S371 – Statistics for Sociology

Fall 2015 - Section 9958

Lectures: Tuesdays and Thursdays 2:30 – 3:45 pm in Ballantine Hall 242

Labs: Wednesdays from 12:20pm to 3:20pm BH 107

Instructor: Ms. Tamara van der Does

Office Hours: Tuesdays 4pm-6pm at the Starbucks in the IMU, or by appointment

Email: tvanderd@indiana.edu (when sending emails, **start subject line with "S371"**)

Mailbox: Ballantine Hall 744 box **next to** "van der Does" (office is open Monday-Friday 8:30am-4pm)

Lab Instructor: Ms. Elizabeth Zack

Office Hours: Wednesdays 3:20pm-4:20pm at the Starbucks in the IMU, or by appointment

Email: eszack@indiana.edu (when sending emails, **start subject line with "S371"**)

Mailbox: Ballantine Hall 744 box **next to** "Zack" (office is open Monday-Friday 8:30am-4pm)

Course Description and Objectives

This course is an introduction to statistical thinking. We will discuss the methods used by statisticians to summarize data of a sample (descriptive statistics) and then learn techniques used to generalize from a sample to the whole population (inferential statistics). Inferential statistics are complex and key to understanding numbers we confront in everyday life.

This class will develop skills necessary for further education and entering the workforce. Indeed, you will learn how to use a statistical analysis software (SPSS). SPSS is used in many fields in graduate school and in the workplace. Furthermore, you will develop your skills in reporting and presenting your results. This course will provide you with the tool kit to understand statistics presented in the media and to use data to make your own arguments. To take this course, you do not need to have any previous experience with statistics. The mathematical calculations you will perform are not particularly difficult; however, you do need an understanding of basic algebra.

This class is fast paced. Each week you will complete problem sets. While weekly problem sets may seem overwhelming at times, there are many benefits to this structure. First, the problem sets give you an opportunity to try out skills taught during lecture before the exams. Second, you will be able to work during the labs in groups and with direct help from the Lab Instructor. Finally, having graded problem sets every week means that your final grade will not be only influenced by tests or final projects.

COURSE REQUIREMENTS

Required Texts

- Miethe, Terance D. and Jane Florence Gauthier. 2008. **Simple Statistics: Applications in Social Research**. Oxford University Press.
    - **Available at the University Book Store**
- Other assigned readings will be posted on Canvas under the "Files" tab

Required Materials

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

Problem Sets

Weekly problems sets provide an opportunity to practice calculations and analyze data. Below are the guidelines for problem sets:

1. There will be a problem set due **every week** except the week of an exam and the week before finals. Problem sets will be **distributed during the lab on Wednesday** and are **due at the beginning of class on Thursday**. The problem sets will also be available on Canvas.
2. The **labs** are set up for you to **work on the problem sets**. Before an exam, the lab will be a review session for the exam. The last week of classes, you will have that time set aside to work on your final projects. **You cannot switch labs unless extreme circumstances.**
3. **Show your work**. You must show work for all calculations or points will be deducted.
4. **Round appropriately**. When doing calculations retain four decimal places (e.g. 0.1234). When presenting your final answer, round to two decimal places (e.g. 0.12).
5. Be **neat and organized**. Points will be deducted if assignments are not written legibly, organized, and stapled. (You do not need to type problem sets.)
6. You **may work together in small groups**. Remember, however, that working through the problem sets is the best preparation for the exams, which you must complete on your own. Even if you work with others, you must write up and turn in your own problem set. **List the names of any other students** you worked with on the problem set at the top of the page.
7. **Some problem sets will use SPSS software**, which you will receive instruction on during labs. You do not need to purchase this software. It is **available in computer labs** in Ballantine Hall and the library. You can also use it on your own computer with a university login through IUanyWare available at https://iuanyware.iu.edu. Remember though, if you prepare your assignments in SPSS and intend to print from a computer without SPSS, be sure to save your results in a Microsoft word file (or some other common file type).
8. The **lowest grade for Problem sets will be dropped.**

Exams

There will be two cumulative exams. The exams will all be given in class. The exams will be closed book, but you will be provided handouts that include all necessary formulas. You will need to **take your calculator to all exams**. **Exam Dates: Thursday October 8th and Thursday November 12th**

Final Project

Rather than a final exam, you will complete a final project that incorporates all of the skills you learn in the course. You will identify a research question, conduct an analysis to answer that question, and create a written analysis of your findings. **This project is due by 12:30 p.m. on Canvas on Tuesday, December 15th, 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.

Participation and Attendance

I expect all students to come to class regularly, to be on time, and to be fully prepared by having done all the readings and assignments. I will cover information in my lectures that is not covered in the assigned readings and lecture notes will not be posted on the course website. **If you miss class, it is your responsibility to get notes from another student**. There is no attendance policy for the class lectures, but class **participation will count as 10% of your final grade**. Your class participation grade will take into account in-class exercises, coming to office hours, sending me e-mails with reflective comments/questions, and sharing thoughts/ideas during class.

Attendance of labs is mandatory. However, I realize that sometimes we all face legitimate reasons for absence over the course of the semester (such as illness, family emergencies etc). For this reason**, you are allowed to miss three labs (regardless of the reason) without being penalized**. Once you miss three labs**, I will deduct 3% (30 points) off your final grade for EACH additional lab you miss, regardless of the reason,** with the exception of university sanctioned excuses such as religious holidays.

Final Grade Calculation

	Points each	Total points
Problem Sets (10/11)	50	500
Final Project	200	200
Exams (2)	100	200
Participation	100	100
Total Possible:		**1,000 points**

Final Grading Scale

97-100%	(970-1000 points)	A+	73-76.9%	(730-769 points)	C
93-96.9%	(930-969 points)	A	70-72.9%	(700-729 points)	C-
90-92.9%	(900-929 points)	A-	67-69.9%	(670-699 points)	D+
87-89.9%	(870-899 points)	B+	63-66.9%	(630-669 points)	D
83-86.9%	(830-869 points)	B	60-62.9%	(600-629 points)	D-
80-82.9%	(800-829 points)	B-	0-59.9%	(0-599 points)	F
77-79.9%	(770-799 points)	C+			

COURSE GUIDELINES AND POLICIES

Academic Integrity

I do not tolerate academic misconduct, and will take appropriate university action if it is discovered. The Code of Student Rights, Responsibilities, and Conduct's definition of academic misconduct includes but is not limited to: cheating, fabrication, plagiarism, interference, and violation of course rules. For more information, please see the Student Code of Rights, Responsibility and Conduct (http://indiana.edu/~code/code/index.shtml).

Special Needs

In compliance with the Americans and Disabilities Act (ADA), IU seeks to provide reasonable accommodation for qualified individuals with documented disabilities. It is the student's responsibilities to inform the instructor and to contact the Disability Student Service Office (855-7578; http://studentaffairs.iub.edu/dss/) so that appropriate accommodations can be made.

Incompletes

In accordance with departmental and university policy, I will not grant an incomplete unless extremely unusual and documented circumstances are present.

Communication

There are multiple ways to contact me with your questions and concerns:

- **Email (tvanderd@indiana.edu or eszack@indiana.edu)***:* If you choose to email me, please do so using my email address and not through Canvas. Please include S371 in the subject line. I check my email at least once a day; however, please allow at least 24 hours for my response. I will answer weekend emails by the end of day on Mondays. As a participant in this class **it is your responsibility to check your Indiana University email on a regular basis** (especially if you miss class).
- **Office Hours:** My office hours are set aside specifically to meet and talk with students (Tuesdays 4pm-6pm, and Wednesdays 3:20-4:20pm) **If you are not able to come at the times listed on the syllabus, please let me know by email and we will set up an appointment.**

Electronics

Please turn off cell phones and other small electronics during class time. If there is any reason your phone or other electronic device needs to be left on during class, let me know before class. If you are texting, playing games, etc on a phone or other small electronic device during class time, you will be asked to leave and counted as absent for the day. Laptops and tablets are frequently a distraction, not just to students using them but to others sitting nearby. For this reason, **laptops and tablets will not be allowed in class.** Exceptions will be made only in the case of documented need for the use of a laptop. No part of my class may be audio or video recorded without my permission.

Make-up Exams and Problem Sets

Typically, there will be no make-up exams; the exceptions to this policy are extreme circumstances or religious holidays. If you miss an exam for one of these reasons, you must provide me with the proper documentation. In addition, make-up exams will be graded to reflect the extra time that students had to study and will be different from the exam given in class. **There will be no make-up problem sets**, as you get to drop your lowest lab score and you will have time outside of the scheduled lab to complete the assignment.

Late Policy

Final Projects and problem sets that have not been submitted to me by the beginning of the class in which they are due will be considered late. **Late papers will be penalized by a 10% deduction of the assignment grade for each day they are late** (including weekends).

Religious holiday accommodation

In accordance with University policy, **religious holiday accommodation forms must be turned in during the first two weeks of the semester.** You can find the "Request for Accommodations for Religious Observances" form at the following link: http://www.indiana.edu/~vpfaa/forms/index.shtml#religious

Classroom Etiquette

We will be discussing a variety of potentially sensitive topics including race, class, gender, religion and politics. Be aware that each person comes to class with a unique background and perspective and I expect you to be respectful and open-minded when listening to viewpoints other than your own. A lack of courtesy will not be tolerated.

CLASS SCHEDULE

This is a tentative schedule for the course that **may need slight adjustments** as we move through the semester. Any changes will be announced in class prior to the effective date and you are responsible for keeping up with those changes.

While the **lecture slides will not be posted online**, the **textbook will be a good resource** to go over formulae and examples.

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).
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	

Important Dates

Date	Event
9/3	Problem Set 1 due
9/10	Problem Set 2 due
9/17	Problem Set 3 due
9/24	Problem Set 4 due
10/1	Problem Set 5 due
10/8	Exam 1
10/15	Problem Set 6 due
10/22	Problem Set 7 due
10/29	Problem Set 8 due
11/5	Problem Set 9 due
11/12	Exam 2
11/19	Problem Set 10 due
12/3	Problem Set 11 due
12/15	Final Project due at 12:30pm on Canvas