

PSYC 201: RESEARCH IN PSYCHOLOGY I

Fall 2017

Class: MWF 9:40-10:40, NEILL 304

Lab: Thu 1:20-2:50 and 3:00-4:30, OLRI 349

Course website: <https://moodle.macalester.edu/course/view.php?id=442>

Instructor:

Steve Guglielmo

Office: OLRI 327

Phone: 696-6112

Email: sgugliel@macalester.edu

Office Hours: Mon 2:30-3:30 and Tue 10-11 (and by appointment)

Preceptors:

Anandi Gupta (agupta@macalester.edu)

Maegan O'Herin (moherin@macalester.edu)

Homework Help sessions: Sundays 3-5 PM

Required texts:

Welkowitz, J., Cohen, B. H., & Lea, R. B. (2012). *Introductory Statistics for the Behavioral Sciences*. (7th edition) NY: Wiley.

The Publication Manual of the American Psychological Association, 6th Edition. (2010).

COURSE DESCRIPTION

This course is the first in a two-semester sequence in the general statistical and research methods of psychology. It examines the complex and important processes of how psychologists pose and test scientific hypotheses. How do we know whether one group or experimental condition differs from another? What does it mean for a difference to be “significant” and does that necessarily mean the difference is important? When can we infer that one variable causally influences another? How can we use samples of people to make inferences about the population as a whole?

In this course, we will cover principles of sound research design, statistical techniques for analyzing data, and the inferences and conclusions that can be drawn from statistical analyses. In the laboratory portion of this course, you learn how to use SPSS, a statistical software program for PCs and Macs.

Our primary focus in the course is the conceptual foundations of statistical analysis and research design. Although the course draws on quantitative skills, it is absolutely not a math course; thus, we will explore statistical questions primarily at a conceptual, rather than mathematical, level. Still, this conceptual framework necessarily relies, at least sometimes, on a quantitative reformulation of research hypotheses and on the understanding and computation of key formulas. Try to keep in mind that these **quantitative elements are in service of a conceptual understanding**. Thus, we will spend relatively little class time working through computations — you will get such practice in your weekly homework assignments and your own studying. The goal of the course is not to build and assess your math skills per se, but rather to utilize certain math skills as a means of understanding the important conceptual questions at hand. If you have a math background, the course will likely feel straightforward. If you do not have a math background, don't worry. Students who have basic arithmetic skills (i.e., 9th grade math), who persevere, who complete all assignments, and who seek assistance when needed are usually very successful in the course.

MEETING TIMES AND ATTENDANCE

Class meets on Mondays, Wednesdays, and Fridays from 9:40-10:40 AM in NEILL 304. You are expected to attend all classes. Lab sessions meet on Thursdays from 1:20-2:50 PM and 3:00-4:30 PM (attend the one for which you registered) in the Psychology Computer Lab in OLRI 349. The preceptors run a weekly Homework Help Session on Sundays from 3-5 PM in OLRI 349.

COURSE REQUIREMENTS

Course grades are comprised of: three exams during the semester, weekly problem sets, a research report, an SPSS proficiency exam, weekly lab attendance, and a two-part cumulative final exam.

Exams (40% of course grade)

You will take three exams during the semester (on Mon 10/9, Wed 11/1, and Fri 12/8). Each exam has a closed-book conceptual part and an open notes computational part. The conceptual part includes multiple choice questions, definitions, matching items, and short answer questions (but no computational problems).

The computational part contains only computational (homework-like) problems; you will analyze various datasets using the statistical techniques you learn in the course. For this part of the exam, you may use a single, 8½" x 11" sheet of paper on which you may write anything you wish (including any formulas you may need for the exam).

Final Exam (30% of course grade)

The cumulative final exam also has two parts: a closed-book, in-class, conceptual exam (multiple choice questions, definitions, matching items, and short answer questions), and an open-book, take-home, computational exam (statistical analysis of various datasets). The conceptual final exam is during our final exam timeslot: Wednesday 12/20 at 8 AM. The computational final exam will be available on Mon 12/11 and is due in my office by 5 PM on Mon 12/18. The two parts of the exam are weighted equally (15% each, for a total of 30% of the overall course grade).

Problem Sets (15% of course grade)

Most weeks during the semester you will complete a problem set, which will involve solving various problems using SPSS and by hand. Problem sets are almost always due at the start of class on Monday and they will be graded and returned to you on Friday. Problem sets turned in late will receive no credit, though they will be graded (i.e., you will get feedback). Each problem set will receive a grade of ✓+, ✓, or ✓-.

For the SPSS problems, include a copy of the relevant computer output (results tables or graphs). Make sure you circle, label, and verbally interpret the results (you can use SPSS to write comments on the output).

A complete and correct problem set is one in which all assigned problems have been correctly solved with **all of your work/computations shown** on your answer sheet. You will lose credit if your problem set is incomplete (i.e., is missing an assigned problem), contains an incorrect problem solution, does not show your work, or does not label and interpret your SPSS output.

Help Sessions: every Sunday from 3-5 PM in OLRI 349

On Sundays the class preceptors will be available to answer questions about the homework problems. The purpose of these sessions is to answer specific questions about problems you are having difficulty solving. It is highly recommended that you attend the help sessions if you find particular topics difficult, have difficulty keeping current with the reading/homework assignments, or just want some extra support. In the past, some students have chosen to do their homework during the help sessions, while other students only come to the sessions when they have a specific problem. You should use the help sessions as they best meet your needs.

Research Report (10% of course grade)

The research report is an APA style write-up of an experiment that you will help conduct. The experiment will reproduce the experimental framework of a classic psychology experiment. You will receive more detailed information about the write-up for this research report in a separate handout, as well as more information about how to write in APA style. This assignment counts for 10% of your total course grade.

Lab Attendance and Activities (5% of course grade)

We'll spend most of our Thursday lab time building your skills in using SPSS, a statistical software package, by seeing how our recently-learned statistical techniques get implemented in this program. I will give you detailed lab handouts that explain all the steps of SPSS implementation and I'll walk you through the steps of any new analyses or techniques. Then you'll work through examples, modifications, and interpretations on your own. Occasionally we will finish our lab handout with some time remaining, and I encourage you to use this time to get a head start on your homework. During some weeks, we'll use lab time for other activities, including discussing your research report, reviewing APA style, and giving you instruction in using Excel. Attendance to the lab sessions is required and is worth 5% of your total course grade.

SPSS Proficiency Exam

You are required to satisfactorily pass an SPSS proficiency exam (i.e., receive at least 80 out of 100 points). On this exam you must demonstrate your ability to prepare data sets and carry out statistical analyses using SPSS. This exam is an open-book exam and you have 24 hours to complete it. You may take the exam more than once if needed. You must satisfactorily pass the exam by Wednesday 12/13 at 5 PM or your final grade will be penalized 10 points. The exam is available starting Wednesday 12/6.

Composition of Course Grade

Exam 1	10%
Exam 2	15%
Exam 3	15%
Final Exam	30%
Problem Sets	15%
Research Report	10%
Lab Attendance	5%
SPSS Proficiency Exam	(10% penalty if not passed by 12/13)

Policies for Makeup Assignments and Late Work

There are no makeup exams or assignments. If you foresee a problem, contact me before the exam. A student who is not present at an exam receives no credit for that exam (i.e., a numerical grade of zero).

Any assignments that are submitted late will be penalized 20% for each day they are overdue.

ACADEMIC INTEGRITY

All exams must contain your own work regardless of whether the exams are open-book, closed-book, take-home, or in-class. You may not collaborate with any other individual on any exam and you may only use those materials (notes, tables, books) as explicitly stated on each exam booklet or in the syllabus.

You may (and should) work on the problem sets with other students. However, you must turn in your own, hand-written, completed problem sets (i.e., machine generated copies of problem solutions will not be accepted, except for computer printouts of computer assignments). If you do work on the problem sets with other individuals, make sure that you understand the solutions to all the problems and that you can solve them by yourself (i.e., dividing up the problems will put you at a serious disadvantage on the exams).

COURSE ACCOMMODATIONS

I am committed to supporting the learning of all students. If you are encountering barriers to your learning that I can mitigate, please bring them to my attention. If you think you need accommodations based on the impact of a disability, please contact Allie Quinn, Director of Disability Services (aquinn2@macalester.edu, 651-696-6874) early in the semester to schedule an accommodations meeting. Further information about disability services and accommodations can be found at: <http://www.macalester.edu/studentaffairs/disabilityservices>

OVERVIEW OF TOPICS, LABS, AND ASSIGNMENTS

Date	Class Topic	Lab Activities	Assignment
1 st Week (9/6 – 9/8)	Introduction to the course Chapters 1 and 2 (skim section on percentiles)	No lab this week	No homework due week of 9/11
2 nd Week (9/11 – 9/15)	Central Tendency and Variability Chapter 3	SPSS: Creating and editing data files	Due Mon. 9/18: Chap. 1: EX: 1,2,4 TQ: 1-8 Chap. 3: EX: 1,6,9,14 TQ: 1-7
3 rd Week (9/18 – 9/22)	z-scores and Normal Distribution Chapter 4	SPSS: Graphing, descriptive statistics, transforming data	Due Mon. 9/25: Chap. 3: CE: 1,2,3,5 Chap. 4: EX: 1,4,7-10,12 TQ: 1-8 CE: 1
4 th Week (9/25 – 9/29)	Hypothesis Testing and Statistical Inference Chapter 5	Eye-Tracking Training	Due Mon. 10/2: Chap. 5: EX: 2-5 TQ: 1-8
5 th Week (10/2 – 10/6)	One-Sample z -tests Chapter 6	Data Collection in eye-tracking lab	Prepare for Exam 1 (Mon 10/9)
6 th Week (10/9 – 10/13)	<u>EXAM 1 ON MONDAY 10/9</u> One-Sample tests and Confidence Intervals Chapter 7	Literature search with psych journal databases (Library room 206)	Due Mon. 10/16: Chap. 6: EX: 1,2,4,6 TQ: 1-6
7 th Week (10/16 – 10/20)	Independent- and Dependent-Samples t -tests Chapter 7	SPSS: t -tests	Due Mon. 10/23: Chap. 6: CE 1,3 Chap. 7: EX: 1,5,8,9 TQ: 1-6 CE: 1,3,5
8 th Week (10/23 – 10/25)	Correlation Chapter 9	Excel (lab on Tuesday this week)	Prepare for Exam 2 (Wed 11/1)
9 th Week (10/30 – 11/3)	<u>EXAM 2 ON WEDNESDAY 11/1</u> Correlation and Linear Regression Chapter 10	SPSS: Correlation APA style and review of Research Report	Due Mon. 11/6: Chap. 9: EX: 1,3a,3c TQ: 1-3,5-6 CE: 2-4
10 th Week (11/6 – 11/10)	Linear Regression Chapter 10	SPSS: Regression	Due Mon. 11/13: Chap. 10: EX: 1,2,6 TQ: 2-5 CE: 1-3
11 th Week (11/13 – 11/17)	One-Way ANOVA Chapter 12	SPSS review	Due Mon. 11/20: Chap. 12: EX: 1,2,3a,4 TQ: 1-3 Chap. 13: TQ: 2,5,6 Research Report due Monday 11/20
12 th Week (11/20)	Research Report due Monday 11/20 Multiple Comparisons, Contrasts Chapter 13	No lab this week (Thanksgiving)	Due Fri. 12/1: Chap. 12: CE: 1-3 Chap. 13: CE: 1,3 Chap. 14: EX: 2 TQ: 1,3,4,5
13 th Week (11/27 – 12/1)	Factorial ANOVA Chapter 14	SPSS: ANOVA, Multiple Comparisons	Prepare for Exam 3 (Fri 12/8)
14 th Week (12/4 – 12/8)	Interactions <u>EXAM 3 ON FRIDAY 12/8</u>	SPSS: Factorial ANOVA	SPSS Exam must be passed by Wed 12/13
15 th Week (12/11 – 12/13)	Effect Size, Power, Course Wrap-up <u>SPSS Proficiency Exam due Wed 12/13</u>	No lab this week	Computational Final Exam due Mon 12/18 (available on Moodle Mon 12/11)
Wed 12/20	<u>FINAL EXAM ON WED 12/20 AT 8 AM</u>		

EX = Exercises; TQ = Thought Questions; CE = Computer Exercises (these require the use of SPSS)