Instructor Contact Information

Instructor: Dave Schuster, Ph.D.
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Office Hours: Tuesdays and Thursdays, 10:15am – 11:15am or by appointment

Course Information

Classroom: DMH 339
Class Days/Time: Tues. & Thurs., 9:00am – 10:15am
Prerequisites: STAT 115 or equivalent

Course Description

This course presents an application-oriented introduction to statistics in the social sciences. Topics we will cover include: fundamental principles of statistical inference, graphical analysis of data; descriptive statistics, t-tests, and ANOVA. We will focus on advanced topics related to the general linear model (GLM) such as: factorial ANOVA, repeated-measures ANOVA, simple effects tests, power, effect size, and statistical conclusion validity.

From the catalog: Advanced problems in statistical analysis. Advanced consideration of hypothesis testing, estimation and analysis of variance.

Learning Outcomes

Program Learning Outcomes

Upon successful completion of the requirements for the MA in Research and Experimental Psychology, students will be able to:

Goal 1. Knowledge Base – Students completing the MA in Psychology program will understand the major theoretical perspectives and research methods across areas of experimental psychology, i.e., Developmental, Social, Cognitive, and Physiological.
• PLO 1.1 – Understand the major theoretical perspectives and research methods across areas of experimental psychology, i.e., Developmental, Social, Cognitive, and Physiological.

Goal 2. Research Methods & Scholarship – Graduates of our program will possess an advanced level of competence in research methods, statistical techniques, and technical writing skills. Students completing the MA in Psychology program are required to complete a thesis. The thesis will:

• *PLO 2.1 – demonstrate creative problem-solving in the design, implementation of empirical research.
• PLO 2.2 – demonstrate project management skills in the implementation of empirical research.
• *PLO 2.3 – demonstrate advanced competency in the statistical analysis and interpretation of empirical research findings.
• *PLO 2.4 – be able to communicate (oral and written) their research findings at a professional level.

Goal 3. Career Enhancement – Graduates of our program will experience career enhancement through placement in a doctoral program or acceptance of a position requiring a master’s in psychology in the public or private sector. Students completing the MA in Psychology program will:

• PLO 3.1 – achieve career enhancement through placement in a doctoral program or acceptance of a position requiring a master’s in psychology in the public or private sector.

* STAT 245 contributes to PLOs 2.1, 2.3, and 2.4.

Course Learning Outcomes
The goals of this course are to help you: build a solid conceptual understanding of statistics in research, develop the practical skills to use statistics in your own research, and become a self-directed learner.

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

• CLO 1 – Define statistical procedures, including those associated with: data cleaning, descriptive statistics, t-tests, ANOVA, and multiple regression.
• CLO 2 – Describe which statistical procedures are appropriate for a given research situation
• CLO 3 – Discuss the underlying requirements and assumptions of statistical procedures
• CLO 4 – Conduct and interpret statistical analysis using computer software
• CLO 5 – Communicate results of statistical analysis in APA style

The learning objectives will be assessed via written assignments and exam questions. The course learning objectives were adapted from those of Drs. Sean Laraway and Howard Tokunaga.

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.

**Required Texts/Readings**


This text is available from the Spartan Bookstore ($162.15 new, $121.60 used), Amazon.com ($110 new, $18.46 rental through Dec. 21), Half.com ($55 new), as a Kindle edition from Amazon.com ($91.49), and elsewhere. An electronic edition is also available at http://www.coursesmart.com/IR/6469772/9781118436608?__hdv=6.8. Prices were obtained on August 14, 2015 and may have changed.


This text is available from the Spartan Bookstore ($48.15 new, $36.10 used), used from Amazon.com and Half.com, and as a Kindle edition from Amazon.com. A recent edition (i.e., 3rd ed. or 4th ed.) is also acceptable. An electronic edition is available for rental from http://www.vitalsource.com.

Additional Readings will be made available on the Canvas site.

**SPSS and Microsoft Excel**

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

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 http://its.sjsu.edu/services/software/.

SJSU’s license for Microsoft Office allows you a free subscription to Office 365, which includes a download of Excel. Visit the eligibility web site at http://www.office.com/getoffice365.

**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, classroom computers, and mobile devices can only be used during class for course-related work.

**Grading Policy**

**Determination of Grades**

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

<table>
<thead>
<tr>
<th>Grade</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>A+</td>
<td>966+ points</td>
</tr>
<tr>
<td>A</td>
<td>916 - 965 points</td>
</tr>
</tbody>
</table>

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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 into 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; no additional rounding will be done.

### Course Requirements and Assignments

**Exams**

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

Four exams are worth 175 points each for a total of 700 points. Exams will focus on applying the knowledge learned in the previous part of the course. The fourth exam is a cumulative final exam.

You may bring and refer to your own notes and the required textbooks during exams. You will be allowed to use SPSS, Excel, and a calculator on the computer at your classroom workstation, but Internet access will not be allowed. Digital notes can be loaded onto the computer before the start of the exam, but all media must be ejected from the computer before starting the exam. **All other assistance is prohibited.** For example, you cannot use other 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 cumulative final exam in the format described above.
Homework Assignments

Homework assignments are 30% of your final grade (300 points total).

Six of homework assignments will be distributed on Canvas throughout the semester. The lowest homework assignment score will be dropped, leaving five homework assignments worth 60 points each for a total of 300 points. All homework assignments must be submitted through Canvas. Late assignments are not accepted for credit except as described below.

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

In the graduate seminar format, professional behavior is an expectation. This includes the usual: come prepared to class, arrive on time, silence your electronics, be polite and respectful to everyone in the room, do not do off-topic activities during class, and speak up when you are confused, have questions, or need help.

As this is a graduate class, attending class implies your willingness to behave in a professional manner. Respectful disagreement and debate are encouraged. However, unprofessional, disrespectful, or disruptive behavior is a violation of the Student Code of Conduct, available at [http://www.sjsu.edu/studentconduct/docs/Student%20Conduct%20Code%202013.pdf](http://www.sjsu.edu/studentconduct/docs/Student%20Conduct%20Code%202013.pdf). Such behavior may result in being asked to leave the class and/or referrals to the Office of Student Conduct and Ethical Development.

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/](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.

<table>
<thead>
<tr>
<th>Week</th>
<th>Date</th>
<th>Topic</th>
<th>Reading</th>
<th>Assignments</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>Thurs., Aug. 24</td>
<td>Introduction &amp; Measurement Foundations Review</td>
<td>Cohen, Ch. 1-2; Statistics Review Packet</td>
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<td>2</td>
<td>Tue., Sept. 5</td>
<td>Measurement Foundations Review, continued</td>
<td>Cohen, Ch. 1-2; Pallant Ch. 3; Velleman &amp; Wilkinson, 1993; Statistics Review Packet</td>
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<td>Thurs., Sept. 7</td>
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<td>3</td>
<td>Tue., Sept. 5</td>
<td>Descriptive Statistics Review</td>
<td>Cohen, Ch. 3-4; Pallant Ch. 6,8</td>
<td>Homework 1 due 11:59pm Sept. 8</td>
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<td>Thurs., Sept. 7</td>
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<td>4</td>
<td>Tue., Sept. 12</td>
<td>Exam Review (Tue.) Exam 1 (Thu.)</td>
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<td>Add Deadline</td>
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<td></td>
<td>Thurs., Sept. 14</td>
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<td>5</td>
<td>Tue., Sept. 19</td>
<td>Data cleaning No class meeting</td>
<td>Pallant Ch. 4-5, 7; Cohen, 1990</td>
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<td>Thurs., Sept. 21</td>
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<td>6</td>
<td>Tue., Sept. 26</td>
<td>Data cleaning and APA-style results sections</td>
<td>Pallant Ch. 4-5, 7</td>
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<td>Thurs., Sept. 28</td>
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<td>7</td>
<td>Tue., Oct. 3</td>
<td>z-Scores and Hypothesis Testing</td>
<td>Cohen Ch. 4-5; Nuzzo, 2014</td>
<td>Homework 2 due 11:59pm Oct. 6</td>
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<td>Thurs., Oct. 5</td>
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<td>8</td>
<td>Tue., Oct. 10</td>
<td>Statistical Power and Effect Size</td>
<td>Cohen Ch. 8; Science, 2015; Maxwell, Lau, &amp; Howard, 2015</td>
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<td>Thurs., Oct. 12</td>
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<td>9</td>
<td>Tue., Oct. 17</td>
<td>One- and Two-Sample Hypothesis Tests</td>
<td>Cohen Ch. 6-7; Pallant Ch. 17</td>
<td>Homework 3 due 11:59pm Oct. 20</td>
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<td>Thurs., Oct. 19</td>
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<tr>
<td>10</td>
<td>Tue., Oct. 24&lt;br&gt;Thurs., Oct. 26</td>
<td>Exam Review (Tue.; tentative)&lt;br&gt;&lt;b&gt;Exam 2&lt;/b&gt; (Thu.)</td>
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<td>11</td>
<td>Tue., Oct. 31&lt;br&gt;Thurs., Nov. 2</td>
<td>One-way ANOVA</td>
<td>Cohen Ch. 12, 15&lt;br&gt;Pallant Ch. 18</td>
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<tr>
<td>12</td>
<td>Tue., Nov. 7&lt;br&gt;Thurs., Nov. 9</td>
<td>Multiple comparisons</td>
<td>Cohen Ch. 13</td>
<td>Homework 4 due 11:59pm Nov. 10</td>
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<tr>
<td>13</td>
<td>Tue., Nov. 14&lt;br&gt;Thurs., Nov. 16</td>
<td>Correlation, Regression, and the general linear model (GLM)</td>
<td>Cohen Ch. 17, 18&lt;br&gt;Pallant Ch. 13</td>
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<td>14</td>
<td>Tue., Nov. 21&lt;br&gt;Thurs., Nov. 23</td>
<td>&lt;b&gt;Exam 3&lt;/b&gt; (Tue.)&lt;br&gt;Thanksgiving, No Class (Thu.)</td>
<td>Cohen Ch. 14, 16&lt;br&gt;Pallant Ch. 19-20</td>
<td>Homework 5 due 11:59pm Nov. 24</td>
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<tr>
<td>15</td>
<td>Tue., Nov. 28&lt;br&gt;Thurs., Nov. 30</td>
<td>Factorial ANOVA</td>
<td>Cohen Ch. 22&lt;br&gt;(PDF)&lt;br&gt;Pallant Ch. 19-20</td>
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<tr>
<td>16</td>
<td>Tue., Dec. 5&lt;br&gt;Thurs., Dec. 7</td>
<td>Factorial ANOVA, continued</td>
<td>Pallant Ch. 19-20</td>
<td>Homework 6 due 11:59pm Dec. 8</td>
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<tr>
<td>&lt;b&gt;Final&lt;/b&gt;</td>
<td>&lt;b&gt;Tue., Dec. 19&lt;/b&gt;</td>
<td>&lt;b&gt;Exam 4&lt;/b&gt;&lt;br&gt;7:15-9:30am</td>
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