

ECON103/SOC190-3 (Fall 2009)
Introduction to Probability and Statistical Methods

Lecturer: Professor Joe Swingle (x3841)
Office hours: Tuesdays 9:45-11:45, Wednesdays 12:30-1:30, Fridays 9:45-10:45 (PNE 332)
Class Schedule:

Lectures:	TF	8:30-9:40	PNE 239	
Alt 2 mtgs:	W	8:30-9:40	PNE 239	
Lab 3A:	W	9:50-11:00	PNE 129	TA = Katherine-Sooah Cho
Lab 3B:	W	11:10-12:20	PNE 129	TA = Kristin Y. Shiue

This course introduces 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.

Required text: Doane, David P. and Lori E. Seward. *Applied Statistics in Business & Economics* (2nd edition). Boston: McGraw-Hill Irwin. 2009. Students taking this course 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 13th and November 20th. **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. 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 or one of the TA’s office hours.

Class schedule (Fall 2009):

Mon	Tue	Wed	Thu	Fri	Reading:
SEP 7	8 Course introduction	9 (No labs)	10	11 Types of data	1.1-1.4, 1.6 2.1-2.3, 2.6
14	15 Graphing	16 Lab 1: Excel graphing	17	18 Descriptive Stats Pset 1 due 8:30a	Ch. 3 (all) 4.1-4.2
21	22 Descriptive Stats	23 Lab 2: Excel functions	24	25 Applications of σ Pset 2 due 8:30a	4.3-4.8 (skip 4.6)
28	29 Probability	30 Lab 3: Excel functions	OCT 1	2 Probability Pset 3 due 8:30a	5.1-5.8 (skip 5.7)
5	6 Probability - Bayes	7 Lab 4: Simulations	8	9 Review Pset 4 due 8:30a	5.7 Paulos pp. 72-73 "In praise of Bayes"
12 FALL BREAK	13 MIDTERM 1	14 (Monday schedule)	15	16 Discrete RVs	6.1-6.3
19	20 Discrete RVs	21 Lab 5: Props of E(X)	22	23 Continuous RVs Pset 5 due 8:30a	6.4-6.8 (skip 6.7) 7.1-7.2 Newbold-"Joint distribs"
26	27 Continuous RVs	28 Lab 6: Normal distrib	29	30 Normal distribution Pset 6 due 8:30a	7.3-7.7 Paulos pp. 59-62
NOV 2	3 TANNER	4 Lab 7: Sampling distribs	5	6 Estimation Pset 7 due 8:30a	8.1-8.3 Paulos pp. 178-180 Newbold-"Estimators"
9	10 Conf Intervals (CIs)	11 Lab 8: CIs and sample size	12	13 Hyp Testing: 1 mean Pset 8 due 8:30a	8.4-8.8 9.1-9.4
16	17 Hyp Testing: 1 prop	18 Lab 9: Review	19	20 MIDTERM 2	9.5
23	24 Hyp test: 2 means	25 (No labs)	26	27 THANKSGIVING RECESS	8.9-8.10 10.1-10.3
30	DEC 1 Hyp test: 2 props	2 Lab 10: Crosstabs	3	4 Goodness of Fit	10.4 15.1-15.5
7	8 Correl / Regression Pset 9 due 8:30a	9 Lab 11: Regression	10	11 Regression	4.6, 12.1-12.6 13.1 "Regression Obsession"
14 Reading Period	15 EXAMS	16 EXAMS	17 EXAMS	18 EXAMS	
21 EXAMS	22	23	24	25	Grades due Jan 7 by noon