San José State University  
Department of Psychology  
Elementary Statistics (Stat 095)  
Spring 2013  

Instructor:  
Sean Laraway, Ph.D.  
Ron Rogers, Ph.D.  

Office Location:  
DMH, Rm. 311  
DMH, Rm. 157  

Telephone:  
(408) 924 – 5679  
(408) 924 – 5652  

Email:  
Sean.Laraway@sjsu.edu  
Ronald.Rogers@sjsu.edu  

Office Hours:  
Online Thursdays 12:00 – 1:00 pm  
Online Tuesdays 11:00 – 12:00 pm  

Class Days/Time:  
Online  

Prerequisites:  
By California State University policy, passage of the Entry Level Math (ELM) Exam is a prerequisite to enroll in this course. Failure to satisfy this prerequisite will result in the retroactive assignment of a “U” grade in this course. Information on the ELM can be obtained on the web at http://testing.sjsu.edu/teptelm.html  

GE/SJSU Studies  
Category:  
Intended for majors in education, nursing, personnel administration, psychology, social service and sociology, and psychology minors. GE: B4 (Mathematical Concepts) and CAN STAT 2.  

Course Description  
We live in a time of unprecedented access to information...data. Whether researching the best school, job, or relationship, the Internet has thrown open the doors to vast pools of data. Statistics are simply objective and systematic methods for describing and interpreting information so that you may make the most informed decisions about life. Catalog Description: Organization and classification of data, graphic representation, measures of central tendency and variability, percentiles, normal curve, standard scores, correlation and regression, and introduction to statistical inference; use of microcomputers for statistical calculations.  

Course Web Pages  
Udacity: http://www.udacity.com/overview/Course/st095/  
• This course is entirely online and will be delivered through Udacity.com.  
• You must enroll with Udacity (free) in addition to enrolling through SJSU.  
• We will use Udacity for …  
  o Delivery of all course content  
  o Discussion forums, i.e., posting of comments or questions about the content  
  o Testing  
  o Mentoring
CANVAS: https://sjsu.instructure.com/
- Canvas will be our learning management system for this class.
- You will automatically be given access to Canvas upon your successful enrollment in the course.
- Answers about Canvas can be found at http://guides.instructure.com/
- We will use Canvas for…
  - Sending messages
  - Posting grades
  - Submission of written work
  - Some testing

Course Goals and Learning Objectives
1. Stat 95 requires students to write a minimum of 500 words in a manner appropriate to quantitative analysis. The writing requirement will be met via written projects (described below). Writing will be assessed for grammar, clarity, conciseness, and coherence.

2. Stat 95 will incorporate issues of diversity in many ways (e.g., in lectures, films, assignments)

3. In terms of Mathematical Concepts (Area B-4), Stat 95 will focus on:
   - Basic mathematical techniques for solving quantitative problems
   - Elementary numerical computation
   - The organization, classification, and representation of quantitative data in various forms, such as tables, graphs, rates, percentages, measures of central tendency and spread
   - Applications of mathematics to everyday life
   - Applications of mathematical concepts in statistical inference

GE and Course Learning Outcomes (LO)
Upon successful completion of this course, students will be able to: (CLO 1 – 3 are GE outcomes, with the remainder being course-specific)
- **CLO1** – To use statistical methods to solve quantitative problems, including those presented in verbal form
- **CLO2** – To demonstrate the ability to use mathematics and statistics to solve real-life problems
- **CL03** – To arrive at conclusions based on numerical and graphical data.

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.

Assessment of student learning objectives: The learning objectives will be assessed via in-lesson learning checks, problem sets, written assignments, and exam questions. These assessment items will involve solving verbal and symbolic quantitative problems, including those that involve real-world situations. Students will be required to arrive at conclusions using numerical and graphical data. For example, students may view a scatterplot depicting data for the amount of sleep (X) and visual memory (Y), and will determine whether a relationship exists between these variables, if so, the nature and strength of this relationship (LO 3). In addition, students will compute appropriate statistical measures that describe the relationship (LO 1) and then determine the practical implications of the observed relationship (LO 2, 3).

Required Texts, Readings, and/or Materials

There are no required textbooks for this class. Some students, however, may wish to use various free online resources to help supplement the course content. Here are a few suggestions:

- [http://cnx.org/content/col10522/latest/](http://cnx.org/content/col10522/latest/)
- [http://vassarstats.net/textbook/](http://vassarstats.net/textbook/)

What you will need:

1. A reliable computer and Internet access.
   - Having access to the Internet is your responsibility, so have backup plans in case you have problems with your primary computer. We will not accept excuses about technology problems as valid, unless the entire university network or the Learning Management System is offline.

2. A subscription to StatCrunch

3. A subscription to ProctorU
   - [http://proctoru.com/udacity/](http://proctoru.com/udacity/) - Included in course fees

4. Calculator
   - The calculator can be either handheld or on your computer, but it must have the square root and exponent buttons. A graphing calculator is not necessary!
Definition of a Credit Hour

Success in this course is based on the expectation that students will spend, for each unit of credit, a minimum of forty-five 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.

As an example, the expectation of work for this 3-credit course is nine hours of student work related to this class each week. Examples of student work include such things as progressing through the Udacity lessons, problem sets, StatCrunch projects, reading statistics-related material, and meaningful participation in online discussions.

“Classroom” Protocol

Udacity lessons involve many short videos followed by interactive activities. To some extent this course is self-paced and will require you to time manage and self-motivate appropriately. We strongly recommend that you spend some time each day working through the lessons and problem sets. The worst thing you could do is to wait to complete the entire lesson right before something is due.

Another valuable suggestion is that, as in a normal classroom, you should be actively engaged in taking your own notes while watching the lessons. While it is true that the videos will remain available for you to review as many times as you require, active note taking will help you internalize the material better. Also, you’ll be able to use these notes to complete the problems sets and study for the exams. This will be much more convenient than trying to go back and re-watch the many videos.

Honor Code

(Reference: Academic Integrity Policy at: http://www.sjsu.edu/studentconduct/Policies/)

In order to ensure fairness and have a single standard of representing knowledge acquired, all students participating in online SJSU courses must agree to abide by the following code of conduct.

1. My work will be my own in this online course, except where the assignment is to work in groups or teams (we will let you know which assignments allow group work).
2. I will not give any answers for individually graded homework, quizzes or exams to anyone else.
3. I will not engage in any other activities that will misrepresent my own work or improve my results falsely. I will not engage in any activities that will misrepresent others’ work.
4. I will not download, save, or otherwise retain materials from the course for anything but personal use.

Class Environment

In an effort to create an environment conducive to sharing one’s thoughts, we require the following etiquette when engaging in online discussions:

• Be polite and respectful to the other people in the class
• Do not use profanity in posts
Respect for the rights and opinions of others is required. The free and open exchange of ideas is the cornerstone of higher education, but we must always remain respectful of others, even if we disagree strongly with them. Disagreement is acceptable, but discourteousness is not. Behavior that creates a threatening or harassing environment will not be tolerated. Severe and pervasive disruptions of course activities are a violation of the Student Code of Conduct will be reported to the Office of Student Conduct and Ethical Development. In short, let’s be cool to one another.

http://www.sjsu.edu/getinvolved/docs/Student%20Conduct%20Code.pdf

Recording of Class Materials

Common courtesy and professional behavior dictates that you notify someone when you are recording him/her. You may not make audio or video recordings in this class. By enrolling in this course you have not been given any rights to reproduce or distribute the material.

Course material developed by the instructor is the intellectual property of the instructor. You may not publicly share or upload instructor-generated material for this course such as exam questions, lecture notes, or homework solutions without my consent.

Assignments and Grading Policy

Your grade will be determined by your performance in five categories of the coursework and examination:

<table>
<thead>
<tr>
<th>Assessment Item and their Value</th>
<th>% of Final Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proctored Exams</td>
<td>60%</td>
</tr>
<tr>
<td>Un-proctored Exams</td>
<td>10%</td>
</tr>
<tr>
<td>Problem Sets</td>
<td>15%</td>
</tr>
<tr>
<td>StatCrunch</td>
<td>15%</td>
</tr>
</tbody>
</table>

A letter grade will be assigned based on a standard distribution of points. Your final grade will be calculated by summing your scores on the above criteria and a letter grade will be assigned based on the following grading distribution.

<table>
<thead>
<tr>
<th>Grading Distribution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grade</td>
</tr>
<tr>
<td>-------</td>
</tr>
<tr>
<td>A+</td>
</tr>
<tr>
<td>A</td>
</tr>
<tr>
<td>A-</td>
</tr>
<tr>
<td>B+</td>
</tr>
<tr>
<td>B</td>
</tr>
<tr>
<td>B-</td>
</tr>
<tr>
<td>C+</td>
</tr>
</tbody>
</table>

Exams: You will have three exams in this class. They will consist of multiple choice and computational questions. The exams are meant to assess your knowledge of the statistical concepts and calculations we cover in class. More specifically, there are typically three to seven learning objectives for each module. These learning objectives represent the concepts
and abilities you should have mastered by the end of that module. Module exam questions will be constructed to assess your understanding and/or abilities for each of these objectives.

Each Exam will be available online during a specific window of time using the Canvas or Udacity system. The exams will be available online on the dates scheduled below and will remain available for no more than a 24-hour period. You cannot use any support material (e.g., books, notes, friends, etc) when taking the exams. As we noted, the exams are meant to assess how much knowledge you have internalized, not how fast you can look-up the information. To that end, the exams will be timed, requiring you to provide an answer to each question within a certain amount of time. Moreover, while the exams will be available for 24-hours, you must complete the entire exam once you begin taking the exam. You will not be allowed to pause the exam or to return to previous portions of the exam once you have begun.

If you cannot take a scheduled exam due to an emergency, you must notify us before the end of the 24-hr exam period. In addition, you must provide written documentation for the reason you could not take the exam. At our discretion, we may allow you to make up the exam, but this is not guaranteed.

Problem Sets: At the end of each lesson, you will complete a Problem Set. These Problem Sets are meant to help you self-assess your knowledge of the concepts covered in each Lesson. All Problem Sets will be multiple-choice and will be based on material in the previous Lesson. You will be allowed to use notes and other resources (e.g., one of the online textbooks we suggested) for the Problem Sets, but you must answer the questions yourself. You are not allowed to ask anyone else (in or outside of the class) for the answers. Doing so will be considered academic dishonesty and will be subject you to the sanctions described in the section below titled “Academic integrity.”

Late Problem Sets will automatically have 50% deducted from them. Problem Sets will not be accepted beyond seven calendar days from their due date unless other arrangements have been made with the instructor.

StatCrunch Projects: While we are committed to teaching you how to calculate statistics, we are particularly interested in you developing the skills of interpreting and discussing the meaning of the statistics you have calculated, i.e., tell us what the numbers mean! To that end, we will have four writing projects in this class that will serve four specific functions:

1. Teach you how to use statistical software (StatCrunch) to conduct various statistical procedures.
2. Teach you to communicate statistical findings and interpretations.
3. Allow you to demonstrate your proficiency in written communication.
4. Fulfill the GE requirement of writing a minimum of 500 words in a manner appropriate to quantitative analysis.

We will discuss the details of these writing projects as their dates grow closer. Suffice to say that the reports will be at least roughly 125 words in length (typed, double-spaced, 12-point font, 1” margins) and may include at least one graph or table (software generated). Correct grammar, punctuation, and statistical style (as described in the Publication Manual of the American Psychological Association, 6th ed.) are expected and will represent a portion of your grade on the assignment. You will submit the writing assignments via Canvas online
submission process. All papers will be subject to plagiarism evaluation using Turnitin.com. The projects must be submitted in MS Word (.doc) or PDF format to earn credit.

**University Policies**

**Dropping and Adding**

Students are responsible for understanding the policies and procedures about add/drop, grade forgiveness, etc. Refer to the current semester’s Catalog Policies section at [http://info.sjsu.edu/static/catalog/policies.html](http://info.sjsu.edu/static/catalog/policies.html). Add/drop deadlines can be found on the current academic calendar web page located at [http://www.sjsu.edu/academic_programs/calendars/academic_calendar/](http://www.sjsu.edu/academic_programs/calendars/academic_calendar/). The Late Drop Policy is available at [http://www.sjsu.edu/aars/policies/latedrops/policy/](http://www.sjsu.edu/aars/policies/latedrops/policy/). Students should be aware of the current deadlines and penalties for dropping classes. Information about the latest changes and news is available at the Advising Hub at [http://www.sjsu.edu/advising/](http://www.sjsu.edu/advising/).

**Academic integrity**

Your commitment as a student to learning is evidenced by your enrollment at San Jose State University. The University’s Academic Integrity policy, located at [http://www.sjsu.edu/senate/S07-2.htm](http://www.sjsu.edu/senate/S07-2.htm), 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. The Student Conduct and Ethical Development website is available at [http://www.sjsu.edu/studentconduct/](http://www.sjsu.edu/studentconduct/).

Instances of academic dishonesty will not be tolerated. Cheating on exams or plagiarizing (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 sanctions by the University. For this class, all assignments are to be completed by the individual student unless otherwise specified. If you would like to include your assignment or any material you have submitted, or plan to submit for another class, please note that SJSU’s Academic Policy S07-2 requires approval of instructors.

**Campus Policy in Compliance with the American Disabilities Act**

If you need course adaptations or accommodations because of a disability, or if you need to make special arrangements in case the building must be evacuated, please make an appointment with me as soon as possible, or see me during office hours. Presidential Directive 97-03 requires that students with disabilities requesting accommodations must register with the Disability Resource Center (DRC) at [http://www.drc.sjsu.edu/](http://www.drc.sjsu.edu/) to establish a record of their disability.

**Resources for Success**

**SJSU Peer Connections**

The Learning Assistance Resource Center (LARC) and the Peer Mentor Program have merged to become Peer Connections. Peer Connections is the new campus-wide resource for mentoring and tutoring. Our staff is here to inspire students to develop their potential as independent learners while they learn to successfully navigate through their university experience. Students are encouraged to take advantage of our services which include
course-content based tutoring, enhanced study and time management skills, more effective critical thinking strategies, decision making and problem-solving abilities, and campus resource referrals.

In addition to offering small group, individual, and drop-in tutoring for a number of undergraduate courses, consultation with mentors is available on a drop-in or by appointment basis. Workshops are offered on a wide variety of topics including preparing for the Writing Skills Test (WST), improving your learning and memory, alleviating procrastination, surviving your first semester at SJSU, and other related topics. A computer lab and study space are also available for student use in Room 600 of Student Services Center (SSC).

Peer Connections is located in three locations: SSC, Room 600 (10th Street Garage on the corner of 10th and San Fernando Street), at the 1st floor entrance of Clark Hall, and in the Living Learning Center (LLC) in Campus Village Housing Building B. Visit Peer Connections website at http://peerconnections.sjsu.edu for more information.

**SJSU Writing Center**

The SJSU Writing Center is located in Room 126 in Clark Hall. It is staffed by professional instructors and upper-division or graduate-level writing specialists from each of the seven SJSU colleges. Our writing specialists have met a rigorous GPA requirement, and they are well trained to assist all students at all levels within all disciplines to become better writers. The Writing Center website is located at http://www.sjsu.edu/writingcenter/about/staff/.

**Student Success and Wellness**

Attending to your wellness is critical to your success at SJSU. I strongly encourage you to take advantage of the workshops and programs offered through various Student Affairs Departments on campus such as Counseling Services, the SJSU Student Health Center/Wellness & Health Promotion Dept., and Career Center. See http://www.sjsu.edu/wellness or http://www.sjsu.edu/counseling/Workshops/ for workshop/events schedule and links to many other services on campus that support your wellness! You may go to http://events.sjsu.edu to register for any one of the workshops.
# STAT 095 – Elementary Statistics (Spring 2013)
## Course Schedule

<table>
<thead>
<tr>
<th>Week</th>
<th>Start Date</th>
<th>Topics, Readings, Assignments</th>
<th>Due by end of week?</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Jan. 30</td>
<td>Introduction to Statistics &amp; Scientific Studies</td>
<td>Problem Set 1</td>
</tr>
<tr>
<td>2</td>
<td>Feb. 6</td>
<td>Frequency Distribution &amp; Visualizing Data</td>
<td>Problem Set 2</td>
</tr>
<tr>
<td>3</td>
<td>Feb. 13</td>
<td>Central Tendency</td>
<td>Problem Set 3</td>
</tr>
<tr>
<td>4</td>
<td>Feb. 20</td>
<td>Variability</td>
<td>Problem Set 4</td>
</tr>
<tr>
<td></td>
<td><strong>Feb. 26</strong></td>
<td><strong>Midterm 1 (Lessons 1 – 4)</strong></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Feb. 27</td>
<td>Standardized Scores (z-scores)</td>
<td>Problem Set 5, StatCrunch 1</td>
</tr>
<tr>
<td>6</td>
<td>Mar. 6</td>
<td>The Normal Distribution</td>
<td>Problem Set 6</td>
</tr>
<tr>
<td>7</td>
<td>Mar. 13</td>
<td>Sampling Distributions</td>
<td>Problem Set 7, StatCrunch 2</td>
</tr>
</tbody>
</table>
| 8    | Mar. 20    | Basics for Inferential Statistics  
  - Estimation (Confidence Intervals)  
  - Hypothesis Testing | Problem Set 8 |
| 9    | Mar. 27    | Basics for Inferential Statistics (Cont.)  
  - Hypothesis Testing | Problem Set 9 |
| 10   | Apr. 3     | **Proctored Midterm 2 (Lessons 5 – 9)**  
  - t Tests | Problem Set 10 |
| 11   | Apr. 10    | t Tests (Cont.) | Problem Set 11 |
| 12   | Apr. 17    | One-Way ANOVA | Problem Set 12 |
| 13   | Apr. 24    | One-Way ANOVA (Cont.) | Problem Set 13, StatCrunch 3 |
| 14   | May 1      | Correlation | Problem Set 14 |
| 15   | May 8      | Simple Regression | Problem Set 15, StatCrunch 4 |
| 16   | May 15     | Chi-Square | Problem Set 16 |
| Final Exam | May 22 | **Proctored Final Exam (Lessons 10 – 16)** | |

---

1 This schedule is subject to change with fair notice. Notification of changes, if any, will be made via email.
Problems sets are all completed and submitted on the Udacity site. Unless otherwise noted, each problem set must be submitted no later than 11:59 pm on the date indicated below.

<table>
<thead>
<tr>
<th>Due Date</th>
<th>Problem Set</th>
<th>StatCrunch</th>
<th>Topics, Readings, Assignments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Feb. 5</td>
<td>1</td>
<td></td>
<td>Introduction to Statistics &amp; Scientific Studies</td>
</tr>
<tr>
<td>Feb. 12</td>
<td>2</td>
<td></td>
<td>Frequency Distribution &amp; Visualizing Data</td>
</tr>
<tr>
<td>Feb. 19</td>
<td>3</td>
<td></td>
<td>Central Tendency</td>
</tr>
<tr>
<td>Feb. 25</td>
<td>4</td>
<td></td>
<td>Variability</td>
</tr>
<tr>
<td><strong>Feb. 26</strong></td>
<td></td>
<td></td>
<td><strong>Midterm 1 (Lessons 1 – 4)</strong></td>
</tr>
<tr>
<td>Mar. 5</td>
<td>5</td>
<td>1</td>
<td>Standardized Scores (z-scores)</td>
</tr>
<tr>
<td>Mar. 12</td>
<td>6</td>
<td></td>
<td>The Normal Distribution</td>
</tr>
<tr>
<td>Mar. 19</td>
<td>7</td>
<td>2</td>
<td>Sampling Distributions</td>
</tr>
<tr>
<td>Mar. 26</td>
<td>8</td>
<td></td>
<td>Estimation (Confidence Intervals)</td>
</tr>
<tr>
<td>Apr. 2</td>
<td>9</td>
<td></td>
<td>Hypothesis Testing</td>
</tr>
<tr>
<td><strong>Apr. 3</strong></td>
<td></td>
<td></td>
<td><strong>Proctored Midterm 2 (Lessons 5 – 9)</strong></td>
</tr>
<tr>
<td>Apr. 9</td>
<td>10</td>
<td></td>
<td>One-sample t-Test</td>
</tr>
<tr>
<td>Apr. 16</td>
<td>11</td>
<td></td>
<td>Independent Measures t-Test</td>
</tr>
<tr>
<td>Apr. 23</td>
<td>12</td>
<td></td>
<td>ANOVA</td>
</tr>
<tr>
<td>Apr. 30</td>
<td>13</td>
<td>3</td>
<td>One-Way ANOVA</td>
</tr>
<tr>
<td>May 7</td>
<td>14</td>
<td></td>
<td>Correlation</td>
</tr>
<tr>
<td>May 14</td>
<td>15</td>
<td>4</td>
<td>Simple Regression</td>
</tr>
<tr>
<td>May 21</td>
<td>16</td>
<td></td>
<td>Chi-Square</td>
</tr>
<tr>
<td><strong>May 22</strong></td>
<td></td>
<td></td>
<td><strong>Proctored Final Exam (Lessons 10 – 16)</strong></td>
</tr>
</tbody>
</table>