & 11/1	<ul style="list-style-type: none"> • Factorial designs 	<ul style="list-style-type: none"> • Goodwin chapter 8 	<ul style="list-style-type: none"> • Quiz 8 (due 10/30)
Week 12 11/6 & 11/8	<ul style="list-style-type: none"> • Reporting psychological research findings • Open science and preregistration 	<ul style="list-style-type: none"> • Goodwin chapter 7 (pp. 198--218) • Supplemental readings 	<ul style="list-style-type: none"> • Quiz 9 (due 11/6) • Research proposal (due 11/6, 11:59 pm)

Week 13 11/13 & 11/15	<ul style="list-style-type: none"> • Quasi-experimental and observational research 	<ul style="list-style-type: none"> • Goodwin chapter 11 (pp. 313--331) • Goodwin chapter 9 • Goodwin chapter 10 	<ul style="list-style-type: none"> • Quiz 10 (due 11/13; <u>questions only on chapter 10</u>)
Week 14 11/20	<ul style="list-style-type: none"> • Giving oral presentations • No class on 11/22 (Thanksgiving) 	<ul style="list-style-type: none"> • Kline (2009) chapter 10 	<ul style="list-style-type: none"> • Quiz 11 (due 11/20)
Week 15 11/27 & 11/29	<ul style="list-style-type: none"> • Research presentations 		
FINAL 12/11	<ul style="list-style-type: none"> • Final 		<ul style="list-style-type: none"> • Final Research Report (due 12/11, 6:00 pm)

(Lab schedule on the next page)

Tentative Lab Schedule: A Weekly Breakdown

	Topics	Readings and Homework	Homework/ Due Dates
Week 1 8/22 or 23	<ul style="list-style-type: none"> • APA Style • Get to know each other and think about forming groups 	<ul style="list-style-type: none"> • Lab Assgn 1 (Individual) 	8/29 or 30 before lab
Week 2 8/29 or 30	<ul style="list-style-type: none"> • Ethics in psychological research • Evaluating an article 	<ul style="list-style-type: none"> • Lab Assgn 2 (Individual) • Bein & Bein (2012) chapter 	9/5 or 6 before lab
Week 3 9/5 or 6	<ul style="list-style-type: none"> • Literature search • Evaluating and summarizing an article • Brainstorming research ideas 	<ul style="list-style-type: none"> • Lab Assgn 3 (Individual) • Bein & Bein (2012) chapter • List of group members 	9/12 or 13 before lab
Week 4 9/12 or 13	<ul style="list-style-type: none"> • More literature search • Selecting variables for your study 	<ul style="list-style-type: none"> • Lab Assgn 4 (Group) 	
Week 5 9/19 or 20	<ul style="list-style-type: none"> • Operationalizing constructs • PsycTESTS • Finalizing research topic 	<ul style="list-style-type: none"> • Lab Assgn 4 (cont'd) 	9/26 or 27 before lab
Week 6 9/26 or 27	<ul style="list-style-type: none"> • Writing literature review 	<ul style="list-style-type: none"> • Lab Assgn 5 (Group) 	10/3 or 4 before lab
Week 7 10/3 or 4	<ul style="list-style-type: none"> • Writing the Method section • Potential threats to interval validity of your study 	<ul style="list-style-type: none"> • Lab Assgn 6 (Group) 	10/10 or 11 before lab
Week 8 10/10 or 11	<ul style="list-style-type: none"> • Systematic review of effect sizes • Sample size planning 	<ul style="list-style-type: none"> • Lab Assgn 7 (Group) 	
Week 9 10/17 or 18	<ul style="list-style-type: none"> • Writing the abstract • More on writing the Method section 	<ul style="list-style-type: none"> • Lab Assgn 7 (cont'd) 	10/24 or 25 before lab
Week 10 10/24 or 25	<ul style="list-style-type: none"> • One-way ANOVA 	<ul style="list-style-type: none"> • Lab Assgn 8 (Individual) 	10/31 or 11/1 before lab
Week 11 10/31 or 11/1	<ul style="list-style-type: none"> • Two-way ANOVA with interaction • Reporting the results 	<ul style="list-style-type: none"> • Lab Assgn 9 (Individual) 	11/7 or 8 before lab
Week 12 11/7 or 8	<ul style="list-style-type: none"> • Peer review 	<ul style="list-style-type: none"> • Lab Assgn 10 (Individual) 	11/14 or 15 before lab
Week 13 11/14 or 15	<ul style="list-style-type: none"> • Writing the discussion 	<ul style="list-style-type: none"> • Lab Assgn 11 (Group) 	11/28 or 29 before lab
Week 14 11/21 or 22	<ul style="list-style-type: none"> • No labs (Thanksgiving) 		

Week 15 11/28 or 29	<ul style="list-style-type: none"> • Continue to work on the final research report 	<ul style="list-style-type: none"> • Lab Assgn 12 (Group) 	<u>12/4 (Tuesday), 11:59 pm PST</u>
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The instructor reserves the right to change the schedule of topics and readings if necessary. Notice of such changes will be communicated to you via e-mails.

Statement on Academic Accommodations

Any student requesting academic accommodations based on a disability is required to register with Disability Services and Programs (DSP) each semester. A letter of verification for approved accommodations can be obtained from DSP. Please be sure the letter is delivered to the instructor as early in the semester as possible. DSP is located in STU 301 and is open 8:30 a.m.–5:00 p.m., Monday through Friday. Website for DSP and contact information: (213) 740-0776 (Phone), (213) 740-6948 (TDD only), (213) 740-8216 (FAX) ability@usc.edu.

Statement on Academic Conduct and Support Systems

Academic Conduct:

USC seeks to maintain an optimal learning environment. General principles of academic honesty include the concept of respect for the intellectual property of others, the expectation that individual work will be submitted unless otherwise allowed by an instructor, and the obligations both to protect one’s own academic work from misuse by others as well as to avoid using another’s work as one’s own. All students are expected to understand and abide by these principles. *SCampus*, the Student Guidebook, contains the University Student Conduct Code (see University Governance, Section 11.00), while the recommended sanctions are located in Appendix A.

Plagiarism – presenting someone else’s ideas as your own, either verbatim or recast in your own words – is a serious academic offense with serious consequences. Please familiarize yourself with the discussion of plagiarism in *SCampus* in Part B, Section 11, “Behavior Violating University Standards” policy.usc.edu/scampus-part-b. Other forms of academic dishonesty are equally unacceptable. See additional information in *SCampus* and university policies on scientific misconduct, <https://policy.usc.edu/scientific-misconduct>.

Discrimination, sexual assault, and harassment are not tolerated by the university. You are encouraged to report any incidents to the Office of Equity and Diversity <https://equity.usc.edu/> or to the Department of Public Safety <http://capsnet.usc.edu/department/department-public-safety/online-forms/contact-us>. This is important for the safety whole USC community. Another member of the university community - such as a friend, classmate, advisor, or faculty member - can help initiate the report, or can initiate the report on behalf of another person. The USC Title IX website <https://titleix.usc.edu/> describes reporting options and other resources.

Support Systems:

Student Counseling Services (SCS) – (213) 740-7711 – 24/7 on call

Free and confidential mental health treatment for students, including short-term psychotherapy, group counseling, stress fitness workshops, and crisis intervention. engemannshc.usc.edu/counseling

National Suicide Prevention Lifeline – 1 (800) 273-8255

Provides free and confidential emotional support to people in suicidal crisis or emotional distress 24 hours a day, 7 days a week. www.suicidepreventionlifeline.org

Relationship and Sexual Violence Prevention Services (RSVP) – (213) 740-4900 – 24/7 on call

Free and confidential therapy services, workshops, and training for situations related to gender-based harm. engemannshc.usc.edu/rsvp

Sexual Assault Resource Center

For more information about how to get help or help a survivor, rights, reporting options, and additional resources, visit the website: sarc.usc.edu

Office of Equity and Diversity (OED)/Title IX Compliance – (213) 740-5086

Works with faculty, staff, visitors, applicants, and students around issues of protected class. equity.usc.edu

Bias Assessment Response and Support

Incidents of bias, hate crimes and microaggressions need to be reported allowing for appropriate investigation and response. studentaffairs.usc.edu/bias-assessment-response-support

The Office of Disability Services and Programs

Provides certification for students with disabilities and helps arrange relevant accommodations. dsp.usc.edu

Student Support and Advocacy – (213) 821-4710

Assists students and families in resolving complex issues adversely affecting their success as a student EX: personal, financial, and academic. studentaffairs.usc.edu/ssa

Diversity at USC

Information on events, programs and training, the Diversity Task Force (including representatives for each school), chronology, participation, and various resources for students. diversity.usc.edu

USC Emergency Information

Provides safety and other updates, including ways in which instruction will be continued if an officially declared emergency makes travel to campus infeasible. emergency.usc.edu

USC Department of Public Safety – UPC: (213) 740-4321 – HSC: (323) 442-1000 – 24-hour emergency or to report a crime.

Provides overall safety to USC community. dps.usc.edu