

San José State University
Department of Sociology and Interdisciplinary Social Sciences
SOCI/SOCS 15: Statistical Applications in the Social Sciences, Section 1
Spring 2020

Course and Contact Information

Instructor:	Dr. Elizabeth Sweet
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Office Hours:	MoWe 4:00 – 5:00pm
Class Days/Time:	MoWe 10:30am – 11:45am
Classroom:	DMH 162

Course Web Page and MYSJSU Messaging

Course materials such as syllabus, handouts, lecture slides, and assignments will be posted on [Canvas Learning Management System course login website](#) at <http://sjsu.instructure.com>. You are responsible for regularly checking with the messaging system through [MySJSU](http://my.sjsu.edu) at <http://my.sjsu.edu> to learn of any updates.

Catalog Course Description

Introduction to statistical applications, particularly statistical inference, including central tendency, variation, normal distributions, probability, estimation, hypothesis testing, measures of association, correlation, linear regression and the analysis of variance.

Instructor Course Description

Every day we ask questions and make decisions about our social world using statistics and probability. For example, we might wonder: Does the majority of the U.S. population support stricter gun regulations? Do college students today experience more stress than students did ten years ago? In this class, you will learn statistical techniques that can help you to answer such questions.

Topics covered in this course include the importance and limitations of statistical research, the organization of and graphic presentation of quantitative data, probability, sampling distributions, the logic and procedures of statistical inference and hypothesis testing, and statistical techniques including chi square tests. Class time will be divided between presentation of the concepts that provide the foundation of statistical analysis and practice applying these concepts in the analysis of data.

Prerequisites

Math Enrollment Category M-I, M-II, or M-III

GE Category

Core G.E. Area B4 Mathematical Concepts. Please note that only a C or better in the course satisfies the G.E. requirement. Grades of C-and below do not. Semester grades of C to D- are passing and earn three units credit, but they do not satisfy the Area B4 Mathematical Concepts requirement.

Course Goals and Learning Objectives

The student learning and content goals for Area B4 courses include the following (1-6):

1. **Using mathematical methods to solve quantitative problems.** Throughout the course, we will use mathematical operations and a calculator to solve statistical problems. Students should be familiar with basic algebraic operations as we will use statistical formulas to solve statistical problems. Test items will typically include true/false questions and short answer word problems.
2. **Using mathematics to solve real life problems.** Practice problems, homework problems, and test questions will reflect true-to- life situations and contemporary events.
3. **Arriving at conclusions based upon numerical and graphical data.** Students will gain familiarity with the organization and representation of quantitative data in various forms. Students will learn to read and interpret statistical output including tables, graphs, rates, percentages, and measures of central tendency and variation.
4. **Applying mathematical concepts in one or more areas.** After covering introductory concepts and procedures, the course will focus on probability and statistical inference. These concepts and methods are central to statistical analysis. By applying statistical inference, students will see how analytical techniques underscore many of the claims that they learn in Sociology courses.
5. **Incorporating issues of diversity.** Classroom examples and test items will frequently deal with issues of diversity. Expect examples that incorporate variations or diversities of race, ethnicity, national origin, religion, sex, physical abilities, age, marital status, citizenship, economic levels, and sexual orientation.
6. **Writing requirements (minimum 500 words):** In clear and concise language, students will be interpreting their results both in assignments and when responding to questions on exams. Writing skills are important. The thoroughness of explanations, coherence and conciseness will be considered in evaluating this part of students' work.

Required Text and Materials

Textbook

Leon-Guerrero & Frankfort-Nachimas. 2014. *Essentials of Social Statistics for a Diverse Society*, 2nd Edition. Los Angeles: SAGE Publications, Inc. (Note: Earlier edition is fine too) ISBN 2nd Edition: 9781483359496

Materials

All students will need a **basic calculator** with a square root function. Calculators will need to be brought to all class meetings and exams. Students may not use cell phone calculators on exams.

I will post a **PDF handout of lecture slides** on Canvas the night before each class. I suggest you print these out before each class and use them to take notes.

Clicker Technology

In this course, we will be using clicker technology to collect responses to questions posted in class. Students are responsible for creating a free student account at www.iClicker.com, and adding this course to their account. Detailed instructions are available on the [SJSU eCampus website](#). Please contact [eCampus](#) with any questions or issues with the iClicker technology.

Course Requirements and Assignments

Your performance in this course will be evaluated based upon the following components:

- **Examinations** (65% of course grade)
 - Midterm 1 (20%)
 - Midterm 2 (20%)
 - Final (25%)
- **Class activities and exercises** (5% of course grade)
- **Homework Assignments** (30% of course grade)
 - 6 homework assignments worth 5% each

Examinations: There will be three written examinations: two midterms and one final exam. Exam questions will consist of true/false questions and short answer word problems. **You must bring a calculator to exams.** In addition, you are allowed a **one-page "cheat sheet"** - an 8½ x 11" piece of paper (front and back) on which you can write **by hand** anything you wish (e.g. definitions, examples). This sheet must be turned in with the exam. The final exam is cumulative in the sense that all statistical techniques build on an understanding of the concepts covered throughout the course, but it will emphasize the material covered after the second midterm.

Class Activities and Exercises: These group and individual activities, including clicker polls, are designed to give you practice with the concepts and skills we cover in class. These will generally be completed during class and will be scored as credit/no credit.

Homework Assignments: There will be six written homework assignments in this class, each worth 5% of your overall course grade. These assignments are designed to be a **learning tool** for you to practice applying the concepts and skills we cover in the class. Because I want you to focus on understanding and mastering the **process** of statistical analysis, homework assignments will be evaluated based on **completeness and the degree of effort** you've put into them and not on the correctness of your answers. Full credit will be given only if you have completed all problems (or have fully explained and clearly demonstrated the process you used to try to solve a problem if you get stuck) and your answers are detailed and legible. Your work **must be your own** and you must show **all steps** in your calculations, not simply the final answer. I will correct your assignments with feedback or will give you an assignment key to self-correct your assignment if there isn't time for me to return your assignment before an exam. Homework points will be allocated as follows:

- **Check = 10 points (full credit)** Assignment is complete; all answers are full and detailed with intermediate steps clearly shown; assignment demonstrates clear evidence of engagement with material.
- **Check Minus = 7 points** Assignment is technically complete or nearly complete but there is evidence of only moderate effort to engage with the material.
- **Minus = 5 points** Assignment is missing several answers and/or answers are incomplete and/or answers don't show work clearly and/or there is evidence of only minimal effort to complete the assignment.
- **Zero = 0 points** Assignment not turned in or is unacceptable (largely incomplete and/or illegible)

All assignments are due **at the beginning of class on the date specified**. I will not accept late assignments unless you have received approval from me in advance of the assignment due date.

Workload: Success in this course is based on the expectation that students will spend, for each unit of credit, a minimum of 45 hours over the length of the course (normally 3 hours per unit per week with 1 of the hours used for lecture) for instruction or preparation/studying or course related activities including but not limited to internships, labs, clinical practica. Other course structures will have equivalent workload expectations as described in the syllabus.

Grading Information

Final course grades are based on the weighted percentage of points earned and are assigned as follows:

Graded Component	Points Possible	Percent of Course Grade	Weighted Point Value
Midterm 1	100 pts.	20%	20 pts.
Midterm 2	100 pts.	20%	20 pts.
Final Exam	100 pts.	25%	25 pts.
Class Activities	1 pt. each	5%	5 pts. total
Homework Assignments	60 pts. total (10 pts. each)	30%	30 pts. total (5 pts. each)
Total	365 pts.	100%	100 pts.

Percentage Grade	Letter Grade
98-100%	A plus
93-97%	A
90-92%	A minus
87-89%	B plus
83-86%	B
80-82%	B minus
77-79%	C plus
73-76%	C
70-72%	C minus
67-69%	D plus
63-66%	D
60-62%	D minus
0-59%	F

Course Policies and Expectations

All of us carry responsibilities in this course. As your instructor, it is my responsibility to be prepared when I teach, to share information with you in a clear manner, to direct you to resources which help you fulfill your tasks, to provide you with opportunities to meet outside of class, to provide feedback on your work, and to ensure that the classroom is a space in which each person can learn and share ideas. As the student, it is your responsibility to:

- **Be in class.** Attendance **is expected** in this class, and it is in your best interest to be in class. If you choose not to attend class, recognize that it is your responsibility, and yours alone, to make up the material covered in your absence.
- **Come to class prepared,** having completed all of the assigned reading. As you read, please make note of any questions that come up for you and bring these to class.
- **Arrive on time.** It is distracting when people arriving late to class. Class begins promptly at the scheduled time.
- **Be respectful.** Please be respectful of the instructor and other students during classroom discussions and refrain from all disruptive classroom behaviors (e.g. side-talk, sleeping).
- **Unplug yourself.** Technology is wonderful, but for this class the only technological devices you will need are a writing implement, some paper, and your calculator. Laptops, tablets, and cell phones need to be silenced during class and should be left inside your bag unless your family responsibilities require you to be reachable.

- **Complete assignments fully and on time.** Make sure that your work is your own.
- **Make wise use of office hours.** Please come to office hours with specific questions about the things you do not understand and/or the places that you are stuck. If you are seeking help on the homework assignments, you need to at least attempt the questions on your own first. Please don't show up to office hours with a blank assignment.
- **Recognize when you are struggling and ask for help right away.** I want to help you succeed in this class and so it is important that I know if something is preventing you from doing so. If you wait until the end of the course to tell me that you are having problems, there will be little that either of us can do to help remedy the situation.
- **Understand when you may drop this course.** It is your responsibility to understand when you need to consider dropping a course. Refer to the current semester's [Catalog Policies](http://info.sjsu.edu/static/catalog/policies.html) section at <http://info.sjsu.edu/static/catalog/policies.html>. Add/drop deadlines can be found on the current academic year calendars document on the [Academic Calendars webpage](http://www.sjsu.edu/provost/services/academic_calendars/) at http://www.sjsu.edu/provost/services/academic_calendars/. The [Late Drop Policy](http://www.sjsu.edu/aars/policies/latedrops) is available at <http://www.sjsu.edu/aars/policies/latedrops>. Students should be aware of the current deadlines and penalties for dropping classes.
- **Inform me of any accommodations needed.** If you have a documented disability and are in need of course adaptations and/or accommodations, please contact me as soon as possible. [Presidential Directive 97-03](http://www.sjsu.edu/president/docs/directives/PD_1997-03.pdf) at http://www.sjsu.edu/president/docs/directives/PD_1997-03.pdf requires that students with disabilities requesting accommodations must register with the [Accessible Education Center](http://www.sjsu.edu/aec) (AEC) at <http://www.sjsu.edu/aec> to establish a record of their disability. If you think you might or know you will require alternative testing arrangements, you must register with the AEC at the beginning of the semester.
- **Commit to Integrity** As a student in this course (and at this university) you are expected to maintain high degrees of professionalism and integrity both in and out of the classroom. The [University Academic Integrity Policy S07-2](http://www.sjsu.edu/senate/docs/S07-2.pdf) at <http://www.sjsu.edu/senate/docs/S07-2.pdf> requires you to be honest in all your academic course work. Faculty members are required to report all infractions to the office of [Student Conduct and Ethical Development](http://www.sjsu.edu/studentconduct/). The Student Conduct and Ethical Development website is available at <http://www.sjsu.edu/studentconduct/>. Instances of academic dishonesty will not be tolerated. Cheating on exams or plagiarism (presenting the work of another as your own, or the use of another person's ideas without giving proper credit) will result in a failing grade and possible sanctions by the University.
- **Obtain consent to make recordings in class.** Common courtesy and professional behavior dictate that you notify someone when you are recording them. You must obtain the instructor's permission to make audio or video recordings in this class. Such permission allows the recordings to be used for your private, study purposes only. The recordings are the intellectual property of the instructor; you have not been given any rights to reproduce or distribute the material.
- **Agree not to share course materials.** Course material developed by the instructor is the intellectual property of the instructor and cannot be shared publicly without their approval. You may not publicly share or upload instructor generated material for this course such as exam questions, lecture notes, or homework solutions without instructor consent.

University Policies

Per University Policy S16-9 (<http://www.sjsu.edu/senate/docs/S16-9.pdf>), relevant information to all courses, such as academic integrity, accommodations, dropping and adding, consent for recording of class, etc. is available on Office of Graduate and Undergraduate Programs' [Syllabus Information web page](http://www.sjsu.edu/gup/syllabusinfo/) at <http://www.sjsu.edu/gup/syllabusinfo/>

SOCI 15: Statistical Applications in the Social Sciences, Spring 2020 Course Schedule

NOTE: This schedule is subject to change. Schedule changes will be announced in class and on Canvas.

Week	Date	Topic	Reading due	Assignments
1	Mo 1/27	Course Overview	None	
	We 1/29	Introduction to Social Statistics	Chapter 1	HW 1 posted
2	Mo 2/3	Sampling and Measurement	Pp. 139-142	
	We 2/5	Presenting Data: Tables and Graphs	Chapter 2	
3	Mo 2/10	Presenting Data: Tables and Graphs		
	We 2/12	Measures of Central Tendency	Chapter 3	HW 1 due HW 2 posted
4	Mo 2/17	Measures of Central Tendency		
	We 2/19	Measures of Variability	Chapter 4	
5	Mo 2/24	Measures of Variability		
	We 2/26	Review		HW 2 due
6	Mo 3/2	Midterm 1		
	We 3/4	The Normal Distribution	Chapter 5	HW 3 posted
7	Mo 3/9	The Normal Distribution		
	We 3/11	Probability and Sampling Distributions	Chapter 6	
8	Mo 3/16	Sampling Distribution Activity		
	We 3/18	Population, Sample, & Sampling Distributions		HW 3 due HW 4 posted
9	Mo 3/23	Estimation and Confidence Intervals	Chapter 7	
	We 3/25	Estimation and Confidence Intervals		
10	Mo 3/30	SPRING BREAK – No classes		
	We 4/1			
11	Mo 4/6	Review		HW 4 due
	We 4/8	Midterm 2		
12	Mo 4/13	The t-distribution	Chapter 8	HW 5 posted
	We 4/15	Testing Hypotheses – One Sample Mean		
13	Mo 4/20	Testing Hypotheses – One Sample Proportion		
	We 4/22	Testing Hypotheses, cont'd		

14	Mo 4/27	Testing Hypotheses – Two Samples		HW 5 due HW 6 posted
	We 4/29	Testing Hypotheses, cont'd		
15	Mo 5/4	Bivariate Tables for Categorical Variables	Chapter 9	
	We 5/6	Bivariate Analysis for Categorical Variables		
16	Mo 5/11	Wrap up and review		HW 6 due
Final Exam: Friday May 15 th from 9:45am – 12:00pm in DMH 162				