San José State University
Department of Psychology
Statistics 95, Elementary Statistics, Section 12, Fall 2016

Course and Contact Information

Instructor: Greg Savage, M.A.
Office Location: 2nd floor of MLK Library
Telephone: 408-924-5648
Email: Gregory.Savage@sjtu.edu
Office Hours: Mondays: 2:30 to 3:15 PM
            Thursdays: 4:00 to 4:30 PM
            Fridays: 1:30 to 2:15 PM
Class Days/Time: Fridays from 10:00 AM to 12:45 PM
Classroom: Clark Hall 224
Prerequisites: Satisfaction of ELM requirements and 2 years of H.S. Algebra

Course Description

This course covers statistical concepts and the different types of statistical methods that are used in research studies (especially in social science). The topics that will be covered include a general introduction to the topic of statistics, variables and data values, samples and populations, descriptive statistics, frequency distributions and histograms, z scores, probability, sampling distributions, confidence intervals, hypothesis testing, the binomial test, the chi-square test, the two sample t test, One-way ANOVA, correlation, and scatterplots.

From the catalog:
Hypothesis testing and predictive techniques to facilitate decision-making; organization and classification of data, descriptive and inferential statistics, central tendency, variability, probability and sampling distributions, graphic representation, correlation and regression, chi-square, t-tests, and analysis of variance. Computer use in analysis and interpretation.

GE Learning Outcomes (GELO)

Upon successful completion of this course, students will be able to:
Learning Objective 1 (GELO1): Mathematical concepts courses should prepare the student to use mathematical methods to solve quantitative problems, including those presented in verbal form.

Learning Objective 2 (GELO2): Mathematical concepts courses should prepare the student to demonstrate the ability to use mathematics to solve real life problems.

Learning Objective 3 (GELO3): Mathematical concepts courses should prepare the student to arrive at conclusions based on numerical and graphical data.

Learning Objective 4 (Specific to Area B4): Focus on basic mathematical techniques for solving quantitative problems and elementary numerical calculation

Learning Objective 5 (Specific to Area B4): Focus on organization, classification, and representation of quantitative data in various forms (e.g., tables, graphs, percentages, measures of central tendency, and spread)

Learning Objective 6 (Specific to Area B4): Focus on applications of mathematics to everyday life Stat 95 Instructor’s Handbook 6 Learning Objective 7 (Specific to Area B4): Focus on applications of mathematical concepts to statistical inference

The above outcomes will be assessed through in-class assignments, homework assignments, quiz questions, discussion questions, and exam questions. For example, the in-class assignments might ask students to perform calculations with data (LO 4), arrive at conclusions based on the calculations they have performed (GELO 3), create graphs and tables (LO 5), or think of examples of how a person might use a certain statistical method in a real-life situation (LO 6). The quiz questions, homework questions, discussion questions, or exam questions might ask students to read a scenario and decide what statistical method should be used in that situation (GELO 1 and GELO 2); read a scenario, perform calculations, and then interpret the results (GELO 1 and GELO 2); create a graph or table based on a set of data (LO 5); or interpret a table or graph that has been provided by the instructor (LO 5).

In addition, Statistics 95 has a 500 word (minimum) writing requirement. This writing requirement will be satisfied through homework assignments, in-class assignments, and discussion board questions. In this course, students will be assessed on their ability to write about statistics clearly and coherently.

**Course Learning Outcomes**

Upon successful completion of this course, students will be able to:

CLO 1- Understand statistical concepts and vocabulary

CLO 2- Understand the statistical methods covered during the semester, including when they are used, how they are used, and why they are used in addition to the logic/theory behind each method and what each method is able to accomplish.

CLO 3- Determine what statistical method should be used in a certain situation, use that method, and then correctly interpret the results.

CLO 4- Perform certain statistical calculations and / or graphing of data
CLO 5- Solve problems involving statistics

CLO 6- Perform statistical calculations or graphing with real data sets and correctly interpret the results

CLO 7- Use statistical software

CLO 8- Understand how statistical methods fit into the big picture of research including why they are needed, how they are used, and what they are able to accomplish.

CLO 9- Understand the limitations of statistical inference in general and in specific situations

CLO 10- Understand the factors that can affect the validity of the results of a statistical procedure and be able to determine whether the results of a statistical procedure are valid in a certain type of situation.

Program Learning Outcomes (PLO)

Upon successful completion of the psychology major requirements…

PLO1 – Knowledge Base of Psychology – Students will be able to identify, describe, and communicate the major concepts, theoretical perspectives, empirical findings, and historical trends in psychology.

PLO2 – Research Methods in Psychology – Students will be able to design, implement, and communicate basic research methods in psychology, including research design, data analysis, and interpretations.

PLO3 – Critical Thinking Skills in Psychology – Students will be able to use critical and creative thinking, skeptical inquiry, and a scientific approach to address issues related to behavior and mental processes.

PLO4 – Application of Psychology – Students will be able to apply psychological principles to individual, interpersonal, group, and societal issues.

PLO5 – Values in Psychology – Students will value empirical evidence, tolerate ambiguity, act ethically, and recognize their role and responsibility as a member of society.

Required Texts/Readings

Textbook

There is no required textbook for this course.

If you would like for me to recommend a statistics textbook (or other resource) to use as a reference, please speak with me as soon as possible.

Other technology requirements / equipment / material

Students will need to be able to use Excel outside of class. Students will need to have reliable internet access outside of class. Students will need to have a basic calculator that can add, subtract, multiply, divide, square numbers, and find square roots. Students will need to have a phone, laptop, or tablet with internet access to answer in-class quiz questions (please speak with me if this will be an issue). Students will also need index cards and colored pens or pencils for certain activities.
Course Requirements and Assignments

Exams: One midterm exam and one non-cumulative final exam will take place during the semester. Exams will include multiple choice questions, short answer questions, and questions that ask students to perform calculations or graphing. Each exam will also include three questions that ask you to complete a paragraph that has been provided (by circling choices to complete the blanks inside of the paragraph). These three questions will be selected from a pool of questions that appeared on the homework assignments.

You can have one page of notes with writing (or typing) on the front and back during each exam.

You will need to bring a calculator that can perform square roots to each exam. Students cannot use cell phones as calculators during exams. No Scantrons will be needed for exams.

Even though the final exam is not technically cumulative, it will be important to remember information from earlier in the semester because later topics build on earlier topics.

All information that is mentioned in class, written on the whiteboard during class, or uploaded to Canvas is material that I might ask about on an exam.

Taking an exam at a different time than the rest of the class requires documentation, such as a note from a doctor. Students cannot take the exam at a different time for reasons such as going on vacation during the week of the exam. Cheating on exams will not be tolerated. Please refer to the section on Academic Integrity for information on the consequences of cheating.

In-class Assignments: Each week of class (except for the week of the midterm exam), we will complete an in-class assignment that includes one or more activities. We will work on the in-class assignment at various times during class (including during lectures). At the beginning of each class, I will pass out the in-class assignment.

Each week, the in-class assignment might include activities that students complete individually, activities that students complete in groups, or activities that we complete as an entire class. The in-class assignment will be posted on Canvas at the beginning of each week so that you can look at it ahead of time. Also, during each class, I will provide directions for the day’s activities.

The activities that we complete during the semester might include running simulations (with cards or websites), collecting data from other students or the internet, performing calculations, creating graphs or diagrams, or other types of activities.

Please bring a calculator that can perform square roots to each class session since we will often be using calculators during our activities. You will need to have a cell phone, laptop, or tablet with internet access for certain activities. You will also need to have a deck of 50 index cards and a set colored pencils (or colored pens) for certain activities.

Each week, the in-class assignment is due at the end of class (12:45 pm) and cannot be submitted late or completed outside of class.
Note: During certain activities, you will be collecting data from other students or from the internet. It is important that you save any data that you collect during an activity because you might be asked to re-use the data during later activities.

**Homework Assignments:** During each week in which we have a lecture, a homework assignment will be assigned. (The only exception will be the last week of the semester).

Each homework assignment will have two sections:

The first section might include (but is not necessary limited to) multiple choice questions, fill-in the blank questions, matching questions, short answer questions, graphing / diagramming questions, or questions asking for calculations. Some homework questions might ask for you to perform hand calculations (with work shown on paper), and some homework questions might ask for you to perform calculations with Excel.

The second section will include three essay questions that focus on the current week’s topic(s). These essay questions will already be answered (but with certain words blanked out) and you will need to fill in the blanks from a set of choices. I will select three of the essay questions that you have answered on the homework assignments to be on each exam. On the exam, you will be able to circle your answers just like you did on the homework assignments.

All of the questions on homework assignments will be my own questions (since there is no required textbook).

Each homework assignment will be posted on Canvas and will be need to be submitted on paper at the end of the class during which it is due. It is preferred that you print the assignment and complete your work on the printed assignment. If you complete a homework assignment on your own piece of paper, it will need to be clearly organized and readable.

Each homework assignment is due at the end of the next class after it was assigned (12:45 pm).

If you know that you will be missing class on a certain Friday, you will need to scan or take a photo of your homework assignment and upload it to Canvas before the end of class (12:45 pm) to avoid losing credit. If you upload a homework assignment to Canvas, the assignment must be clearly readable.

Each homework assignment will lose 50% of credit if it is submitted between 12:45 pm on the day it is due and 12:45 pm on the following class day. Homework assignments will not be accepted after 12:45 pm on the following class day after it is due.

**In-class quizzes:** At the beginning of each class (and at various times during each lecture), I will present individual multiple choice questions on the projector to test students’ retention and understanding of the material. Each time a question is presented, each student will answer the question individually on Socrative.com (a polling website) using a cell phone, laptop, or tablet. After all students have had a certain amount of time to answer a question, I will close the question on the website, and I will provide the correct answer to the class. I will also explain why it is the correct answer.
It is fine if students have private conversations about the questions while they are answering them. If you decide to have a private conversation about a question, it is important that you don’t give out the answer to the entire class. Also, it is important that you help the other student understand the concept and not simply give away the answer to the other student.

The quiz questions must be answered during class and can’t be made up if a student misses class.

**Discussion Board Responses:** Each week (except for Week 1 and each week that follows a week with no lecture), students will be required to respond to a set of 3 questions posted on the Canvas discussion board. Each week, the first 2 questions will be short answer or short essay questions that ask you to describe your understanding of a certain topic, to analyze a real or hypothetical scenario that is presented in the question, or to do research on the internet. Your answers to each of these questions will be graded based on a rubric that is provided along with the question. These rubrics will provide information about required (or recommended) length and required content. The 3rd question in each week’s set of questions will ask you to ask a question about the current week’s material or to attempt to answer another student’s question.

Each week, you won’t be able to see other students’ answers to the first two questions. However, you will be able to see other students’ answers to the third question.

Although you can discuss the questions with each other and share information, each of your discussion responses needs to be written in your own words and not include information copied from other students or from the internet. All information that you take from an outside source (including another student) must be paraphrased. You won’t receive any credit for responses that include entire sentences that are copied from other students or from published sources. If you would like assistance with paraphrasing information, please send me an email or make an office hours appointment. You can also visit the writing center.

During each week that discussion board questions are assigned, your responses are due by the following Wednesday at midnight.

Each late response will lose 10% of credit for each hour that it is late.

**Final Examination or Evaluation**

The final exam will be similar in format to the midterm. It will include multiple choice questions, short answer questions, and questions that ask students to perform calculations or graphing. It will also include three questions that ask you to complete a paragraph that has been provided (by circling choices to complete the blanks inside of the paragraph).

**Grading Information**

**Exams:**

Students’ answers to multiple choice questions will be graded based on accuracy (i.e., whether they are answered correctly or incorrectly). Students’ answers to short answer questions will be graded using content
rubrics. Students’ answers to calculation / graphing questions will be graded based on how thoroughly they are completed and on accuracy. Students will be able to receive partial credit on exam questions that ask for calculations or graphing (since these questions will have multiple steps and it is possible for an answer to be partially correct but not completely correct).

In-class Assignments:

Each in-class assignment will be graded based on how thoroughly it is completed, effort, and accuracy (when appropriate).

In some cases, it might be possible to earn back lost points on in-class assignments by making corrections (as long as the activity was submitted on time and the student made a good effort to complete it).

If you ever experience difficulty while completing a certain in-class assignment, it is highly recommended that you ask for assistance.

Homework Assignments:

Students’ grades on the weekly homework assignments will be based on how thoroughly the assignments are completed and on accuracy. Students can receive partial credit on their answers to certain homework questions if their answers are partially correct but not completely correct.

In-class quizzes:

During each day’s set of quiz questions, you will receive credit for each question that you attempt to answer and a small amount of extra credit for each question that you answer correctly.

Each day’s set of quiz questions is worth 1 point of credit. Therefore, you can calculate the number of points that each individual question is worth on a certain day by dividing 1 by the number of questions asked on that day.

Each day’s set of quiz questions is worth 0.2 points of extra credit. Therefore, you can find the number of extra credit points that each question is worth on a certain day by dividing 0.2 by the number of questions asked on that day.

Discussion Board Responses:

Your answer to each discussion board question will be graded based on a rubric that is provided along with the question. These rubrics will provide information about required (or recommended) length and required content.

Extra Credit:

Each homework assignment will end with an extra credit survey that is worth up to 1% of extra credit on the upcoming exam. Also, each in-class quiz question is worth a small amount of extra credit.

Further, up to two in-class assignments and up to two quizzes can be made up by doing extra credit assignments. If you are interested in completing extra credit assignments to make up for lost points, you will need to talk with me. The extra credit that you earn by completing these assignments will only count toward lost points for missed in-class assignments or quizzes. Also, the amount of extra credit that you earn by completing
these assignments will depend on how thoroughly and accurately they are completed.

**Determination of Grades**

Your final grade will be based on the number of points that you earn during the semester. The following table provides a breakdown of the 100 points that you can earn during the semester.

Homework Assignments (12 total)- 24 points (24% of your grade)  
In-class Assignments (13 total)- 13 points (13% of your grade)  
In-class Quizzes (13 total)- 13 points (13% of your grade)  
Discussion Board Responses (12 total) – 12 points (12% of your grade)  
Exam 1 – 19 points (19% of your grade)  
Exam 2 - 19 points (19% of your grade)  

**Grading Scale:**

- A - 90 – 100%
- B - 80 – 89%
- C - 70 – 79%
- D - 60 – 69%
- F - 59% and below

**Classroom Protocol**

**Class Sessions:** Class sessions will include time spent reviewing previous homework assignments, activities, lectures, and in-class multiple choice questions. Short videos might also be shown during certain classes. You will need to bring a calculator that can perform square roots and a phone, laptop, or tablet with internet access to each class session. Although I will often show PowerPoints in class, I will also write information / examples on the board. Therefore, it is important to get notes from another student if you miss class.

**Attendance:** Attending class is important because the material being discussed will be covered on exams and homework assignments. Also, each time you miss a class, you will lose points for that day’s in-class work.

**Arrival times:** Please come to class on time if it is at all possible. Arriving late to class is distracting to other students and can result in lost points on in-class assignments or quizzes.

**Behavior:** Please be respectful of the other students in the class and myself. Do not have distracting conversations with other students during class. Do not use cell phones, laptops, tablets, or any other electronic devices during class for purposes other than completing in-class activities and answering quiz questions. Do not spend class time finishing homework that should have been completed during the week. Also, do not spend
class time working on assignments for other courses or studying for other courses. Stay focused (and be respectful) during lectures, question and answer sessions, and activities. Actively participate with other students and be respectful toward the instructor and other students during our in-class activities. Finally, avoid leaving class and then coming back to class except during our break time (unless it is absolutely necessary) because it is distracting to other students and can result in you losing points if you miss part of an activity or if you miss quiz questions.

University Policies
Per University Policy S16-9, university-wide policy information relevant to all courses, such as academic integrity, accommodations, etc. will be available on Office of Graduate and Undergraduate Programs’ Syllabus Information web page at http://www.sjsu.edu/gup/syllabusinfo/”

San Jose State University
Statistics 95: Elementary Statistics, Section 12, Fall Semester 2016, Course Schedule
Course Schedule: This schedule is subject to change with fair notice. I will inform students of any changes made to the schedule through a Canvas announcement.

<table>
<thead>
<tr>
<th>Week</th>
<th>Date</th>
<th>Topics</th>
<th>In-class Requirements</th>
<th>Deadlines</th>
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<tbody>
<tr>
<td>1</td>
<td>Friday</td>
<td>Variables and Data Values</td>
<td>In-class Assignment 1 Quiz 1</td>
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<td>2</td>
<td>Friday</td>
<td>Populations and Samples</td>
<td>In-class Assignment 2 Quiz 2</td>
<td>Wed Aug 31 at Mid. Discussion Set 1</td>
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<td>Sept 2</td>
<td>Descriptive Statistics</td>
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<td>F Sept 2 at 12:45 PM</td>
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<td>Homework 1</td>
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<td>In-class Assignment 2</td>
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<td>3</td>
<td>Friday</td>
<td>Descriptive Statistics</td>
<td>In-class Assignment 3 Quiz 3</td>
<td>Wed Sept 7 Discussion Set 2</td>
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<td>Sept 9</td>
<td>Frequency Distributions and Histograms</td>
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<td>F Sept 9 at 12:45 PM</td>
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<td>Homework 2</td>
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<td>Friday</td>
<td>z scores Probability</td>
<td>In-class Assignment 4 Quiz 4</td>
<td>Wed Sept 14 Discussion Set 3</td>
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<td>Sept 16</td>
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Course Name, Number, Semester, Year
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|      |            |                          |                       | F Sept 16  
Homework 3  
In-class Assignment 4 |
| 5    | Friday     | Probability z score      | In-class Assignment 5 | Wed Sept 21  
Discussion Set 4  
F Sept 23  
Homework 4  
In-class Assignment 5 |
|      | Sept 23    | probability              | Quiz 5                |                                                               |
| 6    | Friday     | Exam 1                   | In-class Assignment 6 | Wed Sep 28  
Discussion Set 5  
F Sep 30  
Homework 5 |
|      | Sept 30    |                          | Quiz 6                |                                                               |
| 7    | Friday     | Sampling Distributions   | In-class Assignment 6 | F Oct 7  
In-class Assignment 6 |
|      | Oct 7      |                          | Quiz 6                |                                                               |
| 8    | Friday     | Sampling Distributions   | In-class Assignment 7 | Wed Oct 12  
Discussion Set 6  
F Oct 14  
Homework 6  
In-class Assignment 7 |
|      | Oct 14     |                          | Quiz 7                |                                                               |
| 9    | Friday     | Confidence Intervals     | In-class Assignment 8 | Wed Oct 19  
Discussion Set 7  
F Oct 21  
Homework 7  
In-class Assignment 8 |
|      | Oct 21     |                          | Quiz 8                |                                                               |
| 10   | Friday     | Confidence Intervals     | In-class Assignment 9 | Wed Oct 26  
Discussion Set 8  
F Oct 28  
Homework 8  
In-class Assignment 9 |
|      | Oct 28     |                          | Quiz 9                |                                                               |
| 11   | Friday     | Introduction to          | In-class Assignment 10| Wed Nov 2  
Discussion Set 9  
F Nov 4  
Homework 9  
In-class Assignment 10 |
<p>|      | Nov 4      | Hypothesis Testing       | Quiz 10               |                                                               |
|      |            | Binomial Test            |                       |                                                               |</p>
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<td>Chi-square test</td>
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<td>Two-sample test</td>
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<td>Friday</td>
<td>Dec 2</td>
<td>Two Sample test</td>
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<td>15</td>
<td>Friday</td>
<td>Dec 9</td>
<td>One-way ANOVA</td>
<td>In-class Assignment 13</td>
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<td>Correlations and</td>
<td>Quiz 13</td>
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<td>Scatterplots</td>
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<td>Final Exam is on Monday December 19 from 7:15 to 9:30 AM Final Exam will be in Clark Hall 224 until further notice.</td>
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