

Psychology – Graduate Statistics I (8011)

Fall Semester 2017
Professor Josh Klugman
Class Meeting Time: MW 9:00-10:30
Class Location: Weiss Hall 704
Lab Meeting Times:
Section 001: R 8-8:50
Section 002: R 9-10:00
Location: Weiss Hall 640

Office (sociology): Gladfelter 763
Office Hours: MW 10:30-11:30
F 2-3 GH763
E-mail: klugman@temple.edu

Lab Instructor: Jamielyn Samper
Office: Weiss 714
Office Hours: By appointment
E-mail: jamielyn.samper@temple.edu

Prerequisites

I assume that all students have taken an undergraduate introductory statistics class. If this does not apply to you please see me as soon as possible so we can talk about what you can do to make sure you do not get lost.

Course Goals and Learning Outcomes

This course will introduce you to statistical techniques that most psychologists use in their research. In the first semester we will cover basic data analysis; sampling distributions; t-tests and the chi-square test; one-way analysis of variance (ANOVA); testing assumptions for ANOVA and remedial measures to deal with violations of ANOVA; contrasts and adjustments for multiple comparisons (Bonferroni, Tukey, and Sheffé corrections); factorial ANOVA; contrasts for factorial ANOVA; and (assuming time permits) three-way ANOVA. In the second semester we will cover repeated-measures ANOVA; multi-factor repeated-measures ANOVA; repeated mixed design ANOVA (aka split-plot ANOVA); correlations, partial correlations, and semipartial correlations; linear regression; and multiple regression. You will learn how to do these statistical techniques in SPSS, a software package commonly used in psychology. We will cover SPSS in the lab sessions.

Texts and Course Materials

The only required course materials are a scientific calculator, which you should bring to every class. You do not need anything fancy (a graphing calculator is not necessary).

There no required textbook for this class. If you are worried about understanding the material and/or SPSS, you might consider purchasing *Discovering Statistics Using SPSS* 4th edition (ISBN 978-9351500827). For a more technical treatment of the material we are covering, I would recommend Scott E. Maxwell and Harold D. Delaney's *Designing Experiments and Analyzing Data: A Model Comparison Perspective*, 2nd edition (ISBN 0805837183; a third edition has just been released but I have not looked at it yet).

There will be a handful of article- and chapter-length readings throughout the semester.

Requirements

Lab Assignments: To hone your statistical skills and make you feel more comfortable using statistics, I require that you complete assignments that will be assigned in one to two week intervals throughout the semester. Lab assignments will constitute 60% of your final grade.

We encourage you to help one another on the lab assignments, although you should draw the line at looking at each other's write-ups. Your grade is determined by how well you meet our expectations, not on your performance relative to others. However, we expect that the work you turn in is your own. Cheating will not be tolerated in this class.

You are required to turn in lab assignments on the days they are due. You have two "free days" where you can turn in one assignment two days late, or two assignments one day late. After you have reached the two day limit, we will deduct your assignment grade 25% for each day it is late. We will not accept assignments that are more than two days late.

Exams: There will be one midterm and one final exam. For each exam you will be allowed to use one double-sided page (8" × 11") of hand-written notes. The midterm and final are each worth 20% of your final grade. The final is semi-cumulative in that it will focus on the material covered since the midterm but it may require you to use the tools you learned before then.

<i>Final Grade Breakdown</i>		<i>Final Grade Cutoffs</i>			
Computer Assignments	60%	A	97.0 - 100	C	73.0 - 76.9
Exams (2)	40%	A-	90.0- 96.9	C-	70.0 - 72.9
		B+	87.0 - 89.9	D+	67.0 - 69.9
		B	83.0 - 86.9	D	63.0 - 66.9
		B-	80.0 - 82.9	D-	60.0 - 62.9
		C+	77.0 - 79.9	F	<60.0

In-Class Technology—I ask that you refrain from using laptops and cell phones while in class.

Attendance Policy

This course does not have an attendance policy. You are adults, and if you miss class I will not penalize your grade. However, I encourage you to attend class. For most people, learning statistics is a challenge, and I have found that the most learning occurs in collective settings where one interacts with the instructor and fellow students. If you miss class, you are responsible for learning the content you missed as well as any other course materials/announcements.

I am much more bothered by chronic lateness, and if you come to class consistently late I will penalize your semester grade.

Communications Policy

We will not answer questions regarding course content through e-mail. Instead, such questions should be directed at the discussion forum on Canvas. This will ensure students' equal access to information. Only questions specific to you (e.g. asking to arrange a meeting, or about your grades) should be sent through e-mail.

I suggest you check Canvas and your e-mail account daily so you do not miss any special announcements made outside of normal class hours.

Computing

You do not need to buy any software to do well in this course. SPSS is available in all computer labs on the main campus, including Weiss Hall.

Tentative Topic Schedule (subject to change as we progress through the semester):

Week	Days	Topic
1	08/28-8/30	Introduction – Summary Statistics, Normal Distribution Introduction to Inferential Statistics – Hypothesis Testing, Confidence Intervals Using Normal and t dist. READING: Miller (2004), “Types of Quantitative Comparisons” (on Canvas)
2	09/06-09/05	Wrap up inferential statistics NO CLASS MONDAY 9/4
3	09/11-09/13	Comparing Means Across Two Groups independent & dependent t tests of sample means READING: Gelman and Carlin (2014), “Beyond Power Calculations: Assessing Type S (Sign) and Type M (Magnitude) Errors”. <i>Perspectives on Psychological Science</i> 9(6) 641-651. dx.doi.org/10.1177/1745691614551642 Gelman (2017), “The ‘What Does Not Kill My Statistical Significance Makes It Stronger Fallacy’”. Blog entry, <i>Statistical Modeling, Causal Inference, and Social Science</i> February 6, 2017. http://andrewgelman.com/2017/02/06/not-kill-statistical-significance-makes-stronger-fallacy/
4	9/18-09/20	Testing For Normality Nonparametric Tests <ul style="list-style-type: none"> • Wilcoxon Rank-Sum/Mann-Whitney U • Wilcoxon Signed-Rank Test Chi-Square Test
5	09/25-09/27	One-Way ANOVA <ul style="list-style-type: none"> • Logic • Assumptions • Kruskal-Wallis Test Brown-Forsythe F^* test
6	10/02-10/04	One-Way ANOVA continued
7	10/09-10/11	One-Way ANOVA contrasts
8	10/16-10/18	MIDTERM MONDAY, 10/16 Wrap up one-way ANOVA contrasts
9	10/23-10/25	Adjustments for multiple contrasts <ul style="list-style-type: none"> • Bonferroni • Tukey • Sheffé
10	10/30-11/01	Trend Analysis
11	11/06-11/08	Factorial ANOVA (Two-Way ANOVA)

12	11/13-11/20	Contrasts in Two-Way ANOVA READING: Simmons et al (2011), "False-Positive Psychology: Undisclosed Flexibility in Data Collection and Analysis Allows Presenting Anything as Significant." <i>Psychological Science</i> 22(11): 1359-1366. dx.doi.org/10.1177/0956797611417632
	11/20-11/22	THANKSGIVING BREAK
13	11/27-11/29	Contrasts in Two-Way ANOVA continued
14	12/04-12/06	Higher Order ANOVA
15	12/11	Higher Order ANOVA continued NO LAB THURSDAY 12/13
16	12/20	FINAL EXAM WEDNESDAY 8-10am Weiss 704

Disability Statement: This course is open to all students who met the academic requirements for participation. Any student who has a need for accommodation based on the impact of a disability should contact the instructor privately to discuss the specific situation as soon as possible. Contact Disability Resources and Services at 215-204-1280 to coordinate reasonable accommodations for students with documented disabilities.

Statement on Academic Freedom: Freedom to teach and freedom to learn are inseparable facets of academic freedom. The University has adopted a policy on Student and Faculty Academic Rights and Responsibilities (Policy # 03.70.02) which can be accessed through the following link: <http://policies.temple.edu/PDF/99.pdf>.

Policy on Academic Honesty: The section in italics is quoted verbatim from the Temple University Bulletin for 2016-2017.

Temple University believes strongly in academic honesty and integrity. Plagiarism and academic cheating are, therefore, prohibited. Essential to intellectual growth and the university's core educational mission is the development of independent thought and a respect for the thoughts of others. The prohibition against plagiarism and cheating is intended to foster this independence and respect.

Plagiarism is the unacknowledged use of another person's labor, another person's ideas, another person's words, another person's assistance. Normally, all work done for courses -- papers, examinations, homework exercises, laboratory reports, oral presentations -- is expected to be the individual effort of the student presenting the work. Any assistance must be reported to the instructor. If the work has entailed consulting other resources -- journals, books, or other media -- these resources must be cited in a manner appropriate to the course. It is the instructor's responsibility to indicate the appropriate manner of citation. Everything used from other sources -- suggestions for organization of ideas, ideas themselves, or actual language -- must be cited. Failure to cite borrowed material constitutes plagiarism. Undocumented use of materials from the World Wide Web is plagiarism.

Academic cheating is, generally, the thwarting or breaking of the general rules of academic work or the specific rules of the individual courses. It includes falsifying data; submitting, without the instructor's approval, work in one course which was done for another; helping others to plagiarize or cheat from one's own or another's work; or actually doing the work of another person.

Refer to the Student Conduct Code (policy # 03.70.12 for more specific definitions of cheating and plagiarism.

The penalty for academic dishonesty can vary from receiving a reprimand and a failing grade for a particular assignment, to a failing grade in the course, to suspension or expulsion from the university. The penalty varies with the nature of the offense, the individual instructor, the department, and the school or college.

Students who believe that they have been unfairly accused may appeal through the school or college's academic grievance procedure.