S371: Statistics for Sociology
Fall 2012: Sections 25721, 25722, 15723
Lecture: M & W 2:30-3:45 Wylie Hall 101
Lab: T 12:20-1:10, 1:25-2:15, 2:30-3:20 Ballantine Hall 308

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Lab Instructor:	Jamie Oslowski-Lopez
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This course will introduce you to statistical techniques, concepts and reasoning. We will begin by discussing descriptive statistics (techniques used to summarize data in a sample) before moving on to inferential statistics. Inferential statistics allow us to make inferences about social processes in a full population, based on the information obtained in a much smaller sample of people. Throughout the course, you will learn to conduct statistical analyses using a software package named SPSS and to present your results both in written and oral form. Beyond providing you with a set of marketable skills, you will leave the course with a knowledge base that is increasingly necessary to consume and evaluate arguments presented in the media.

This class progresses with a relatively fast pace, and each week you will have to complete either a lab assignment or a quiz. The benefit to this structure is that each quiz will only test you on 3 lectures worth of new material, and gives you multiple opportunities to make up for a misstep early in the semester.

The course does not assume any previous experience with statistics, and is not does involve particularly difficult mathematical calculations. However, it does require an understanding of basic algebra.

Required Material

Readings: We will not work directly from a textbook, however, for those of you who would feel more comfortable having a text to reference, I recommend purchasing the following basic statistics textbook for use as a reference during this class and in the future:

Miethe, Terance D. and Jane Florence Gauthier. *Simple Statistics: Applications in Social Research*. Oxford University Press.

This text usually sells for $35-40. It is also possible to find good deals on other statistics texts if you search for used copies online.

You may also be interested in consulting the following online resource throughout this course*: Online Statistics: An Interactive Multimedia Course of Study*, by David Lane, Joan Lu, Camille Peres and Emily Zitek. *http://onlinestatbook.com/*

There will also be additional readings available on the class OnCourse site.

Calculator: You will need a basic scientific calculator. Anything that has the square root (√) and square (x^2) functions should be fine. You do not need a graphing calculator.

Software: The labs in the course will make use of SPSS, a statistical software package commonly used for data analysis. This software is available in computer labs on campus. It is available for $40 from the IU Stat/Math Center, although you are not required to purchase this software. You can also use the IUanyWARE website (iuanyware.iu.edu) to use the software off campus for free.

Course Requirements

Problem Sets: I will provide you with problem sets regularly throughout the semester. These are not graded, however, we will check to ensure that you have completed them. The problem sets are extremely important if you want to do well in this class. We have limited time to work through examples in class, and the problem sets are your opportunity to really prepare yourself for the quizzes and lab assignments.

Quizzes: We will have a total of seven in class quizzes over the course of the semester. The quizzes will be worth 100 points each. Quizzes will be given every other Wednesday beginning on August 29thth. They will test your understanding of the concepts and techniques learned in lecture. The tentative quiz dates for this semester are:
Aug. 29, Sept. 12, Sept. 26, Oct. 10, Oct. 24, Nov. 7, and Nov. 28.

Labs: In addition to class lecture, we will have a lab period every Tuesday. These lab sessions will give you the opportunity to analyze real world data and apply the techniques you learn in class. The labs should help you master the course material and give you hands on experience with statistical software. It is absolutely important that you show up to labs on time and prepared.

Each Tuesday before an exam, the lab will consist of a review session. This will give you the opportunity to sharpen the skills you've learned in lecture before the quiz.

In each other lab session there will be an in lab assignment worth 50 points. There will be a total of six graded lab assignments, and we will drop your lowest score. Most of these assignments will be due at the beginning of the following lecture. However, you should be able to complete, or nearly complete, most labs during the allotted lab time. You are permitted (and recommended) to work in groups on your lab assignment.

Final Project: In absence of a final exam you will complete a final project that incorporates all of the skills you will have learned in the course. You will split into small groups, identify a research question, conduct an analysis to answer that question, create a written analysis of your findings, and present your findings to the class **DURING THE TIME SCHEDULED FOR THE FINAL EXAM**. I will provide a set of guidelines for conducting and writing up your analysis as we approach the end of the semester. Your

final project will be worth 200 total points. You will be evaluated as a group; however, some portion of your grade will be based on an evaluation by your group members.

Short Group Presentations: You will split into small groups, each of which will be responsible for a brief in class presentation. Each group will be assigned one section of Darrell Huff's *How to Lie With Statistics* or Joel Best's *Stat Spotting* (both texts will be available on the class OnCourse website). You will be responsible for briefly explaining your section to the class as well as providing and explaining an example from the media relevant to your section. Topics and presentation dates will be discussed and determined in class. This presentation is worth 50 points.

Class Participation: Participation will account for 50 points of your total grade. In a small class setting, engagement and participation are invaluable. Students who are actively engaged in the course and participate in class discussion will receive full credit for participation.

Attendance: Given the fast-paced nature of this course and its focus on lecture notes, attendance is of vital importance. You may miss up to three class periods for any reason. Each additional absence that is not sanctioned by the university will result in a 1/3 letter grade reduction in your final grade.

Grading

Your grade will be based on the above requirements in the following manner:

Requirement	Points Each	Total Points
Quizzes (7)	100	700
Lab Assignments (5/6)	50	250
Final Project	200	200
Group Presentation	100	100
Participation	50	50
Total		1300

Letter grades will be assigned as follows:

A+	100-97%	(1300-1261)	C	76-73%	(1000-949)
A	96-93%	(1260-1209)	C-	72-70%	(948-910)
A-	92-90%	(1208-1170)	D+	69-67%	(909-871)
B+	89-87%	(1169-1131)	D	66-63%	(870-819)
B	86-83%	(1130-1079)	D-	62-60%	(818-780)
B-	82-80%	(1078-1040)	F	<60%	<780
C+	79-77%	(1039-1001)			

Additional Policies

Makeup Policy: In almost all instances, **there will be no makeup quizzes or labs**. Make up quizzes will only be granted under extraordinary circumstances. If you **absolutely have to** miss a quiz, **you need to notify me at least one week in advance** via email, and to provide proper documentation. If an emergency occurs on the day of an exam, you must email me before the exam and provide me with documentation immediately. (In accordance with University policy, religious holiday accommodation forms must be turned in during the first week of class.) Questions on any makeup quizzes will reflect the fact that students had additional time to prepare. **There will be absolutely no make-up labs**, as you

get to drop your lowest lab score and you will have time outside of the scheduled lab to complete the assignment.

Special Accommodations: In compliance with the Americans with Disabilities Act (ADA), IU seeks to provide "reasonable accommodation" for qualified individuals with documented disabilities. It is the student's responsibility to inform the instructor and to contact the Disability Student Service Office (855-7578; http://www.dsa.indiana.edu/dss.html) about any special learning/study needs relating to a documented disability within the first two weeks of the semester.

Academic Integrity: I take academic misconduct seriously and will not tolerate it in this class. This includes cheating, plagiarism, etc. If misconduct is discovered, I will take the appropriate action according to University policy. Please see the *Code of Student Rights, Responsibilities, and Conduct (http://www.iu.edu/~code/code/responsibilities/index.shtml*) if you have any questions as to what constitutes academic misconduct.

Incompletes: In accordance with University policy, I will not grant incompletes for this course except under highly extraordinary and documented circumstances.

Classroom Conduct: Class participation is integral to your understanding of the material and to your performance in this class. You are expected to come into class prepared to engage in class discussion and to ask any clarifying questions that you may have had about that day's or recent topics. Additionally, you are expected to be attentive during class. That means that you are not permitted to have cell phones, iPods, newspapers, etc. out during class time. Cell phones should be turned off before entering class (if you have circumstances that require that you keep your cell phone on, please notify me before class and turn your ringer to vibrate).

If you do not abide by these rules, you will not receive credit for having attended class on that day and may be asked to leave.

Communication: The best way to contact me is through email (please include S371 in the subject line). I will check my email at least twice per day (once in the morning and once in the evening) and will respond to most emails within 24 hours. I will use email as the primary means of communication with you outside of the class room, and will do so with the assumption that you will check your email and oncourse at least once per day.

Schedule of topics/readings

Topic	Associated Readings
1. Introduction	Pgs. 1-13, 37-41
2. Univariate Descriptive Statistics	
a. Frequency Distributions	Pgs. 47-58
b. Central tendency of a distribution	Pgs. 73-87
c. Dispersion/variability of a distribution	Pgs. 94-99
3. Bivariate Descriptive Statistics	
A. Two qualitative variables: Contingency tables and related measures of association	Pgs. 188-201 (don't worry about the discussion of degrees of freedom or significance; we will get to this later).

B. Comparing groups: A qualitative independent and quantitative dependent variable	
C. Two quantitative variables: Regression and correlation	Pgs. 235-248
D. Introduction to multivariate analysis	Pgs. 261-263
4. Inferential Statistics	
A. Probability and random variable distributions	pgs. 115-118
B. Sampling distributions	Pgs, 128-130
C. Normal and standard normal distributions	Pgs. 105-115
D. Estimation	Pgs. 127-143
(1) Confidence interval for a mean	Pgs. 133-136, 140-142
(2) Confidence interval for a proportion	Pgs. 137-138 , 142-143
E. Hypothesis testing	
(1) Logic of hypothesis testing	Pgs. 149-160
(2) Hypothesis test about a single mean	Pgs. 167-170
5. Hypothesis testing in multivariate analysis	
A. Comparing groups: Difference of means test and its extensions	Pgs. 173-175, 178-181
B. Contingency tables revisited	Pgs. 188-202
C. Regression and correlation revisited	
(1) Simple regression	Pgs. 248-251
(2) Multiple regression	Pgs. 266-271
D. Extensions and additional statistical tests, as needed for your projects (e.g., logistic regression, measures of association for ordinal variables, etc.)	