

PSY 2801: Introduction to Measurement and Data Analysis

Fall 2009 Syllabus

Lecture Date/Time: MW 1:25 - 2:15 PM, Room: MechE 18

Instructor: Steven W. Nydick
Office Hours: Mondays 2:25 – 3:25PM (and by appointment)
Office: Elliot Hall, N667
Email: nydic001@umn.edu
Textbook: “Fundamental Statistics for the Behavioral Sciences” 6th edition
 by David C. Howell

<p>Lab Instructor: Jieun Lee Office Hours: Wednesdays 4:00 – 5:00PM Office: Elliot Hall, N663 Email: leex3828@umn.edu</p>	<p>Lab Instructor: Shannon Von Minden Office Hours: Thursdays 10:00 – 11:00AM Office: Elliot Hall, N663 Email: thom2798@umn.edu</p>
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Prerequisites

Students need to have taken PSY 1001 (or equivalent), and they need to be familiar with math through High School Algebra

Course Content

PSY 2801 is intended to introduce students to basic statistical and measurement procedures for psychological variables. As such, it will help them understand the structure of psychological data, emphasize the process for deciding analytic techniques, and outline a very basic method for each of those techniques. As psychological data is rife with messiness, this course will also attempt to explain the consequences of some of the messiness.

Purpose and Objectives

1. Learning methods of understanding and measuring psychological data
2. Learning the differences between Descriptive Statistics and Inferential Statistics
3. Learning when to implement statistical procedures
4. Learning how to integrate statistical concepts with answering psychological research questions

Course Requirements

Assignment:	Percentage of Grade
Top 8 Lab Assignments:	24%
Exam 1:	15%
Exam 2:	15%
Final Exam:	25%
SPSS Final:	10%
Critical Thinking:	6%
Participation:	5%
Total:	100%

Lab Assignments

There will be ten (10) Lab Assignments, designed to provide hands on experience analyzing data and writing summaries of statistical procedures. Assignments might contain computations requiring hand calculations, analysis requiring SPSS software, and questions designed to assess theoretical understanding. The top eight (8) lab assignments will count toward your final grade, and each lab assignment will be weighted equally. An assignment will be posted online most Wednesdays, distributed during lab sections (Thursdays or Fridays), and will be due before lab the following week. They will not be accepted late under any condition, as you are allowed to drop one (2) of them.

You may work in groups of up to 3 in order to complete the SPSS portion of the assignment; the interpretation must be completed individually. Furthermore, each answer must include sufficient work and rationale so that we know you understood the analysis. The names of the 2 other people must appear on the top of your paper.

If you miss an assignment, you will receive a zero (0) for that assignment. Furthermore, one assignment (and only 1 assignment) may be emailed.

Following the completion of nine assignments, there will be an SPSS final, designed to assess your implementation of SPSS in order to answer research questions. Part of the final assignment is being able to decide on the appropriate statistical technique used in different situations. Unlike the other lab assignments, the SPSS final must be completed individually. It will be distributed during lab the week of December 7, and it will be due before class on December 16.

Exams

There will be three (3) in-class exams. The first exam will include all of the material through October 14, the second exam will include all of the material through November 18, and the final exam will include material from the entire course. The first two exams will be comprehensive but not cumulative. What this means is that material explicitly covered before October 14 will not be on the second exam; however, statistical knowledge builds on itself, such that in order to understand material later in the course, it is necessary to have a foundational understanding of the earlier material. Furthermore, the final exam will be cumulative, though it will mostly focus on the material since the second exam.

The exams will be closed book and closed notes; they will consist of multiple choice questions, calculation problems, and questions assessing interpretive understanding. You are permitted to use a writing utensil, a calculator (a non-graphing, non-calling-people, non-the-textbook-downloaded calculator), and, quite possibly, your brain. You **ARE NOT** permitted to use laptop computers, cellular phones, other people, other people's brains, other people's notes, and, especially, other people's exams.

The exams will be given at the beginning of class on the day scheduled, and you will have 50 minutes to complete the first two exams. You will have 2 hours to complete the Final Exam.

If you miss an exam, you will receive a **0** for that exam. If an emergency arises, a made-up exam may be scheduled with me (if I approve the emergency); however, the contents of the exam must not be discussed with any of the other students in the class, until the exam is completed.

Critical Thinking

One of the necessary abilities that any psychologist must have is analyzing other research. Thus, you will be responsible for one (1) entry assessing how statistics is portrayed in the popular media. You will pick an article from a popular news source (e.g. the Internet, a Magazine, a Newspaper) that incorporates some aspect of material covered in class, and you will write a two (2) page paper summarizing their statistical procedure, explaining how it relates to class topics, and offering a critical evaluation (including both positives **and** negatives) of their analysis. This assignment will be due on December 7 before class, and you may **not** work with another student in order to complete it. Furthermore, it will not be accepted late (for any reason, as you have the entire semester to work on it).

Grade Policy

Percentage of Grade	Letter Grade
92.5 – 100.0	A
90.0 – 92.4	A–
87.5 – 89.9	B+
82.5 – 87.4	B
80.0 – 82.4	B–
77.5 – 79.9	C+
72.5 – 77.4	C
70.0 – 72.4	C–
66.7 – 69.9	D+
60.0 – 66.6	D
0 – 59.9	F

Course Calendar

<u>Date</u>	<u>Topic</u>	<u>Readings</u>	<u>Due</u>
Wed 9/9	Introduction/Basic Statistics	Chapters 1 – 2	
Lab 1	Introduction to SPSS		
Mon 9/14	Graphing	Chapter 3	
Wed 9/16	Descriptive Statistics	Chapter 4	
Lab 2	Graphing in SPSS		
Mon 9/21	Descriptive Statistics	Chapter 5	
Wed 9/23	Descriptive Statistics		
Lab 3	Descriptives in SPSS		Lab Assignment 1
Mon 9/28	Correlation	Chapter 9	
Wed 9/30	Correlation		
Lab 4	Correlation in SPSS		Lab Assignment 2
Mon 10/5	Probability	Chapter 7	
Wed 10/7	Probability		
Lab 5	Probability by Hand		Lab Assignment 3
Mon 10/13	Probability		
Wed 10/15	Measurement	Chapter 2	
Lab 6	Measurement Lab		Lab Assignment 4
Mon 10/19	Exam One	Exam One	Exam One
Wed 10/21	z -scores	Chapter 6	
10/22 – 10/23	No Labs	No Labs	No Labs
Mon 10/26	Normal Distribution		
Wed 10/28	Sampling Distributions	Chapter 8	
Lab 7	z -scores by Hand		Lab Assignment 5
Mon 11/2	Samp Dist/Hypothesis Testing		
Wed 11/4	Hypothesis Testing		
Lab 8	Sampling Distributions		Lab Assignment 6
Mon 11/9	One Sample z -test	Chapter 12	
Wed 11/11	One Sample t -test/Conf Int		
Lab 9	One Sample t test in SPSS		Lab Assignment 7
Mon 11/16	Paired Samples t -test	Chapter 13	
Wed 11/18	Independent Samples t -test	Chapter 14	
Lab 10	Two Samples t -tests in SPSS		Lab Assignment 8
Mon 11/23	Exam Two	Exam Two	Exam Two
11/25	No Class	No Class	No Class
11/26 – 11/27	No Labs	No Labs	No Labs
Mon 11/30	Regression	Chapter 10	
Wed 12/2	Regression		
Lab 11	Regression in SPSS		Lab Assignment 9
Mon 12/7	One-Way ANOVA	Chapter 16	Critical Thinking
Wed 12/9	One-Way ANOVA		
Lab 12	ANOVA in SPSS		Lab Assignment 10
Mon 12/14	Chi-Square Test	Chapter 19	
Wed 12/16	Chi-Square/Finish		SPSS Take Home
Friday 12/18	Time: 1:30 - 3:30PM	Room: TBD	Final Exam

Course Policies

The following Policies have been designated by the University of Minnesota as a requirement on any syllabus. As they are University Policies, and as they were designed for fair treatment in the classroom, they are non-negotiable.

1. *Accommodations for Persons with Special Needs:* In compliance with the Americans with Disabilities Act (1990) and University of Minnesota policy, students with any documented disabilities are eligible for reasonable and appropriate accommodations in this class. A number of accommodations can be made in this class if that applies to you. Please contact the instructor as soon as possible if you need special accommodation.
2. *Accommodations for Persons for Whom English is Not Their First Language:* Lecture materials, lab assignments, quizzes, and exams will all be administered and assigned in English. If English is not your first language, and if you believe this will affect you in the class please contact the instructor as soon as possible. Any accommodation will be made on a case-by-case basis, and it is solely under the discretion of the instructor.
3. *Attendance:* Attendance is not explicitly required, as no grade for attendance will be given in this course. However, the quizzes require attendance on the day of the quiz, and in order to understand the material/complete the homework, attendance is necessary. Furthermore, any changes in the syllabus will be announced in class.
4. *Disputing a Grade:* Although we strive to be as fair and accurate as possible, occasional grading mistakes are made. We do try to avoid taking points off for a wrong answer that uses the correct procedures but which is based on a previous wrong answer for which points already were deducted. If you feel that a grading mistake was made, you have the right to submit your work for re-grading. When doing so, please submit the original work, as well as a written request stated which points you feel were mistakenly deducted. This submission must be received no later than **one (1)** week after the graded assignment, quiz, or exam was returned to you.
5. *Incompletes:* Incompletes will only be granted in the case of emergency. Contact the instructor as soon as you might need to take an incomplete in this course; furthermore, only students with a C- or higher (on already completed coursework) can earn an incomplete.
6. *Classroom Conduct:* Everybody enrolled in the course has a right to a productive learning environment. Therefore, anybody disrupting class will be asked to leave; moreover, any student who violates the University Conduct Code may be referred to the director of the University Counseling Services. Furthermore, as cell phones can be a very frequent disturbance, please refrain from using them during class, and please turn them off!
7. *Academic Integrity:* As per University Policy (see: <http://www1.umn.edu/oscai>), neither plagiarism nor cheating of any kind will be tolerated. Any instance of plagiarism will be dealt with severely, including a grade of "F" for the course and a report to the Office for Student Academic Integrity.
8. *Sexual Harassment:* Sexual harassment is defined as **ANY** unwelcome sexual advance, request, or verbal or physical conduct of a sexual nature. University policy prohibits sexual harassment in any form. Concerns or complaints about sexual harassment should be directed

to the Office of Equal Opportunity and Affirmative Action, 419 Morrill Hall (624-9547). Students may also direct their concerns or complaints to staff at Boynton Mental Health, the Boynton Crisis Line, or University Counseling Services.

9. *Miscellaneous*: Situations may arise that the syllabus does not explicitly address. Your instructor has the final say in any circumstance not outlined here.