San José State University  
Department of Psychology  
STAT 115: Intermediate Statistics  
Section 2, Fall 2016

Instructor Contact Information

Instructor: Dave Schuster, Ph.D.
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E-mail: david.schuster@sjsu.edu
Office Hours: Tuesdays and Thursdays, 4:15pm – 5:00pm or by appointment

Course Information

Classroom: CL 117
Class Days/Time: Tues. & Thurs., 3:00pm – 4:15pm
Prerequisites: STAT 95 or equivalent

Course Description
This course will prepare you to use statistics inside and beyond the research laboratory. Concepts presented in this course will be useful to critical thinkers in an increasingly data-focused society, and the techniques covered will provide a foundation for conducting real-world research in the social sciences.

From the catalog: Statistical analysis at the intermediate level; chi-square, analysis of variance, correlation and regression, and topics in experimental design; use of microcomputers for statistical calculations. Intended for majors in education, nursing, personnel administration, psychology, social service and sociology, and psychology minors.

Course Format
This course uses elements from a flipped classroom delivery format. Internet access is required, as described below.
Learning Outcomes

Program Learning Outcomes
Upon successful completion of the requirements for a major in psychology, students will be able to:

- **PLO1** – Knowledge Base of Psychology – identify, describe, and communicate the major concepts, theoretical perspectives, empirical findings, and historical trends in psychology
- **PLO2** – Research Methods in Psychology – design, implement, and communicate basic research methods in psychology, including research design, data analysis, and interpretations
- **PLO3** – Critical Thinking Skills in Psychology – use critical and creative thinking, skeptical inquiry, and a scientific approach to address issues related to behavior and mental processes
- **PLO4** – Application of Psychology – apply psychological principles to individual, interpersonal, group, and societal issues
- **PLO5** – Values in Psychology – value empirical evidence, tolerate ambiguity, act ethically, and recognize their role and responsibility as a member of society

Course Learning Outcomes
The major goal of this course is to provide you with a solid foundation in statistics as they are used in psychology and the social sciences. We will examine the logic and strategies of scientific research and learn how to use appropriate inferential statistics to make sense of data. You will learn what statistics are available, when to use specific statistics, and how to interpret results.

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

- **CLO1** – Understand the logic of statistical concepts
- **CLO2** – Use appropriate statistical methods to solve quantitative problems and test hypotheses
- **CLO3** – Understand the logic and strategies of scientific research designs
- **CLO4** – Run statistical analyses using SPSS and interpret statistical information presented in SPSS output

The learning objectives will be assessed via written assignments and exam questions. The course learning objectives were adapted from those of Dr. Megumi Hosoda.

Required Materials

Canvas and E-Mail
Unless otherwise announced in class, all graded assignments will be accepted only in electronic form using the Canvas learning management system assignments page. Having access to the Internet is your responsibility, so have backup plans in case you have problems with your primary computer. I cannot accept excuses about technology problems as valid, unless the entire University network or all of Canvas is offline.

Supplementary course material will be made available on Canvas regularly. Communication regarding the course will be sent via the e-mail address linked to your MySJSU account or posted to Canvas. It is your responsibility to make sure you are enrolled in Canvas and receiving my e-mails.
Textbook (optional)
There is no required textbook for this course. You may wish to consult a textbook for additional explanation of course topics. To help you do that, a stats textbook is on reserve at the library; give our course name at the circulation desk to check out the textbook. Free, online textbooks are another option:

Collaborative Statistics available at http://cnx.org/content/col10522/latest/

Calculator
You are required to have a dedicated scientific or graphing calculator for this course. The best calculator for this course is the TI-36X Pro, which costs about $25 retail (available at OfficeMax, Staples, Walmart, Frys, the Spartan bookstore, and others. Target does not sell it). It only comes in black, and it looks like this:

I can provide the most help with the TI-36X Pro. Many students already own a graphing calculator, and since they have all the necessary features, any of these models will work in place of the TI-36X Pro:

- TI-83
- TI-83 Plus
- TI-83 Plus Silver Edition
- TI-84 Plus
- TI-84 Plus Silver Edition
- TI-84 Plus C Silver Edition
- TI-84 Plus CE
- TI-Nspire with Clickpad (Note: you need to purchase the Touchpad keypad for about $10 or order the free TI-84 Plus keypad)
- TI-Nspire with Touchpad
- TI-Nspire CAS with Touchpad (Nspire CAS with Clickpad is not supported since the keypad is different)
- TI-Nspire CX
- TI-Nspire CX CAS

Do not buy a graphing calculator just for this course. The TI-36X Pro is much cheaper and will do everything you need. Other scientific or graphing calculators are allowed but are not recommended. Your calculator must have statistics functions, normal distribution functions, a random number generator, a square root function, and an exponent button. If you decide to use a different calculator, keep your calculator manual handy. You will have to translate the procedures used in the course for your calculator.

SPSS
Many assignments will require you to perform analysis outside of class using SPSS. For these assignments, I will provide step-by-step instructions.

To use SPSS, it is intended that you use the computers in the computer lab located in the Academic Technology Computer Center in CL 102. Contact the lab to determine its hours of operation for this semester.

Optionally, you can obtain a copy of SPSS from the same location (CL 102). The lab has kiosk computers where you can download the SPSS installer files onto a portable drive or upload them onto your SJSU Google Drive free of cost. Otherwise, install media is available for both Mac and Windows for $15.

Flash Drive and Laptop (optional)
A flash drive is helpful for taking your work between class and the statistics lab. You are welcome to bring a laptop computer to class, but a laptop is not required. Laptops can only be used during class for course-related work. Instead of bringing a laptop, you can print your SPSS outputs and bring the printouts to our class meetings.

Grading Policy

How to be Successful in this Course
It is essential that you make time before every class meeting to:

- Check Canvas and your e-mail for course announcements and changes
- Check this syllabus for due dates and upcoming assignments and plan accordingly
- Review the relevant course pack sections
- Complete the quiz
- Attend the class meeting
- Complete the in-class activity that corresponds with the lecture
- Consult a statistics textbook, as needed
- Ask questions in class and/or via e-mail

Determination of Grades
Grades will be available to you on Canvas throughout the course. Grades are assigned based on your final point total (out of 1000 points for the course):

<table>
<thead>
<tr>
<th>Grade</th>
<th>Points</th>
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</thead>
<tbody>
<tr>
<td>A+</td>
<td>966+ points</td>
</tr>
<tr>
<td>A</td>
<td>916 - 965 points</td>
</tr>
<tr>
<td>A-</td>
<td>896 - 915 points</td>
</tr>
<tr>
<td>B+</td>
<td>866 - 895 points</td>
</tr>
<tr>
<td>B</td>
<td>816 - 865 points</td>
</tr>
<tr>
<td>B-</td>
<td>796 - 815 points</td>
</tr>
<tr>
<td>C+</td>
<td>766 - 795 points</td>
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</tbody>
</table>
Rounding is Included in the Grading Scale

The point totals reflect rounding up to the nearest percentage. For example, an A- would normally require 900 points (or 90% of 1000 points). With rounding, it only requires 896 points (or 89.6% of 1000 points). Because rounding is built in to the grading scale, your grade will be based on your final point total, rounded to the nearest whole point (so, 895.75 points is an A-, but 895.25 points is a B+). To be fair to everyone in the class, these are firm cutoffs; please do not ask for more rounding, special extra credit, or other unfair adjustments to your grade.

Grade Checks

Under Federal privacy laws, I can never e-mail grades to you. Instead, you have my official permission to use the Canvas printout as a record of your current progress in the course. If you need a signed grade check, then please bring the grade check form with a printout of your current Canvas grade to my office hours. Grade checks are only available during office hours or by appointment.

Course Requirements and Assignments

In-Class Activities

In-class activities are 15% of your final grade (150 points total).

Twelve in-class activities are worth 15 points each, but the lowest two are dropped. This leaves 10 in-class activities worth 15 points each, for a total of 150 points. Typically, our second class meeting each week will be dedicated to completing an in-class activity. The in-class activities are designed to give you hands-on practice with the techniques discussed in the lecture and handouts. You will receive points for completing all required parts of the assignment as described in the assignment instructions. No partial credit is given. Because this is a collaborative assignment, you must be present for the activity and the reflection question in order to receive credit. Occasionally, you may not have time to finish the in-class activity by the end of class. If this happens, I strongly encourage you to complete the activity on your own. Always check your completed work against the answer key posted to Canvas for feedback on your mastery. I am always happy to answer your questions about the activities and/or provide additional feedback on your work.

Quizzes

Quizzes are 15% of your final grade (150 points total).

Eleven quizzes are worth 15 points each, but the lowest one is dropped. This leaves 10 quizzes worth 15 points each, for a total of 150 points. Most weeks, a quiz will be assigned within Canvas. You may use support materials (your textbook, web sites, and your notes) when you take your quiz, but you must take
your quiz alone without the help of any other live individual. You may not communicate with anyone except the instructor during a quiz. For example, you may refer to the web page of a stats textbook during a quiz, but you may not send instant messages to someone while you take a quiz. As with activities, I am always happy to answer your questions following the quiz or discuss its concepts in more detail.

In summary: books and notes are okay for quizzes. Live help is not okay for quizzes. Please let me know if you have questions about what is allowed during quizzes or exams.

**Exams**

*Exams are 70% of your final grade (700 points total).*

Four exams are worth 175 points each. Each exam will focus on applying the knowledge learned in the previous part of the course. The fourth exam is the non-cumulative final exam.

You may bring and refer to the Course Pack, Calculator Guide, and your notes on the quizzes and exams. A single statistics textbook is also permitted. You may also use a single dedicated scientific or graphing calculator, but no other electronic device is allowed. **All other assistance is prohibited.** For example, you cannot use computers, mobile phones, watches, or tablets, even if they have a calculator function. If you will need to refer to material posted to Canvas, you will need to print it out ahead of time. If you have any questions about what material is allowed, ask me. I have no discretion in reporting suspected violations of academic integrity and will follow the required documentation process required by University policy.

**Final Examination or Evaluation**

The fourth exam is a non-cumulative final exam in the format described above.

**Extra Credit**

Your grade should reflect your performance in the course over the entire course. For this reason, there are few, if any, opportunities for extra credit. Any extra credit questions appearing in exams are designed to be challenging and reward true mastery of the course material.

**Make-Up and Extension Policy**

Make-ups or extensions for any graded assignment will only be given when:

- The assignment is not labeled, “no make-ups or extensions for any reason.”
- The reason is exceptional, unforeseen, and unavoidable. Examples of exceptional circumstances are health emergencies, religious obligations, and military service. Work scheduling is not a sufficient reason for a make-up or extension.
- You provide written documentation.
- You notify me immediately after you become aware of the circumstances requiring a make-up or extension by filling out this form:

If the need for a make-up is known before the assignment due date, the assignment must be completed early. Make-up exams will be scheduled based on instructor availability. Do not e-mail your instructor with requests for a make-up or extension; instead, complete the request form.
Classroom Protocol
We will be working in groups frequently. The success of our class depends on respect for everyone involved. Specifically:

- Class will start on time; avoid arriving late. If you are late, enter quietly.
- Silence your electronics during class.
- Don’t text, check your phone, IM, surf off-topic websites during class, or sleep; if you need to do these things, leave the room quietly and return quietly when finished. If you do any of these things in class, you will be asked to leave.
- Stay on topic during group work.
- You must obtain the instructor’s permission to make any audio or video recordings in this class.

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/.

About Diversity
Consistent with the mission of San José State University, I welcome persons of differing backgrounds and experiences including but not limited to age, disability and health status, ethnicity and race, family structure, geographic region, language, religious/spiritual and secular beliefs, resident status, sex, sexual orientation and gender identity/expression, and socioeconomic status.

It is my goal to foster an environment in which diversity is recognized and embraced, and every person is treated with dignity, respect, and justice. I hope that your academic experience in this course and at San José State University will provide the opportunity to gain knowledge and experiences necessary to thrive in a diverse, global environment.

Course Schedule
The course schedule is tentative and subject to change; modifications will be posted to Canvas or announced in class.

<table>
<thead>
<tr>
<th>Week</th>
<th>Date</th>
<th>Topics</th>
<th>Quiz</th>
<th>In-Class Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Thu., Aug. 25</td>
<td>Introduction and measurement review</td>
<td>Syllabus quiz</td>
<td>Activity 1</td>
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<td></td>
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<td>Review course pack before class; bring course</td>
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<td></td>
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<td>pack to class with any materials posted to</td>
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<td></td>
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<td>Canvas</td>
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<tr>
<td>2</td>
<td>Tue., Aug. 30 Thu., Sept. 1</td>
<td>Visualizing data review</td>
<td>Quiz 1</td>
<td>Activity 2</td>
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<tr>
<td>3</td>
<td>Tue., Sept. 6 Thu., Sept. 8</td>
<td>Descriptive statistics review</td>
<td>Quiz 2</td>
<td>Activity 3</td>
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<td></td>
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<td><em>Drop deadline</em></td>
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<table>
<thead>
<tr>
<th>Week</th>
<th>Date</th>
<th>Topics</th>
<th>Quiz Due by class start on Thursday</th>
<th>In-Class Activity</th>
</tr>
</thead>
</table>
| 4    | Tue., Sept. 13  
Add deadline  
Thu., Sept. 15 | Review course pack before class; bring course pack to class with any materials posted to Canvas  
Standardizing, Probability | Quiz 3  
Activity 4 |
| 5    | Tue., Sept. 20  
Thu., Sept. 22 | **No class meeting** (Tue.)  
**Exam 1** (Thu.) | |
| 6    | Tue., Sept. 27  
Thu., Sept. 29 | Area under the normal curve  
| 7    | Tue., Oct. 4  
Thu., Oct. 6 | Sampling distributions  
| 8    | Tue., Oct. 11  
Thu., Oct. 13 | Estimation, hypothesis testing, power, and errors  
| 9    | Tue., Oct. 18  
Thu., Oct. 20 | T-tests  
| 10   | Tue., Nov. 1  
Thu., Nov. 3 | Correlation & Regression  
| 11   | Tue., Nov. 8  
Thu., Nov. 10 | One-way ANOVA, Between-Subjects  
| 12   | Tue., Nov. 15  
Thu., Nov. 17 | One-way ANOVA, Within-Subjects  
| 13   | Tue., Nov. 22  
Thu., Nov. 24 | **Exam 3** (Thu.)  
**No class meeting** (Thu.)  
| 14   | Tue., Nov. 29  
Thu., Dec. 1 | Two-way ANOVA  
| 15   | Tue., Dec. 6  
Thu., Dec. 8 | Two-way ANOVA, continued (Tue.)  
Chi-Square (Thu.)  
| Final | Tue., Dec. 20 | **Exam 4**  
2:45-5:00pm  
|