

Quantitative Techniques in Sociology I
Sociology 321 (4 credits)
Spring 2016

Lectures:	TU,TH 9.10-10.25
Labs:	M 11.10-12 or 12.10-13
Instructor:	Alair MacLean VMMC 202H 360-546-9177 alair.maclean@wsu.edu
Office hours:	TU,TH 12-13 Sign up for office hours at http://www.wejoinin.com/sheets/efhjv (or by appointment)
Teaching assistant:	Valerie Adrian VMMC 207 valerie.adrian@wsu.edu
Office Hours:	M 9.30-10.30 and 13-14 (or by appointment)

Prerequisites

Sophomore standing and basic algebra skills. If you have limited math skills, you will need to work harder to do well in this class than those students who are comfortable with algebra.

Course Description and Goals

This is a course designed to introduce students of sociology, public affairs, and the social sciences, more broadly, to statistical analysis. This class consists of two parts. First, you will learn about descriptive statistics, the numbers (means, standard deviations, proportions, correlations, and regression coefficients) that describe a collection of data. Then you will learn about inferential statistics, which use the characteristics of a sub-set of the population (or a sample) to make conclusions about the larger population. There are a limited set of statistics that we will focus on in this class, and you will learn how to apply an even smaller set of skills to each of these. The table on the next page graphically presents the statistics that you will learn and the skills that will be applied to each. (We will touch on a few other statistics, including the mode and median, as well as learn ways of graphically summarizing these statistics, but the bulk of the course will be spent on the topics in the table. We will most likely not cover regression as fully as we will means and proportions.)

The fact that by the end of the semester you will be able to apply these skills to these statistics will enable you to begin to: read popular applications of statistics in the media with a critical eye, assess the use of statistics in the academic literature, and use statistical tools to answer the statistical questions that interest you.

Table 1. Statistics and skills to be learned in Soc. 321

		<u>Skills</u>		
		Calculating	Hypothesis tests	Confidence intervals
<u>Statistics</u>	Means			
	Proportions			
	Standard deviation			
	Correlation			
	Cross-tabs			
	Regression			

Table 2. WSU Learning goals

WSU Learning Goals of the Baccalaureate	Student Learning Outcomes: At the end of this course, students should be able to:	Course Topics/Dates The following topic(s)/dates(s) will address this outcome:	Evaluation of Outcome: This outcome will be evaluated primarily by:
Information Literacy	Locate, categorize, critique, and evaluate sources of information	Weeks 5-6; weeks 9-10; weeks 12-13	Computer assignments
Quantitative Reasoning	Draw appropriate conclusions based on the quantitative analysis and presentation of social science data	All dates	In-class exercises, exams

Course Materials

Required:

Moore, David S. 2009. *The Basic Practice of Statistics*, Fifth Edition. New York: W.H. Freeman. [Text]

Silver, Nate. 2012. *The signal and the noise: Why so many predictions fail--but some don't*. New York: Penguin Press. [SIG]

Web Resources:

There is a web-site for the textbook (http://bcs.whfreeman.com/bps7e/#t_937162), which includes free and open resources to assist you.

Calculators:

We do not require or provide instruction in how to use calculators to perform statistical or graphing operations. On the homework and exams, you will need to perform basic mathematical manipulations (e.g., adding, subtracting, multiplying, dividing, squaring, and taking square roots), which can be achieved with any calculator. Students are not allowed to use the calculator on their phone during exams.

Grading and Evaluation

These are the standards for your overall grade: A 93-100; A- 90-92; B+ 87-89; B 83-86; B- 80-82; C+ 77-79; C 73-76; C- 70-72; D+ 69-67; D 60-69; F <60. To get a sense of the meaning of these letter grades, please refer to the “Explanation of Grading System” created at the University of North Carolina at Chapel Hill. (<http://registrar.unc.edu/academic-services/grades/explanation-of-grading-system/>)

Late assignments: Assignments will be considered late if they are submitted after the start of lab or lecture, and will be marked down 10 percent for each calendar day they are late.

I calculate overall grades twice: at mid-term and after finals. If you are interested in your grade, I will calculate mid-term grades for the entire class, which are to be submitted to the registrar’s office. If you come after the midterm period, I will only be able to tell you the grade that you were earning at the midterm. If you are concerned about your grade, it is better to figure out where you stand in the middle than at the end of the semester. Otherwise, you are responsible for keeping track of your assignments and grade. You will note that the points available for the different components of the grade are non-standard. The number of points does not affect your overall grade in the class, but has been statistically demonstrated to reduce sadness.

If you wish, you may track your progress toward your final grade using the table on the next page:

	Percent	Total points	Your points	Your percent
Out-of-class exercises	10%	69		
In-class exercises (best 15)	15%	103		
Exams (best 2 of 3)	40%	274		
Computer assignments	15%	103		
Final exam	20%	137		
Total	100%	685		

Required course work:

Out of class exercises (10 percent)

One of the primary goals of this course is to give you the skills to answer statistical questions. In order to give you practice, exercises are drawn from the *Basic Practice of Statistics* textbook and are outlined in the syllabus. Each week, you should make a good faith effort to do the required reading and to complete the exercises before coming to lab. At the beginning of lab, the TA will check to make sure you have at least tried to solve each of the assigned exercises. You will get full credit for having tried to solve all the exercises. You must be present at the beginning of lab to get credit for these exercises. During the lab, the TA will review the correct approach and answers to the exercises. Exercises will be announced in lecture on Tuesday and due in lab the following Monday.

Quizzes (15 percent)

Research has shown that students learn concepts more thoroughly if they have to recall those concepts often. Therefore, at the beginning of each lecture, you will be asked to solve one or two statistical exercises that will be drawn from the exercises that you completed out of class,

reviewed in the lab on Monday, and that draw on the lecture from the previous class. This strategy will increase your understanding and retention of the assigned material.

Exams (60 percent)

There will be three non-cumulative, closed-book examinations held in class. I will drop 1 of the 3 mid-term exam grades for the calculation of your final grade. Because only 2 of the exams count towards your final grade, I do not give make up exams. If you miss one of the exams for any reason this is the grade that is dropped. A second missed exam cannot be made up for any reason. (If you complete all three exams, I will count the two highest grades.) There will also be a cumulative final exam during the final exam period. Exams will include a combination of multiple choice and short answer items. They will focus on material assigned for and discussed in the lectures and labs leading up to the exam.

Computer assignments (15 percent)

Another goal of this course is to introduce you to the computer programs that are used perform statistical operations. During the course of the semester, there will be three assignments that will ask you to produce and analyze data using the statistical program Stata. This program is available in the computer lab. You may also purchase copies of the program through the University gradplan for a relatively reasonable price. See me if you are interested. You will have the opportunity to work on these assignments in the lab the week before the assignments are due.

Labs

The labs have four purposes:

1. Reviewing the out-of-class exercises: The TA will review the out-of-class exercises from which the in-class exercises will be drawn the following week;
2. Reviewing in-class exercises: The lab represents the best avenue for getting detailed feedback on your in-class exercises;
3. Working on computer exercises: You will spend time during lab learning the computer program Stata and applying it to the computer exercises;
4. Reviewing material to help you prepare for the exams.

Course Expectations and Guidelines

Blackboard: I will post the syllabus and some other materials on Blackboard.

Attendance Policy

Students are expected to attend all class sessions and are responsible for all material and announcements presented there. If you miss a class for any reason, you are responsible for finding out what was discussed (including announcements of or changes to assignments or due dates).

There are no make-ups for the in-class exercises. I will, however, drop the 3 lowest grades of the in-class exercises for the calculation of your grade. There are also no makeups for the mid-term exams, though I will drop the lowest such exam grade.

If you need to request a makeup for the final, you must contact me 24 hours in advance. In addition, I will only provide a makeup for the final exam for those students who have completed at least 80 percent of the in-class exercises.

WSU Reasonable Accommodation Statement

“Students with Disabilities: Reasonable accommodations are available for students with a documented disability. If you have a disability and need accommodations to fully participate in this class, please either visit or call the Access Center (Washington Building 217; 509-335-3417) to schedule an appointment with an Access Advisor. All accommodations MUST be approved through the Access Center. For more information contact a Disability Specialist on your home campus: **Vancouver:** 360-546-9138 <http://studentaffairs.vancouver.wsu.edu/student-resource-center/disability-services>

WSU Academic Integrity Statement

“Academic integrity will be strongly enforced in this course. Any student caught cheating on any assignment will be given an F grade for the course and will be reported to the Office of Student Conduct. Cheating is defined in the Standards for Student Conduct WAC 504-26-010 (3). It is strongly suggested that you read and understand these definitions.”

In previous versions of this class, the most common violations of academic integrity involve students handing in identical homework assignments. I encourage you to work with your classmates on your homework and exam preparation. You should not, however, hand in work that has simply been copied from someone else. The best way to ensure that you don't do this is to make sure that you write up your answers separately, after working through the problems with another person or a group.

Safety and Emergency Notification

“WSU has made an emergency notification system available for faculty, students, and staff. Please register at zzusis with emergency contact information (cell, email, text, etc.). You may have been prompted to complete emergency contact information when registering for classes at RONet. In the event of a building evacuation, a map at each classroom entrance shows the evacuation point for each building. Please refer to it. Finally, in case of class cancellation campus-wide, please check local media, the WSU Vancouver web page and/or <http://www.flashalert.net/>. Individual class cancellations may be made at the discretion of the instructor. Each individual is expected to make the best decision for their personal circumstances, taking safety into account. [Safety plan website](http://www.vancouver.wsu.edu/safety-plan) -- <http://www.vancouver.wsu.edu/safety-plan>.

Other random concerns

If you have a concern about this class, rule 104 of the WSU Academic regulations states: “Students having complaints about instruction or grading should refer them first to the instructor.”

Technology policy

Research has shown that high levels of multi-tasking are bad for focus and concentration. In addition, students who use keyboards during class have been shown to learn less than those who

do not. (For a recent review of the research, as well as experimental demonstration of these issues, read: Mueller, Pam A. and Daniel M. Oppenheimer. 2014. "The Pen Is Mightier Than the Keyboard: Advantages of Longhand Over Laptop Note Taking." *Psychological Science* 25 (6):1159-1168.) My own experience has been that the classroom environment is greatly improved by removing individual keyboards and screens.

For these reasons, we will have a no technology policy (unless you have a documented disability) for this class. This policy means no cell-phones or computers are to be used during class-time.

University Dates and Deadlines: <http://registrar.wsu.edu/academic-calendar>

DRAFT SCHEDULE (UPDATED 1/13), Note that lab exercises will be announced in previous lab

Week	Dates <i>Lab</i>	Lectures <i>Lectures</i>	Lectures	Reading	Lab activities
1		12-Jan &	14-Jan Overview and graphing	Text: Ch 1	
2		19-Jan &	21-Jan Describing distributions	Text: Ch 2	
3	25-Jan ,	26-Jan &	28-Jan Normal distribution, scatterplots, correlations	Text: Ch 3-4	
4	1-Feb ,	2-Feb &	4-Feb Tues: Exam; Thurs: Signal	SIG: Intro, Ch 1-3	Exam review
5	8-Feb ,	9-Feb &	11-Feb Regression, cross-tabs	Text: Ch 5-6	Computer exercise #1
6	15-Feb ,	16-Feb &	18-Feb Samples, experiments	Text: Ch 8-9	
7	22-Feb ,	23-Feb &	25-Feb Probability	Text: Ch. 12	
8	29-Feb ,	1-Mar &	3-Mar Tues: Exam; Thurs: Signal	SIG: Ch 4, 5, 7	Exam review
9	7-Mar ,	8-Mar &	10-Mar Sampling distribution, inference	Text: Ch 15, 16	Computer exercise #2
SPRING BREAK					
10	21-Mar ,	22-Mar &	24-Mar Inference	Text: Ch 17, 18	
11	28-Mar ,	29-Mar &	31-Mar Comparing means, inference about proportion	Text: 20, 21	
12	4-Apr ,	5-Apr &	7-Apr Tues: Exam; Thurs: Signal	SIG: Ch 8, 11, 13, conclusion	Exam review
13	11-Apr ,	12-Apr &	14-Apr Comparing two proportions, Chi-square	Text: 22, 23	Computer exercise #3
14	18-Apr ,	19-Apr &	21-Apr Inference about a regression	Text: 25	
15	25-Apr ,	26-Apr &	28-Apr Review/catch-up		Final exam review
Final exam during finals week					