

ECON103/SOC190-3 (Fall 2008)
Introduction to Probability and Statistical Methods

Lecturer: Professor Joe Swingle (x3841)
Office hours: Tuesdays 2:40-4:30 and Thursdays 1:00-3:00 (PNE 332)

Class Schedule:

Lectures:	TF	1:30-2:40	PNE 239	
Lab 3A:	W	9:50-11:00	PNE 129	TA = Rachel Klionsky
Lab 3B:	W	11:10-12:20	PNE 129	TA = Katherine Cho

This course introduces students to statistical methods and their applications in social science and public policy. Knowledge of basic probability theory is necessary to accomplish this goal and its instruction is an integral part of this course. The course will be divided into four main sections. Initially we will cover descriptive statistics, including summary measures and the graphical display of data. The second section covers probability theory that forms the basis of statistical inference. The third section covers sampling, estimation, and inference. The final two weeks of the course will provide an overview of crosstabulation and a brief introduction to regression analysis. Because regression analysis is the focus of Econ 203, we will only begin to explore that topic in Econ103/Soc190.

Required text: Doane, David P. and Lori E. Seward. *Applied Statistics in Business & Economics* (2nd edition). Boston: McGraw-Hill Irwin. 2009. Students studying probability and statistics often find it beneficial to skim the appropriate chapters before coming to lecture and then to read the chapters more carefully after I have lectured on the material covered in those chapters.

Course Requirements and Weights for Final Grade: The final grade will be based on the following requirements:

Problem sets	15% total
2 midterm exams	50% (25% each)
Final exam (cumulative)	35%
Total	100%

Problem Sets: Problem sets are an integral part of the course. Some of you may find it useful to work on problem sets together and to study in small teams (2-3 students per team is ideal). That is perfectly acceptable but each student must turn in her own problem set. Since written solutions will be distributed on the due date, **NO LATE PROBLEM SETS WILL BE ACCEPTED**. Computer difficulties should be expected and factored into the time allotted to complete the exercises.

Exams: The two midterm exams will be closed book and taken in class on October 7th and November 18th. **ANY CONFLICTS WITH THESE EXAM DATES MAY BE RESOLVED BY TAKING THE EXAM EARLIER THAN SCHEDULED, NOT LATER.** Exams are designed to see how well you can apply the fundamental problem solving skills developed on the problem sets. The exams in this course **DO NOT** simply modify the same questions you have done on problem sets. A formula page will be provided for all exams.

Attendance: Attendance is expected for all lectures and lab meetings. Labs are a vital component of this course and will be used to reinforce lecture material, to provide “hands on” experience with problem solving, and to introduce Excel as a tool for learning statistics and perhaps for landing a job some day.

General comment: The only way to learn statistics is to work problems. Simply completing the problems on the problem sets is not enough – you should do as many of the exercises in the textbook as you can. Solutions for the odd-numbered exercises are in the back of the text and solutions for the even-numbered problems can be found in the solutions manual available in my office. If you want to check an answer or if you are not sure how to solve a particular unassigned problem, please feel free to ask about the relevant problem during my office hours.

Class schedule:

Mon	Tue	Wed	Thu	Fri	Reading:
	SEP 2 Course introduction	3 No lab	4	5 Data and Graphs	Ch. 1 (skim)
8	9 Data and Graphs	10 Lab: Graphing	11	12 No class	Ch. 2: 2.1 - 2.3, 2.6 Ch. 3 (all)
15	16 Descriptive Stats	17 Lab: Excel functions Descriptive stats (2:15)	18	19 Covar / Correl Pset 1 due 1:30p	Ch. 4: 4.1 - 4.7
22	23 Probability	24 Lab: Excel functions	25	26 Probability Pset 2 due 1:30p	Ch. 5: 5.1 - 5.6, 5.8
29	30 Probability	OCT 1 Lab: Simulations Probability practice (2:15p)	2	3 Loose ends / review Pset 3 due 1:30p	Ch. 5: 5.7 (Bayes) Paulos pp. 72 - 73 (ER)
6	7 MIDTERM 1	8 Lab: Go over Midterm	9	10 Random Vars (RVs)	Ch. 6: 6.1
13	14 FALL BREAK	15 No lab Discrete RVs (2:15p)	16	17 Discrete RVs Pset 4 due 1:30p	Ch. 6: 6.2 - 6.5
20	21 Props of $E(X)$, $var(X)$	22 Lab: Proof by Excel	23	24 Continuous RVs Pset 5 due 1:30p	Ch. 6: 6.8 Ch. 7: 7.1 - 7.5, 7.7 Newbold (ER)
27	28 TANNER	29 Lab: TBA Normal RVs (2:15p)	30	31 Sampling	Ch. 2: 2.4 - 2.5 Paulos pp. 59 - 62 (ER)
NOV 3	4 Sampling distributions	5 Lab: Random sampling	6	7 Confidence Intervals (CIs) Pset 6 due 1:30p	Ch. 8: 8.1 - 8.8 Paulos pp. 178 - 180 (ER)
10	11 CIs and Hyp Testing	12 Lab: Sampling distrib Hyp Testing (2:15p)	13	14 Loose ends / review Pset 7 due 1:30p	Ch. 9: 9.1 - 9.5
17	18 MIDTERM 2	19 Lab: Go over Midterm	20	21 Hyp test: 2 means	Ch. 8: 8.9 - 8.10 Ch. 10: 10.1 - 10.4
24	25 Hyp test: 2 proportions	26	27	28 THANKSGIVING BREAK	
DEC 1	2 Crosstabulation Pset 8 due 1:30p	3 Lab: Pivot tables Crosstabulation (2:15p)	4 Correlation / Regression	5	Ch. 15: 15.1 - 15.2 Ch. 12: 12.2 - 12.3 Ch. 12: 12.4 - 12.5 (skim)
8	9 Correlation / Regression	10 Reading Period Pset 9 due 1:30p	11 Reading Period	12 Reading Period	Ch. 13: 13.1 "Regression Obsession" (ER)
EXAMS 15	EXAMS 16	EXAMS 17	EXAMS 18	EXAMS 19	