San José State University
Department of Psychology
STAT 115: Intermediate Statistics
Section 3, Spring 2020

Instructor Contact Information
Instructor: Dave Schuster, Ph.D.
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Office Hours: Tues. & Thurs., 2:30pm – 3:30pm

Course Information
Classroom: DMH 355
Class Days/Time: Tues. & Thurs., 10:30am – 11:45am
Prerequisites: STAT 95 or equivalent

Course Description
This course will prepare you to use statistics in human-subjects research. 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 professional 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 technology intensive course uses elements from a flipped classroom delivery format. Required technology is 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 (Canvas is available at https://sjsu.instructure.com/). 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.

Optional Texts
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 $20 retail (available at Office Depot, Staples, Walmart, Frys, the Spartan bookstore, and others. Target does not sell it). More information about the **TI-36X Pro** is available at https://education.ti.com/en/products/calculators/scientific-calculators/ti-36x-pro. It only comes in black, and it looks like this:

![TI-36X Pro Calculator](image)

You do not need to purchase a graphing calculator for this course. However, if you already own a graphing calculator, you can use it instead if it is one of these models: all models of the Ti-83, all models of the Ti-84, any model of the Ti-Nspire except Nspire CAS with Clickpad. If your Nspire has a removable keypad, you need either the Touchpad keypad or the Ti-84 Plus keypad.

Other scientific or graphing calculators not recommended. Your calculator needs a list editor, 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.

You may be able to check out a graphing calculator for short term use from Student Computing Services at https://library.sjsu.edu/student-computing-services/student-computing-services.

**SPSS**

Many assignments will require you to perform analysis in and outside of class using SPSS.

To use SPSS, it is intended that you obtain a copy of SPSS for your own computer using the SJSU site license at no cost. Instructions to download, install, and license SPSS are available on the software downloads web site at https://www.sjsu.edu/it/services/collaboration/software/instructions.php.

**Optional Mobile Device**

You are welcome to bring a mobile computing device for class activities, such as a laptop or tablet, but it is not required. It is not recommended to use a mobile phone for this purpose. I trust that you will avoid using your technology to distract your classmates, as off-topic technology use will not be tolerated. Instead of bringing a mobile device, you can print your SPSS outputs and bring the printouts to our class meetings. Note that mobile devices will not be permitted during exams.

**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
- Read the relevant course pack sections
- Complete the quiz
- Attend the class meetings
- Complete the 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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<tbody>
<tr>
<td>A+</td>
<td>&gt; 965</td>
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<tr>
<td>A</td>
<td>916 to 965</td>
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<tr>
<td>A-</td>
<td>896 to 915</td>
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<tr>
<td>B+</td>
<td>866 to 895</td>
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<tr>
<td>B</td>
<td>816 to 865</td>
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<tr>
<td>B-</td>
<td>796 to 815</td>
</tr>
<tr>
<td>C+</td>
<td>766 to 795</td>
</tr>
<tr>
<td>C</td>
<td>716 to 765</td>
</tr>
<tr>
<td>C-</td>
<td>696 to 715</td>
</tr>
<tr>
<td>D+</td>
<td>666 to 695</td>
</tr>
<tr>
<td>D</td>
<td>616 to 665</td>
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<tr>
<td>D-</td>
<td>595 to 615</td>
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<tr>
<td>F</td>
<td>&lt; 595</td>
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</tbody>
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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, 895.6 points is an A-, but 895.4 points is a B+). To be fair to everyone in the class, these are firm cutoffs.

Make-Up and Extension Policy
Make-ups or extensions for any graded assignment will only be given when:

- You notify me immediately after you become aware of the circumstances requiring a make-up or extension by filling out this request form at [http://goo.gl/forms/0yJQ2KbvtP](http://goo.gl/forms/0yJQ2KbvtP).
- 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.
Unless you have questions about this policy, do not e-mail me with requests for a make-up or extension; instead, complete the request form.

Course Requirements and Assignments

Activities
Activities are 20% of your final grade (200 points total).

Ten in-class activities are worth 25 points each, but the lowest two are dropped. This leaves 8 activities worth 25 points each, for a total of 200 points. Typically, our second class meeting each week will be dedicated to completing an in-class activity. The 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 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. Sometimes, the answer key may not be enough explanation; I am always happy to answer your questions about the activities and/or provide additional feedback on your work.

Quizzes
Quizzes are 10% of your final grade (100 points total).

Eleven quizzes are worth 10 points each, but the lowest one is dropped. This leaves 10 quizzes worth 10 points each, for a total of 100 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. Doing so is academic dishonesty. For example, you may refer to the web page of a stats textbook during a quiz, but you may not send e-mails 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 a cumulative final exam. Your cumulative final exam grade will replace any lower grade on previous exams.

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 will be allowed. Materials used during an exam are subject to inspection. All other assistance is prohibited. If you will need to refer to any digital materials, you will need to print them out ahead of time. If you have any questions about what material is allowed, ask me.

Final Examination or Evaluation
The fourth exam is a cumulative final exam in the format described above.
Spring 2020 Extra Credit
This year’s Spartan Psychological Association Research Conference will be held on Monday, April 20, 2020. You may earn 20 points of extra credit by attending the keynote speech (Dr. Erin Flynn-Evans) and submitting 1-2 paragraphs on Canvas describing how any concept in this course connects to the talk. If you are unable to attend the keynote, you may instead read a journal article published by Dr. Flynn-Evans and submit 1-2 paragraphs connecting concepts in the article to the course. The paragraphs are due by class time on April 23.

Classroom Protocol
We will be working in groups frequently. This will only work if you come prepared to class, arrive on time (entering quietly if you are late), silence your electronics, are polite and respectful to everyone in the room, refrain from off-topic activities during lecture or group work, and speak up when you are confused, have questions, or need help.

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/

You must obtain the instructor’s permission to make any audio or video recordings in this class.

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 three hours per unit per week) for instruction, preparation/studying, or course related activities, including but not limited to internships, labs, and clinical practica. Other course structures will have equivalent workload expectations as described in the syllabus.

Academic Integrity
Please don’t cheat. I will not tolerate academic dishonesty in my courses. You can expect me to follow all University policies and protocols regarding the handling of suspected academic dishonesty. Penalties may include expulsion from SJSU. Software and statistical analysis may be used to detect academic dishonesty.

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, 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 likely to change; modifications will be posted to Canvas.

<table>
<thead>
<tr>
<th>Week</th>
<th>Date</th>
<th>Topics</th>
<th>Quiz</th>
<th>Activity</th>
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<tbody>
<tr>
<td>1</td>
<td>Thu., Jan. 23</td>
<td>Introduction and measurement review</td>
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<tr>
<td>2</td>
<td>Tue., Jan. 28 Thu., Jan. 30</td>
<td>Descriptive statistics and data visualization review</td>
<td>Quiz 1 Activity 1</td>
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<tr>
<td>3</td>
<td>Tue., Feb. 4  Thu., Feb. 6</td>
<td>Standardizing and probability review</td>
<td>Quiz 2 Activity 2</td>
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<tr>
<td>4</td>
<td>Tue., Feb. 11 Thu., Feb. 13</td>
<td>Exam review (Tue.) Exam 1 (Thu.)</td>
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<tr>
<td>5</td>
<td>Tue., Feb. 18 Thu., Feb. 20</td>
<td>Area under the normal curve</td>
<td>Quiz 3 Activity 3</td>
<td></td>
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<tr>
<td>6</td>
<td>Tue., Feb. 25 Thu., Feb. 27</td>
<td>Sampling distributions</td>
<td>Quiz 4 Activity 4</td>
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<tr>
<td>7</td>
<td>Tue., Mar. 3  Thu., Mar. 5</td>
<td>Hypothesis testing, power, and errors</td>
<td>Quiz 5 Activity 5</td>
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<tr>
<td>8</td>
<td>Tue., Mar. 10 Thu., Mar. 12</td>
<td>Exam review (Tue.) Exam 2 (Thu.)</td>
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<tr>
<td>9</td>
<td>Tue., Mar. 17 Thu., Mar. 19</td>
<td>T-tests</td>
<td>Quiz 6 Activity 6</td>
<td></td>
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<tr>
<td>10</td>
<td>Tue., Mar. 24 Thu., Mar. 26</td>
<td>Correlation and regression</td>
<td>Quiz 7 Activity 7</td>
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<tr>
<td>11</td>
<td>Tue., Mar. 31 Thu., Apr. 2</td>
<td>Spring Break</td>
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<td>12</td>
<td>Tue., Apr. 7  Thu., Apr. 9</td>
<td>One-way, between-subjects ANOVA</td>
<td>Quiz 8 Activity 8</td>
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<tr>
<td>13</td>
<td>Tue., Apr. 14 Thu., Apr. 16</td>
<td>Exam review (Tue.) Exam 3 (Tue.)</td>
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<td>14</td>
<td>Tue., Apr. 21 Thu., Apr. 23</td>
<td>One-way, within-subjects ANOVA</td>
<td>Quiz 9 Activity 9</td>
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<tr>
<td>15</td>
<td>Tue., Apr. 28 Thu., Apr. 30</td>
<td>Two-way ANOVA &amp; chi-square</td>
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<td>No class meeting</td>
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<tr>
<td>16</td>
<td>Tue., May 5   Thu., May 7</td>
<td>Two-way ANOVA &amp; chi-square, continued</td>
<td>Quiz 10 Activity 10</td>
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<td>Final</td>
<td>Mon., May 18</td>
<td>Exam 4: 9:45am - 12:00pm</td>
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