PSY 303: RESEARCH METHODS IN PSYCHOLOGY: COGNITIVE / NEUROSCIENCE
University of Oregon
Summer 2018

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Office Hours: TBA

Course Meeting Times
Monday – Thursday 10:00 – 10:50 STB 006

Course Materials

(1) PDF files on Canvas (required)
All required course materials (handouts, assignments) will be posted on the Canvas site.

(2) Helpful resources (recommended)

- Clark, H.H. Everyone can write better (and you are no exception). Advice to students of psychology. http://www.psychology.stonybrook.edu/sbrennan-/psy384/papers/hc_write.html
- American Psychological Association (2009). *Publication manual of the American Psychological Association* (6th ed.). Washington, DC: APA. (Available at Duckstore)
- Strunk, W., Jr., & White, E. B. (2000). *The elements of style* (4th ed.). New York: Longman. (Available at Duckstore)

Course Description

This course is the final course in the 301-303 series. This course will focus on building your skills as a *producer* of quality cognitive/cognitive neuroscience research, although in the process, you will also improve your skills as a *consumer* of a wide variety of research. You and your classmates will be working together to design, analyze, and discuss your own research project. In addition, you will be individually writing up your research throughout the term in separate writing assignments. You will receive feedback on your writing, and throughout the term, you will revise your writing assignments and synthesize them into two main research papers based on a correlational research study, and a related experimental research study. You will also present your research projects to the class to gain practice communicating research effectively.

This course may be repeated for credit a maximum of one time provided there is a change in topic.

A Bit About Topic-Specific Research Methods

Each topic-specific course will focus on research production skills, but the nature of the research and the specific tools that are used will differ by topic.

For example, Research Methods in Psychology: Cognitive Psychology (this course) will emphasize asking research questions that are unique to cognitive psychology (e.g., How do we search information in short-term memory?), finding literature in cognitive psychology journals, using research designs that are common in cognitive psychology (e.g., repeated-measures

designs), collecting data typical of cognitive psychology experiments (e.g., reaction time or neuroimaging), and conducting appropriate statistical procedures (e.g., related-samples t-tests, repeated-measures ANOVAs).

As a comparison, Research Methods in Psychology: Social Psychology will emphasize asking research questions that are unique to social psychology (e.g., What factors reduce conformity? How stable are first impressions of people?), finding literature in social psychology journals, using research designs that are common in social psychology (e.g., between-subjects designs, with different "primes" used to establish experimental conditions), collecting data typical of social psychology experiments (e.g., using self-report scales with established reliability), and conducting appropriate statistical procedures (e.g., factorial ANOVAs, multiple regression).

Learning Objectives

♦ Review existing psychological literature: perform effective literature searches, identify key research questions and hypotheses in scientific articles, and critically evaluate the research design and quality of evidence presented.

♦ Conduct your own original research: generate research questions and hypotheses, evaluate ethical considerations, design materials to measure variables, and collect data.

♦ Analyze, interpret, and communicate your findings: choose appropriate basic statistical analysis techniques for specific research questions and specific data sets, perform basic data analyses, and summarize the results in an APA-style report and an oral presentation.

Student Workload

When you complete this course, you will earn 4 credits toward your degree. Four credits is the equivalent of 120 hours of work across the term, or 12 hours per week for 10 weeks. You will spend 4 hours in class each week. The other 8 hours will be spent completing assignments.

Expectations and Grading

<u>Homework</u>
There will be seven homework assignments in this course. Homework assignments will include choosing a research topic, finding relevant scientific articles, creating tables and figures, answering questions about research designs or ethics, and preparing questionnaires and experimental materials. Homework assignments are due at the start of class unless otherwise specified. Late homework assignments will be penalized by 10% for each day they are late, and because homework assignments build on each other, no homework assignments will be accepted more than 1 week late. Some of these homework assignments will be collaborative and will involve working with a small group of your classmates, and some of the homework assignments will be completed independently. Specific instructions and expectations will be provided for each assignment.

<u>Writing Assignments</u>

The writing assignments in this course are scaffolded, such that by the time you are writing your final paper, you will have practiced and received feedback on each of the components of an

APA-style research report. There will be five writing assignments in this course, culminating in two major papers. These writing assignments include a conceptual introduction or literature review, a description of methods, a description of results, and a discussion section, each of which is a main component in an empirical research report. In addition to getting feedback on your writing from your instructor, you will exchange your writing with peer reviewers (classmates), who will provide you with written feedback. Each of the smaller writing assignments is worth 10% of your grade, and the complete papers are each worth 20% (the equivalent of a midterm or final). Writing assignments are due at the start of class (except for the final paper). Late writing assignments will be penalized 10% per day unless discussed with the instructor ahed of time (with a *valid* excuse). **All writing assignments must be completed independently**, however, receiving feedback on drafts from group members, friends, tutors, and instructors is encouraged and completely appropriate. In all cases, you must not have the writing done for you.

Class Presentations

In this course, you will be conducting research with a small group of your classmates. During the first part of the course, you will be presenting a review of background literature for the correlational paper. During the last week of classes, your group will present a future directions poster based on the results of the experimental paper.

Literature review presentation: Your presentation should include background information from two articles relating to the correlational topic. It should emphasize the specific findings from the background literature and show how they may relate to the specific hypotheses of the correlational study.

Future Directions Poster Presentation: Your presentation should include relevant background information, details about the methods, your results, a discussion of the significance of the results, and ideas for future research or improving upon your research study including hypotheses, proposed methods, and predictions.

Both presentations are worth 6% a piece.

Class Attendance and Participation

Regular attendance is essential for doing well in this course. Much of what you learn in this course will come from hands-on experiences and activities in the classroom. I will often ask you to complete short exercises in class, and your participation and engagement in these exercises will be recorded as your class participation grade.

Final grades in this course will be determined by the following:

- Homework: 10%
- Writing assignments: 70%
- Class presentations: 12%
- Participation: 8%

***The 2 papers and 2 presentations will take place of "traditional" midterm and final exams.*
***Assignment grades on Canvas correspond to total class percentage points (e.g. an assignment worth 1 pt on canvas is the equivalent of 1% of your total grade).*
Grades will be distributed as follows:

A+ 97-100% B+ 87-89% C+ 77-79% D+ 67-69% F 0-59%

A	93-96%	B	83-86%	C	73-76%	D	63-66%
A-	90-92%	B-	80-82%	C-	70-72%	D-	60-62%

Please see the psychology department guidelines for a description of the type of achievement that each grade signifies: http://psychology.uoregon.edu/courses/department-grading-standards/

Academic Honesty

All work submitted in this course must be your own. Violations will be taken very seriously and are noted on student disciplinary records. If you have any questions about what constitutes academic dishonesty, please ask me. For more information, see the UO website regarding academic honesty at:
http://uodos.uoregon.edu/StudentConductandCommunityStandards/AcademicMisconduct.aspx

Special Accommodations

Accessible Education Center (AEC**)**

If you have a documented disability and anticipate needing accommodations in this course, please make arrangements to meet with the instructor as soon as possible. Also, please request that a counselor at the Accessible Education Center (uoaec@uoregon.edu, tel. 541-346-1155) send a letter verifying your disability. For a list of resources provided by the Accessible Education Center, please see http://aec.uoregon.edu.

Students for Whom English is a Second Language

If you are a non-native English speaker and think you may have trouble in this course due to language difficulties, please see the instructor as soon as possible to make any necessary special arrangements.

Course Schedule

HW = homework assignment; WR = writing assignment, PRES = presentation

Wk	Date	Topic	Skill Practice	DUE
1	Day 1	Course introduction, choosing a research topic, generating RQs	Generating a correlational RQ	
	Day 2	How to find research articles + choosing groups (HW1 Assign)	Using PsycINFO and Google Scholar	
	Day 3	Literature presentation guidelines (PR1 Assign)		**HW1: Hypothesis + Summary**
	Day 4	Introduction to the introduction section (WR1 Assign)	Writing for science	
	End of Week 1			**HW2: APA References & Citations**
2	Day 1	APA Style	How to format a paper into APA style	
	Day 2	Identifying variables + statistics overview	Quantifying variables, running correlation	
	Day 3	Independence Day NO CLASS		
	Day 4	**PRES1:** Literature review presentations	Presenting scientific data	**PR1: Slides from presentation**
	End of Week 2			**WR1: Introduction section**
3	Day 1	Survey design options	Measuring variables reliably	
	Day 2	Writing an IRB	The ethics of conducting psychological studies	
	Day 3	Consent & debrief	Consent compliance	
	Day 4	Introduction to the method section (WR2 Assign)	Summarizing how a study was conducted	
	End of Week 3			**Surveys due!!! E-mailed to Kyle**
4	Day 1	Survey revisions	Method development	
	Day 2	DATA COLLECTION	Collecting psychological data	
	Day 3	Getting into graduate school	Realistic overview of becoming a professional reseracher	
	Day 4	Correlational data analysis (HW3 Assign)	Running correlation on your own data	

	End of Week 4			**WR2: Revised introduction + method section for peer edit**
5	Day 1	Introduction to the results section + how to construct tables and figures (WR3 Assign)	Summarizing data	
	Day 2	Introduction to the discussion section	How to discuss your results and express scientific impact	**HW3: Peer editing due**
	Day 3	Writing workshop + abstract writing	Time to write	
	Day 4	Writing workshop	Time to write	
	End of week 5			**WR3: Correlational paper due**
6	Day 1	Experiment proposal – background and methods (HW4 Assign)	Experiment vs study	
	Day 2	Experimental design	How are experiments run?	
	Day 3	How to write introductions for experimental papers (WR4 Assign)	Establishing certainty in hypotheses	**HW4: Exp hypothesis + references**
	Day 4	Writing workshop	Dealing with being overwhelmed by science	
	End of Wek 6			**N/A Take a break**
7	Day 1	Experimental data analysis (HW5 Assign)	Teaching you how to do factorial ANOVA (again)	
	Day 2	Introduction to the “future directions” poster presentation (PR2 Assign)	Projecting results to future experiments	
	Day 3	Writing workshop	Summarizing experimental results	**WR4: Experimental intro + Method**
	Day 4	Poster workshop	How to make a poster	
	End of Week 7			**HW5: Peer edits for WR5 due**
8	Day 1	Writing workshop for discussion section (WR5 Assign)	How to discuss experimental implications	
	Day 2	Introduction to neuroimaging	Learning about cog neuro research methods	
	Day 3	**PRES2:** Future directions poster presentations	Giving an effective poster presentation	**PR2: e-Copy of poster**
	Day 4	Closing remarks + writing workshop		
	End of Week 8			**WR5: Final paper**