LGCS 122: Methods in Language Research
Spring 2015
Monday & Wednesday 11:00am – 12:15pm
Edmunds 217

Instructor: Laura Johnson
Email: laura.johnson@pomona.edu
Office: Edmunds 203
Office hours: Thursday 12:30-2:30pm and by appointment
Course website: https://sakai.claremont.edu

OVERVIEW

This course will cover a variety of research methods that are useful for studying language and other topics in cognitive science. First, we will discuss some background information about experimental design and control procedures, which we will use to critically evaluate existing research. Then we will focus primarily on carrying out our own research. First, we'll design an original experiment as a group, and collect and analyze the data. Then each of you will design your own follow-up experiment, which you will carry out and write up as a final project. We will also spend some time discussing and interpreting research methods that we don't have the resources to do on our own, but are becoming increasingly important in the field, such as neuroimaging, eye tracking, and online studies.

READINGS

All of the required readings will be available for download on Sakai. This will include a mixture of textbook chapters, experimental papers, and review articles. Please make sure to complete the readings before class on the date for which they are assigned. A large proportion of our class time will be spent discussing the readings, so in order for you to get the most out of this class, it is important that you arrive prepared to contribute.

Other course materials will also be available on Sakai, including presentation slides, handouts, and links to relevant webpages.

COURSE REQUIREMENTS

All written assignments will be submitted to your individual drop box on Sakai, so no paper copies are necessary. I will also be grading and providing feedback on your work using Sakai.

With the exception of the exam and the presentation, note that all assignments are due on days when we do not meet for class! This is intended to prevent the assignments from interfering with your ability to complete the readings for each class. Most of the assignments are due on Fridays by 5pm.

Exam (20%): There will be one in-class exam, which will cover the basics of research design. This is intended to help you gain familiarity with the concepts necessary for designing your own experiments, as well as evaluating existing research. It will consist of short-answer questions.

Homework (5 x 4%): You will be asked to complete five short homework assignments throughout the semester. The exact format will vary depending on the content, but could include writing a short critique of the design of an experiment, running a practice statistical analysis, identifying different types of designs based on descriptions of research, etc. You will receive the questions or writing prompt at least a week before each assignment is due.

Group Experiment Paper (20%): The first of the larger projects in the course will be based on an experiment that we will design and run as a class. Several of our class meetings will be spent on this project, so that we can work together to plan the methods, program the experiment, and eventually analyze the results. You will be asked to collect data outside of class, and then write up the study as a complete research paper in APA style.

Follow-up Experiment: For the final project, we will split up and each of you will design your own experiment as a follow-up to the group experiment. Most published papers in cognitive science consist of more than one experiment, and you should attempt to design a follow-up experiment that is closely-related enough that it could reasonably go in the same paper as the group experiment. Your experiment might correct a problem that we encounter in the group experiment, expand our findings, or address a related idea that you come up with on your own.

There will be three assignments related to your experiment:

1. ***Proposal (5%):*** Before you begin, you will write a short description of your proposed experiment. It should include some general background information, your hypothesis, and a description of the methods you are considering. I will give you as much feedback as possible, and help with your design where necessary.
2. ***Presentation (5%):*** During the last week of class, you will be asked to present your experiment and results to the class. This will be a great opportunity to get some last-minute feedback on your ideas before you write your paper.
3. ***Paper (20%):*** The paper will be due during finals week. It should be in the form of a complete research paper, and should include a title page, abstract, introduction (including background research and your hypothesis), methods section, results section, discussion section, and reference page.

Participation (10%): Because this is an interactive course, your daily participation is extremely important. Please make sure to arrive on time be prepared to contribute.

GRADING

Grade Breakdown:

Exam:	20%
Homework:	20%
Group Experiment Paper:	20%
Follow-up Experiment	
Proposal:	5%
Presentation:	5%
Paper:	20%
Participation:	10%

Grading Scale:

By default, the following scale will be used to assign letter grades. If necessary, grades will be curved up, but they will not be curved down. Scores will not be rounded (e.g., according to the default scale, 89.99% is a B+, not an A-).

A	93-100%	B	83-86%	C	73-76%	D	63-66%
A-	90-92%	B-	80-82%	C-	70-72%	D-	60-62%
B+	87-89%	C+	77-79%	D+	67-69%	F	<60%

Late Policy:

Late assignments will be accepted, but 10% will be deducted from the total score for each day they are late. Extensions will be granted only in emergency situations, and documentation will be required (e.g., doctor's note, etc.).

SCHEDULE

Week	Date	Topic
1	W 1/21	Introduction
2	M 1/26	Correlational and Experimental Research
	W 1/28	Simple Designs
3	M 2/02	Factorial Designs
	W 2/04	Controlling for Extraneous Variables
	Homework Assignment #1 due by 5pm on Friday 2/06	
4	M 2/09	Avoiding Bias
	W 2/11	Quasi-experimental Designs
	Homework Assignment #2 due by 5pm on Friday 2/13	
5	M 2/16	Non-experimental Designs
	W 2/18	Research Ethics
	Homework Assignment #3 due by 5pm on Friday 2/20	
6	M 2/23	*Exam*
	W 2/25	Review of Cognitive Measures in Language Research
7	M 3/02	Time Perception and Syntactic Processing
	W 3/04	Time Perception and Syntactic Processing (continued)
8	M 3/09	Group Experiment (Planning)
	W 3/11	Group Experiment (Intro to PsychoPy)
--	M 3/16	NO CLASS – SPRING BREAK
	W 3/18	NO CLASS – SPRING BREAK
9	M 3/23	How to Write a Research Paper
	W 3/25	Literature Searches
10	M 3/30	Group Experiment (Data Analysis)
	W 4/01	Group Experiment (Interpretation)
	Group Experiment Paper due by 5pm on Friday 4/03	
11	M 4/06	Judgment Data
	W 4/08	Corpus Work
	Proposal due by 5pm on Friday 4/10	
12	M 4/13	Neuroimaging Research
	W 4/15	Neuroimaging Research (continued)
13	M 4/20	Transcranial Magnetic Stimulation
	W 4/22	Eye Tracking Studies
	Homework Assignment #4 due by 5pm on Friday 4/24	
14	M 4/27	Pros and Cons of Online Research
	W 4/29	Follow-up Experiment (Data Analysis)
	Homework Assignment #5 due by 5pm on Friday 5/01	
15	M 5/04	*Presentations*
	W 5/06	*Presentations*
Finals Week	**Follow-up Experiment Paper due by 5pm on Monday 5/11 (Seniors: by 9am on Friday 5/08)**	

READING LIST

1/21 Introduction

1/26 Correlational and Experimental Research

1/28 Simple Designs

- Morling, B. (2015). Chapter 10: Introduction to simple experiments. In *Research methods in psychology: Evaluating a world of information* (2nd ed.). New York, NY: W. W. Norton & Company.
- See tables from Morling, Chapter 3

2/02 Factorial Designs

- Morling, B. (2015). Chapter 12: Experiments with more than one independent variable. In *Research methods in psychology: Evaluating a world of information* (2nd ed.). New York, NY: W. W. Norton & Company.

2/04 Controlling for Extraneous Variables

- Meltzoff, J. (1998). Chapter 5: Confounding variables and their control. In *Critical thinking about research: Psychology and related fields*. Washington, DC: American Psychological Association.

2/09 Avoiding Bias

- Meltzoff, J. (1998). Chapter 4: The sample. In *Critical thinking about research: Psychology and related fields*. Washington, DC: American Psychological Association.

2/11 Quasi-experimental Designs

- Morling, B. (2015). Chapter 13: Quasi-experiments and small-N designs. In *Research methods in psychology: Evaluating a world of information* (2nd ed.). New York, NY: W. W. Norton & Company.

2/16 Non-experimental Designs

- Walker, I. (2010). Chapter 4: Major types of quantitative research. In *Research methods and statistics*. New York, NY: Palgrave Macmillan.
- Walker, I. (2010). Chapter 5: Qualitative research and questionnaires. In *Research methods and statistics*. New York, NY: Palgrave Macmillan

2/18 Research Ethics

- Walker, I. (2010). Chapter 6: Research ethics. In *Research methods and statistics*. New York, NY: Palgrave Macmillan

2/23 Exam

2/25 Review of Cognitive Measures in Language Research

3/02 Time Perception and Syntactic Processing

- Zakay, D., & Block, R. A. (1997). Temporal cognition. *Current Directions in Psychological Science*, *6*(1), 12–16.
- Tipples, J. (2010). Time flies when we read taboo words. *Psychonomic Bulletin & Review*, *17*(4), 563–568.

3/04 Time Perception and Syntactic Processing (continued)

- Block, R. A., Hancock, P. A., & Zakay, D. (2010). How cognitive load affects duration judgments: A meta-analytic review. *Acta Psychologica*, *134*(3), 330-343.
- van Gompel, R. P. G., & Pickering, M. J. (2011). Syntactic parsing. In M. G. Gaskell (Ed.), *The Oxford handbook of psycholinguistics* (pp. 289-307). Oxford, UK: Oxford University Press.

3/09 – 4/01 Work on Group Experiment

- No assigned readings, but you may want to do your own literature searches

4/06 Judgment Data

- Schütze, C. T., & Sprouse, J. (2013). Judgment data. In R. J. Podesva & D. Sharma (Eds.), *Research methods in linguistics* (pp. 27-50). Cambridge, UK: Cambridge University Press.

4/08 Corpus Work

- Gries, S. T., & Newman, J. (2013). Chapter 13: Creating and using corpora. In R. J. Podesva & D. Sharma (Eds.), *Research methods in linguistics* (pp. 27-50). Cambridge, UK: Cambridge University Press.
- van Kemenade, A., & Los, B. (2013). Chapter 11: Using historical texts. In R. J. Podesva & D. Sharma (Eds.), *Research methods in linguistics* (pp. 27-50). Cambridge, UK: Cambridge University Press.

4/13 Neuroimaging Research

- Bookheimer, S. (2002). Functional MRI of language: New approaches to understanding the cortical organization of semantic processing. *Annual Review of Neuroscience*, *25*, 151-88.

4/15 Neuroimaging Research (continued)

- Kutas, M., & Federmeier, K. D. (2011). Thirty years and counting: Finding meaning in the N400 component of the event-related brain potential (ERP). *Annual Review of Psychology, 62*, 621-647.

4/20 Transcranial Magnetic Stimulation

- Devlin, J. T., & Watkins, K. E. (2007). Stimulating language: insights from TMS. *Brain, 130,* 610-622.

4/22 Eye Tracking Studies

- Tanenhaus, M. K. (2011). Spoken language comprehension: Insights from eye movements. In M. G. Gaskell (Ed.), *The Oxford handbook of psycholinguistics* (pp. 309-326). Oxford, UK: Oxford University Press.
- Staub, A., & Rayner, K. (2011). Eye movements and on-line comprehension processes. In M. G. Gaskell (Ed.), *The Oxford handbook of psycholinguistics* (pp. 327-342). Oxford, UK: Oxford University Press.

4/27 Pros and Cons of Online Research

- Marder, J. (2015). The Internet's hidden science factory. *PBS NewsHour*. Retrieved from http://www.pbs.org/newshour/updates/inside-amazons-hidden-science-factory

4/29 Work on Follow-up Experiment

5/04 – 5/06 Presentations