

Statistics: Measurement in Economics

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Course Description

Economics 310 is a semester long course in probability and statistical inference. Probability is a branch of mathematics which provides us with a method of reasoning about uncertain environments. During the first half of the course, we will study both probability theory and its application. The theory of statistical inference provides the basis for the rigorous analysis and interpretation of numerical data obtained through random samples. The second half of the course will be spent learning how the basic tools of statistical inference work and how to use them.

Lectures and Sections

Each week there will be two lectures of 1 1/4 hours. In addition there will be a section meeting once a week in which problems sets and other issues from lecture will be discussed. Attendance is expected.

Prerequisites

One intro economics course and Math 211 or 221

Books

The textbook for the course is:
SANDHOLM, W., AND B. SARANITI, *Vital Statistics: Probability and Statistics for Economic and Business Decisions*, to be published by Addison-Wesley.

This book is available for purchase from the Social Sciences Copy Center. Some additional copies will be held on reserve at the Social Sciences Library. Another (optional) helpful reference is:

KELLER, G., (2005), *Statistics for Management and Economics*, 7th ed., Duxbury-Thomson-Brooks-Cole.

Problems Sets

There will be eight problem sets over the course of the semester and each one will be due *before lecture* on the specified dates. Late assignments will not be accepted. However, the lowest problem set grade will not count toward your semester grade (this will be your one free pass if you cannot turn in a problem set on time for any reason). Students are encouraged to work with others in the class on homework, but each student must write up his/her own solutions.

Exam Schedule

March 10	Midterm	(in class)
May 14	Final	(10:05a)

Grading

Grades will be based on the midterm exam (35%), a final exam (45%), and the problem sets (20%).

Core Topics

1. Probability Basics (Chapters 1, 2)
2. Random Variables, Expectations (Chapters 3, 4)
3. Discrete/Continuous Distributions (Chapters 6, 7)
4. Law of Large Numbers, Central Limit Theorem (Chapter 9)
5. Causal Inference (Chapter 11.5)
6. Point/Interval Estimation (Chapters 15, 16)
7. Hypothesis Testing (Chapter 17)

Website

<http://www.ssc.wisc.edu/~jrporter/ec310/econ310.html>