

# PSY 2801: Introduction to Measurement and Data Analysis

## Summer 2009 Syllabus

Date/Time: MW 12:45 - 3:00 PM, Room: Elliot S121

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**Instructor:** Steven W. Nydick

**Office Hours:** Monday 3:00 – 5:00 and by appointment

**Office:** Elliot Hall, N667

**Email:** nydic001@umn.edu

**Lab Instructor:** Also Steve (For the Summer)

**Textbook:** “Fundamental Statistics for the Behavioral Sciences” 6th edition

by David C. Howell

### 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
8 Lab Assignments:	24%
Exam 1:	14%
Exam 2:	14%
Final Exam:	24%
SPSS Final:	10%
2 Pop Quizzes:	4%
Critical Thinking:	5%
Participation:	5%
<b>Total:</b>	<b>100%</b>

### Lab Assignments

There will be eight (8) 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. Each lab assignment will be weighted equally toward your total grade. An assignment will be distributed most Wednesdays, and it will be due the following Wednesday before class. They will not be accepted late unless you have my approval **prior** to the due date.

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 I 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. Though each assignment is not worth a large percentage of your grade, missing many assignments will hurt your grade drastically. Furthermore, one (**1**) assignment (and only **1** assignment) may be emailed.

Following the completion of eight 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 August 12, and it will be due before class on August 17.

### Exams

There will be three (3) in-class exams. The first exam will include all of the material through July 6, the second exam will include all of the material through July 27, 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 July 6 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 (Wednesday), and you will have 1 hour and 15 minutes to complete the first two exams. The remainder of class on the first two exam days will be spent reviewing SPSS for the following week's assignment. You will have the entire class period 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.

### Pop Quizzes

Two (2) quizzes will be randomly administered during the term. Each quiz will focus on the material for that week, including the assigned reading, and they will be given **prior** to the start of lecture. Thus, if you arrive late to class, you will be unable to complete the quiz. However, if an emergency arises (and you are not able to attend class), let me know - under certain conditions, I will schedule a make-up, though it will probably not include the same material. You will have approximately 20 minutes to complete each quiz.

### 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 August 10 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

Mondays will consist entirely of lecture, while Wednesdays will consist of 1 hour 15 minutes of lecture, followed by a 1 hour lab session. The lecture will cover material from the book while the lab session will focus on applying SPSS.

<u>Date</u>	<u>Topic</u>	<u>Readings</u>	<u>Due</u>
Mon 6/15	Introduction/Basic Statistics	Chapters 1 – 2	
Wed 6/17	Graphing	Chapter 3	
Lab 1	Introduction to SPSS/Graphing		
Mon 6/22	Descriptive Statistics	Chapters 4 – 5	
Wed 6/24	Correlation	Chapter 9	Lab Assignment 1
Lab 2	Correlation in SPSS		
Mon 6/29	Probability	Chapter 7	
Wed 7/1	z-scores	Chapter 6	Lab Assignment 2
Lab 3	Probability/z-scores by Hand		
Mon 7/6	Sampling Distributions	Chapter 8	
Wed 7/8	<b>Exam One</b>		Lab Assignment 3
Lab 4	Sampling Distributions in SPSS		
Mon 7/13	Hypothesis Testing	Chapter 8	
Wed 7/15	Measurement	Chapter 2	Lab Assignment 4
Lab 5	NHST/Measurement		
Mon 7/20	One Sample Tests/Conf Int	Chapter 12	
Wed 7/22	Paired Sample t-test	Chapter 13	Lab Assignment 5
Lab 6	t-tests in SPSS 1		
Mon 7/27	Independent t-test/Power	Chapters 14 – 15	
Wed 7/29	<b>Exam Two</b>		Lab Assignment 6
Lab 7	t-tests in SPSS 2		
Mon 8/3	Regression	Chapter 10	
Wed 8/5	One Way ANOVA	Chapter 16	Lab Assignment 7
Lab 8	ANOVA in SPSS 1		
Mon 8/10	One Way ANOVA/Post-Hoc	Chapter 16	Critical Thinking Paper
Wed 8/12	Factorial (2-Way) ANOVA	Chapter 17	Lab Assignment 8
Lab 9	ANOVA in SPSS 2		
Mon 8/17	Chi-Square Test	Chapter 19	SPSS Take Home
Wed 8/19	<b>Final Exam</b>		<b>Final Exam</b>

## 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.