

Sociology S351-01 Social Statistics

Spring, 2008: Call #23611
Classroom Medical Rm. #148
T/Th, 4:30 p.m. to 5:45 p.m.
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Prerequisites

Completion of the following: Principles of Sociology (SOC 161); either Algebra and Trigonometry I (MA 153) or Mathematics for the Liberal Arts Students (MA 168) or placement at a higher level math course; either Intermediate Expository Writing (ENG W233) or Analysis of Social Issues (SOC 260) or equivalent. If these courses are not completed, you will need to obtain the consent of the instructor.

Required Texts

Ritchey, Ferris J. 2008. *The Statistical Imagination, Second Edition*. Boston, MA: McGraw-Hill. ISBN# 0-07-333160-7

Cronk, Brian C. 2006. *How to Use SPSS, Fourth Edition*. Los Angeles, CA: Pryczak Publishing. ISBN 1-884585-68-X

Course Overview

Statistics can be best described as a branch of applied mathematics that deals with the collection and analysis of numerical data. In essence, statistics is the science of gathering data, describing data, and making decisions, predictions or inferences about a population from which a sample of data was drawn.

A course in statistics is the source of much fear and loathing among college students. Many students believe that statistics are incomprehensible and downright boring. This is unfortunate, because statistics can be both exciting and intellectually challenging. Doing statistics is kind of like doing detective work, only instead of using standard forensic tools you use numbers, data and formulas. The use of statistics allows a person to uncover hidden relationships between variables, which can lead to new and exciting knowledge.

Students also tend to believe that statistics are useless in the real world. This is not true. Statistics are widely used today in a variety of areas, including public opinion polling, economic forecasting, medical research and sports. In addition, social scientists are increasingly using statistical analysis in their work. Finally, we often use statistics in our everyday lives without even realizing it. When you calculate your grade point average, you are calculating a statistical average of your current grades!

This course is designed to provide you with an introduction to both descriptive and inferential statistics, the various techniques available to analyze data, and the specialized software used to carry out statistical analyses. By the end of this course it is expected that you will be able to select an appropriate analysis technique for a given situation, correctly interpret any results, and be able to make statistical decisions for your research studies. To accomplish these goals, this course will utilize a combination of lecture, class discussions, computer exercises and problem sets. Lectures will focus on specific analysis techniques and methods, whereas discussions will focus on issues raised in the reading assignments, problem sets and computer exercises.

It is true that statistics is a subject that is challenging. Given this, you will need a few basic skills in order to successfully complete this course. Here is a list of these skills:

- Be able to operate a PC compatible computer with a Windows operating system.
- Be able to use a calculator.
- Understand basic mathematics, i.e. be able to add, subtract, multiply and divide.
- Understand basic algebra, i.e. order of operations, solving for an unknown quantity.

Having these skills will help you to succeed in statistics. In addition, there are several other things you can do which will help you to do well in this course:

- Come to every class.
- Read the assigned chapters before each class.
- Do the problem sets, computer assignments and any other assigned work on time.
- Take good notes.
- Study your notes at least twice a week.
- Ask LOTS of questions in class.
- See me before or after class if you need any extra help.

Keep in mind that learning statistics is like learning a new language- it takes time for many of the concepts and terms to 'settle in'. Don't be discouraged if you do not immediately grasp something the first time it is presented to you. Above all else, don't give up!

Assignments and Grading

The course will have a total of 400 points possible. This class is graded on a straight point system: there will be no curve in the grading. If everyone in the class gets all 400 points, then everyone in the class will receive a grade of 'A' for the course. The point distribution will be as follows:

- 1) Two exams (a midterm and a final) worth 100 points each. The exams will be used to assess your knowledge of statistical terminology, the appropriate use of statistical tests, and your ability to apply the concepts covered in the text and in class. Each exam may consist of multiple choice, true/false, short answer, matching and/or open-ended components. You will not be expected to do statistical computations on the exams.
- 2) Five problem sets, worth 20 points each. Each problem set will consist of several questions that will test your ability to do statistical computations.
- 3) Four computer assignments, worth 25 points each. For each computer assignment, you will be instructed to conduct an analysis using sample data and the SPSS software program.

You will not be allowed to turn in late problem sets or computer assignments under any circumstances. You will be able to make up missed exams within one week of the test date as long as certain conditions are met:

- 1) You have a verifiable emergency. This can be an illness, the death of a relative, or any other unavoidable situation.
- 2) You have a conflict with the scheduled test date. If this occurs, it will be necessary to notify me in advance so we can reschedule a date for you to take the exam.

Grade Distribution

The grade distribution for the course is as follows:

400-360 points = A 359-320 = B 319-280 = C 279-240 = D 239-0 = F

Office Hours

I will hold office hours on Tuesday and Thursday from 3:00 p.m. to 4:15 p.m., on Wednesday from 5:15 p.m. to 5:45 p.m. or by special appointment as necessary. My office is located in Classroom Medical, room #247.

Disclaimer

As the instructor, I reserve the right to alter, modify, amend, or otherwise change this syllabus; however, I will try my best not to do so. If changes must be made, you will be notified of the changes in advance if possible. If it is not possible to notify you in advance, you will not be penalized for any changes made.

Dates To Remember

January 14:	First day of classes
January 18:	Last day to drop or add a course
January 20:	Last day to receive a full refund
January 21:	Martin Luther King Jr. day- no class
February 11:	Last day to change grade option to either pass/no pass or audit to credit
March 10-14:	Spring Break- no class
March 21:	Last day to change grade option from credit to audit or withdraw from course
May 2:	Last day of classes
May 5-9:	Finals week
May 8 th , 4:00 p.m.:	Final in this class

Disability Services

Services for Students with Disabilities (SSD) coordinates IPFW's programming for people with disabilities. The office provides free and appropriate academic aids and services including the use of accessible microcomputers and assistive equipment, reader and sign interpreter services, special test proctoring services, academic support and counseling assistance specific to disability issues, and more. SSD also serves the campus community as an advocate/consultant resource on all disability related issues.

Individuals living with physical, psychological and/or learning disabilities are encouraged to contact the office for consultation and assistance. Students with temporary difficulties may also contact the office for assistance. To receive more information or to apply for services, please contact the Services for Students with Disabilities office at (260) 481-6657 or visit the SSD office in the Walb Student Union, room #113.

Cheating, Plagiarism and Falsification of Data

Cheating, plagiarism and the falsification of data will not be tolerated in this class. Any student caught cheating on an examination, computer assignment or problem set, caught intentionally plagiarizing the work of another person, and/or caught falsifying data will receive a grade of 'F' in the course, immediate dismissal from the course, and possible dismissal from Indiana University - Purdue University Fort Wayne.

I have never had to fail any student for cheating, plagiarism or the falsification of data: **do not be the first.**

Tentative Schedule

<u>Week of:</u>	<u>Topic:</u>	<u>Readings:</u>
Jan. 14:	Introduction to statistics	Chapter 1, 2
Jan. 21:	Descriptive statistics: frequency distributions, measures of central tendency	Chapter 3, 4
Jan. 28:	Descriptive statistics: measures of dispersion SPSS Computer Demonstration #1	Chapter 5
Feb. 4:	Probability: basic concepts and rules Introduction to probability distributions First Problem Set Due First SPSS Computer Assignment Due	Chapter 6
Feb. 11:	Normal probability distributions: the central limit theorem, standard normal distribution	Chapter 7
Feb. 18:	Confidence Intervals: CI for the mean, proportions Second Problem Set Due	Chapter 8
Feb. 25:	Catch up, prep for midterm examination	
Mar. 3:	Midterm Examination Third Problem Set Due	Chapter 1-8
Mar. 10:	No Class - Spring Break	
Mar. 17:	Hypothesis testing: Z test	Chapter 9
Mar. 24:	Hypothesis testing: T test. SPSS Computer Demonstration #2	Chapter 10, 11
Mar. 31:	Chi-square test of independence: Measures of association Fourth Problem Set Due Second SPSS Computer Assignment Due	Chapter 13
Apr. 7:	Analysis of Variance: F test SPSS Computer Demonstration #3	Chapter 12
Apr. 14:	Correlation and linear regression Third SPSS Computer Assignment Due SPSS Demonstration #4	Chapter 14, 15
Apr. 21:	Correlation and linear regression	Chapter 14, 15
Apr. 28:	Catch up, prep for final examination Fifth Problem Set Due Fourth SPSS Computer Assignment Due	
May 5:	Final Examination	Chapter 9-15