Psychology 330.003 - Psychological Statistics

Psychology 330.033 - Psychological Statistics Laboratory

Lecture: 1:00 pm – 2:15 MW 269 McKibben Education Building
Laboratory: 2:00 pm – 3:15 T 127 McKibben Education Building

Instructor: Mark Ludorf 215G- Education Building
Email address: mludorf@sfasu.edu (using the Blackboard email is best)
Phone: 468-1460
Lab Assistant: TBD
Course website: https://d2l.sfasu.edu/d2l/home/206357
Department: Psychology

Course Description:
Application of descriptive and inferential statistical techniques in processing behavioral data. Includes normative techniques, parametric and nonparametric applications.

Program Learning Outcomes

PLQ

The student will demonstrate familiarity with the major concepts, theoretical perspectives, empirical findings, and historical trends in psychology.

The student will understand and apply basic research methods in psychology, including research design, data analysis, and interpretation.

The student will respect and use critical and creative thinking, skeptical inquiry, and, when possible, the scientific approach to solve problems related to behavior and mental processes.

The student will understand and apply psychological principles to personal, social, and organizational issues.

The student will value empirical evidence, tolerate ambiguity, act ethically, and reflect other values that are the underpinnings of psychology as a science.

Proficiency Level

Advanced
Advanced
Advanced
Intermediate
Intermediate
**Student Learning Outcomes**

- A learner will demonstrate the ability to use statistics to describe data including frequency distributions, percentiles and histograms/polygons.
- A learner will demonstrate the ability to identify and calculate several measures of central tendency and variability.
- A learner will demonstrate the ability to use the hypothesis testing process.
- A learner will demonstrate an understanding of probability.
- A learner will demonstrate the ability to compute measures of correlation and test for statistical significance.
- A learner will demonstrate the ability to compute statistics testing statistical significance of differences in means (i.e., t and Z).
- A learner will demonstrate the ability to compute statistics testing statistical significance of differences in variances (i.e., $F_{max}$, F, and t).
- A learner will demonstrate an understanding of single factor (between and within-subjects) ANOVA and Factorial ANOVA (between subjects).
- A learner will demonstrate the ability to compute statistics testing statistical significance of differences in variances (i.e., $F_{max}$, F, and t).
- A learner will demonstrate facility with statistical calculators and software.

**Text and Materials:**

Wike: *Numbers: A primer of data analysis*. HARSF, 1987 (provided by Professor)

TI 83/84 family of calculator. I will be using a TI 84 (Silver Plus) calculator in class. Since you do not have to purchase a textbook, if you do not already own a calculator from this family of calculators, you should purchase one. I will only be demonstrating how to perform functions on the TI-84. Regardless of the calculator you have, I would encourage you to read the calculator’s manual to determine how to use the statistical functions and/or watch some YouTube videos. In the vernacular of students’, the calculator should become your BFF.

**Course Requirements:**

The course is an intuitive approach to applied statistics with an emphasis on solving problems. The book will be divided into seven sections. There will be a quiz and laboratory assignment over each section. Using the required calculator will facilitate doing statistics. The final examination is optional and comprehensive. Points earned on the final will be substituted for the lowest quiz grade when the points on the final are higher than the lowest quiz points.

In addition to the laboratory assignments you are encouraged to complete the problems at the end of each chapter. The problems from the end of each chapter will not be collected, but will provide you with an additional opportunity to prepare for the quizzes. If you can do these problems, then you should perform well on the quizzes. The key to doing well in this class is to work as many problems as you can.
### Course Calendar:

#### Lecture and Office Hour Schedule

<table>
<thead>
<tr>
<th>Month</th>
<th>Week of</th>
<th>Office Hours</th>
<th>Monday</th>
<th>Tuesday</th>
<th>Wednesday</th>
</tr>
</thead>
</table>
| Jan   | 21      | **M** – 2:15 – 4:15 pm  
**T** – 11:00 – 2:00 pm | **Holiday**            | Welcome                  | Chapter 1  
**Introduction Numbers Numbers** Numbers               |
|       |         |                   |                         | Chapter 1  
**Introduction Numbers Numbers** Numbers               | Chapter 2  
Organizing and picturing numbers **Putting Numbers into Piles for fun and Profit** |
|       | 28      | **M** – 8:00 – 1:00 pm | Chapter 2  
Organizing and picturing numbers **Putting Numbers into Piles for fun and Profit** | Introduction to SPSS, TI-84  
Lab for Chapter 2 | Quiz 1  
(Chapters 1 & 2) |
| Feb   | 4       | **M** – 2:15 – 4:15 pm  
**T** – 11:00 – 2:00 pm | Chapter 3  
Centers **Being More Exact about Centers** | Lab for Chapter 3 | Chapter 3  
Centers **Being More Exact about Centers**  
Chapter 4  
Variability **Nailing Down Spread** |
|       | 11      | **M** – 8:00 – 1:00 pm | Chapter 4  
Variability **Nailing Down Spread** | Lab for Chapter 4 | Quiz 2  
(Chapter 3 & 4) |
|       | 18      | **M** – 2:15 – 4:15 pm  
**T** – 11:00 – 2:00 pm | Chapter 5  
Beginning inference **Flippin' Coins and Buyin' Beers** | Lab for Chapter 5 | Chapter 5  
Beginning inference **Flippin' Coins and Buyin' Beers** |
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<thead>
<tr>
<th>Date</th>
<th>Day(s)</th>
<th>Time</th>
<th>Chapter(s)</th>
<th>Lab</th>
<th>Quiz</th>
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<tbody>
<tr>
<td>25</td>
<td>M – 8:00 – 1:00 pm</td>
<td>Chapter 5 Beginning inference <em>Flippin' Coins and Buyin' Beers</em></td>
<td>Lab for Chapter 5</td>
<td>Quiz 3 (Chapters 5)</td>
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<td>Mar 4</td>
<td>M – 2:15 – 4:15 pm</td>
<td>Chapter 6 Linear correlation <em>Rho Rho Rho the Boat</em></td>
<td>Lab for Chapter 6</td>
<td>Chapter 6 Linear correlation <em>Rho Rho Rho the Boat</em></td>
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<td>T – 11:00 – 2:00 pm</td>
<td>Chapter 7 Regression <em>Still Rhoing</em></td>
<td>Chapter 7 Regression <em>Still Rhoing</em></td>
<td>Quiz 3 (Chapters 6&amp;7)</td>
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<td>11</td>
<td>M – 8:00 – 1:00 pm</td>
<td>Chapter 7 Linear correlation <em>Rho Rho Rho the Boat</em></td>
<td>Lab for Chapter 7</td>
<td>Quiz 4 (Chapters 6&amp;7)</td>
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<td>18</td>
<td>Spring Break</td>
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<td>25</td>
<td>M – 2:15 – 4:15 pm</td>
<td>Chapter 8 Centers <em>Comparing Centers</em></td>
<td>Lab for Chapter 8</td>
<td>Chapter 8 Centers <em>Comparing Centers</em></td>
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<td>T – 11:00 – 2:00 pm</td>
<td>Chapter 9 Variabilities <em>Comparing Spreads</em></td>
<td>Lab for Chapter 9</td>
<td>Quiz 5 (Chapters 8&amp;9)</td>
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<td>Apr  1</td>
<td>M – 8:00 – 1:00 pm</td>
<td>Chapter 9 Variabilities <em>Comparing Spreads</em></td>
<td>Lab for Chapter 9</td>
<td>Quiz 5 (Chapters 8&amp;9)</td>
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<td>8</td>
<td>M – 2:15 – 4:15 pm</td>
<td>Chapter 10 Comparing k centers <em>A Pie with a Few Slices - Testing k Means</em></td>
<td>Lab for Chapter 10</td>
<td>Chapter 10 Comparing k centers <em>A Pie with a Few Slices - Testing k Means</em></td>
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<td>T – 11:00 – 2:00 pm</td>
<td>Chapter 10 Comparing k centers <em>A Pie with a Few Slices - Testing k Means</em></td>
<td>Lab for Chapter 10</td>
<td>Quiz 6 (Chapter 10)</td>
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<td>22</td>
<td>M – 2:15 – 4:15 pm, T – 11:00 – 2:00 pm</td>
<td>Chapter 11 Comparing centers from a factorial design, <em>A Pie with More Slices-Comparing Means from a Factorial Experiment</em></td>
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<td>Lab for Chapter 11</td>
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<td>29</td>
<td>M – 8:00 – 1:00 pm</td>
<td>Chapter 11 Comparing centers from a factorial design, <em>A Pie with More Slices-Comparing Means from a Factorial Experiment</em></td>
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<td>Lab for Chapter 11</td>
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<td>6</td>
<td>M – 2:15 – 4:15 pm, T – 11:00 – 2:00 pm</td>
<td>Review, Quiz 7 <em>(Chapter 11)</em></td>
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<td>May</td>
<td>13</td>
<td>Exam Week</td>
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Grading Policy:
Your course grade will depend upon the total number of points earned on the quizzes (700 possible – 100 each quiz) and the laboratory assignments (200 points). A final distribution of total points (i.e., the sum of quiz and laboratory assignment points) and the cutoffs associated with the different letter grades will be available after the last quiz and before the final. You can then decide if you want to take the optional final. The cutoffs will be fixed after the last quiz and will not change after the final. This is a curve grading scheme thus, letting someone cheat from you only hurts your grade!!!!!!! The most conservative curve for the course will be 810 points (A), 720 (B), 630 (C), 540 (D) and < 540 (F) curve.

As mentioned earlier there will be seven quizzes, each covering a section of the book. For each quiz you must create a “help sheet”. You can either use the help sheet we provide or you can construct your own. If you create your own sheet, you can format it any way you desire. We are available for consultation on construction. You can write anything you want (e.g. formulas, sample problems, prayers...) whether you use the supplied help sheet or create your own. You will need to bring your text to class since tables will NOT be provided.

You are encouraged to use a calculator on the quizzes. Sharing of "help sheets", calculators, tables, or other information is not allowed for any reason. Also note that each quiz ends at end of the class period. I will give a five-minute fair warning and then I will leave at the scheduled end of the class, WITH OR WITHOUT YOUR QUIZ. If I leave without your quiz, you get a zero for that quiz. Do not continue writing thinking I will wait for you. THERE WILL BE NO MAKE-UP OR EARLY QUIZZES. If you miss a quiz you can just substitute the FINAL for the missed quiz.

Attendance Policy:
Attendance is encouraged at all lecture and laboratory sessions. Quizzes will only be administered the day they are scheduled. THERE WILL BE NO MAKE UP OR EARLY QUIZZES. If you miss a quiz you can just substitute the FINAL for the missed quiz. You do not need to bring any note for your absence.
**Technology**

**Email**
All email must be sent to me via MyCourses (D2L). Monday-Friday I will try to respond to your email as soon as possible. I will respond to all substantive email (most within 24 hours). If 24 hours has elapsed since your email, please send it again.

Email sent to my email accounts outside of the course site (e.g., .sfasu.edu account) will not receive a response.

Specific grades and performance can NEVER be discussed via email due to federal regulations regarding the release of learner information. If you have questions about your grade or performance, please come see me.

**Phones and other electronic devices**
My philosophy of technology in the educational environment is that (1) it should support the academic performance of the learners and (2) the technology cannot be (even mildly) disruptive to others in the course (including the professor).

With those criteria as a guide (1) all phones must be turned off in class. If you know of an impending emergency (e.g., expecting a call from a parent regarding a hospitalization, etc.) please leave your phone on silent and quietly leave the classroom to take the call. If it is a significant emergency you should reflect on whether you will be able to concentrate in the class while waiting for the call and consider alternatives.

Sending, receiving, and/or reading of texts is NOT acceptable at any time.

**Warning:** Research has shown that use of laptops in a classroom is related to lower performance in the course. Use of laptop computers may be acceptable for note taking only (contact me for the relevant study information). Use must be approved by the professor and will be monitored throughout the course. With approval also comes your agreement to allow the professor to randomly look at the history of sites visited for that day. Your computing activity must NOT BE disruptive to others in the course. You might also note that research shows that learners using laptops remember SIGNIFICANTLY LESS information than learners without laptops.

Any recording of any part of the course violates copyright laws and therefore is not permitted except where approved by the instructor. If you are not sure whether the technology you want to use in the classroom is acceptable, please talk with me prior to using the technology in question. Violators of these guidelines will be asked to cease using the technology and may be asked to leave the classroom.
MyCourses (D2L)
If you are having trouble with MyCourses (D2L), please contact the help desk in the Office of Information Technology (936-468-1919).

Academic Integrity (A-9.1)
Academic integrity is a responsibility of all university faculty and students. Faculty members promote academic integrity in multiple ways including instruction on the components of academic honesty, as well as abiding by university policy on penalties for cheating and plagiarism.

Definition of Academic Dishonesty
Academic dishonesty includes both cheating and plagiarism. Cheating includes but is not limited to (1) using or attempting to use unauthorized materials to aid in achieving a better grade on a component of a class; (2) the falsification or invention of any information, including citations, on an assigned exercise; and/or (3) helping or attempting to help another in an act of cheating or plagiarism. Plagiarism is presenting the words or ideas of another person as if they were your own. Examples of plagiarism are (1) submitting an assignment as if it were one's own work when, in fact, it is at least partly the work of another; (2) submitting a work that has been purchased or otherwise obtained from an Internet source or another source; and (3) incorporating the words or ideas of an author into one's paper without giving the author due credit.

I do not take kindly to ANY FORM of "Academic Dishonesty" and will take necessary steps to ensure none occurs. During a quiz, if I THINK you are not doing your own work you will receive a zero for that quiz. Also on quiz day leave your baseball caps at home.

Please read the complete policy at http://www.sfasu.edu/policies/academic_integrity.asp

Withheld Grades Semester Grades Policy (A-54)
Ordinarily, at the discretion of the instructor of record and with the approval of the academic chair/director, a grade of WH will be assigned only if the student cannot complete the course work because of unavoidable circumstances. Students must complete the work within one calendar year from the end of the semester in which they receive a WH, or the grade automatically becomes an F. If students register for the same course in future terms the WH will automatically become an F and will be counted as a repeated course for the purpose of computing the grade point average.

Students with Disabilities
To obtain disability related accommodations, alternate formats and/or auxiliary aids, students with disabilities must contact the Office of Disability Services (ODS), Human Services Building, and Room 325, 468-3004 / 468-1004 (TDD) as early as possible in the semester. Once verified, ODS will notify the course instructor and outline the accommodation and/or auxiliary aids to be provided. Failure to request services in a timely manner may delay your accommodations. For additional information, go to http://www.sfasu.edu/disabilityservices/.
Acceptable Student Behavior
Classroom behavior should not interfere with the instructor’s ability to conduct the class or the ability of other students to learn from the instructional program (see the Student Conduct Code, policy D-34.1). Unacceptable or disruptive behavior will not be tolerated. Students who disrupt the learning environment may be asked to leave class and may be subject to judicial, academic or other penalties.

This prohibition applies to all instructional forums, including electronic, classroom, labs, discussion groups, field trips, etc. The instructor shall have full discretion over what behavior is appropriate/inappropriate in the classroom. Students who do not attend class regularly or who perform poorly on class projects/exams may be referred to the Early Alert Program. This program provides students with recommendations for resources or other assistance that is available to help SFA students succeed.

Wike's Handy Hints for Problems:
1. If you have difficulty with the first four chapters of the course, you may need additional math preparation.
2. If you cannot do the problems, seek help from one of us. That's why we have office hours.
3. List formulas and follow them. Messy work gets wrong answers. Be systematic.
4. Master your calculator. It should become your best friend.
5. NEVER be afraid to ask questions. Someone else has the same question and they are also afraid to ask.
6. When you obtain any answer, always ask yourself: DOES THE ANSWER MAKE SENSE???????

I reserve the right to change or modify this syllabus at any time throughout the semester.
Statistics Humor

"Remember the old days when we used to eat his statistics homework?"

Statistics Teachers Rock

Lies Damned Lies & Statistics
Your Notes