Syllabus

Economics 307
Spring 2017
Professor Hausman   Tyler 123

Textbook
Gary Smith, *Introduction to Statistical Reasoning*, plus supplementary material on Blackboard. This book is out-of-print and will not be in the bookstore, but you should be able to find it online; chapters also will be available on Blackboard. If you desire a more comprehensive text, I suggest purchasing online an older edition (e.g., 6th) of Paul Newbold, William Carlson, and Betty Thorne, *Statistics for Business and Economics*. There also are many free texts on the Web. Lecture notes, readings, assignments, tables, formula sheets, and useful web links will available on Blackboard.

College Requirements
This course is one option that satisfies the public policy and international relations computing requirement for majors, as well as GER 1 (quantitative reasoning), and the "active learning" component of the new curriculum. (*PP and IR students must indicate to me if they intend to use this course to satisfy the requirement.*)

Computers and the Web in Statistics
Computing is a major component of this course, and there will be mandatory computing assignments. The statistical package supported in this class is *Stata*. Both short and long manuals are available under Course Documents on Blackboard. If you are an Economics major and will take Econ 308, you may wish to purchase a copy of *Stata* for your laptop. I recommend *Small Stata* 14 for 6 months or a year. *Stata* is available on the campus network drive and in computing labs for free. For details on purchasing *Stata*, see http://www.stata.com/order/new/edu/gradplans/student-pricing/.

Homework
The problems indicated on the syllabus are ones that I think are particularly good, but they are the minimum you should work. Solutions to most problems will be available on Blackboard. I will make periodic computer homework assignments that I will ask you to hand in. (The last of these will be worth 15 points on the final exam.) Homework assignments (whether or not you do them and whether or not they are correct) may comprise a portion of your final course grade and may be used to make final grade decisions. You may work together on homework assignments but all writing and interpretation must be your own.

Exams
There will be three exams: two mid-terms and a (2-hour) non-comprehensive final exam with equal weights (approximately 33.3% each). Any student may request to take a comprehensive (3-hour) final exam, in which case the exam weights will change as follows: the final exam will carry a weight of approximately 50%, making the two mid-term exams approximately 25% each. (Computer homework may factor into your final grade.) You will be provided with formula sheets and tables for all exams and should bring your own calculators (no cell phones or tablets, please).

Policy on Make-up Midterm Exams
I expect students to take the exams at the designated times, which are firm and are included in the syllabus. If you miss an exam, you must have a written excuse from the appropriate College office, in which case you may miss the exam but <u>must</u> take the comprehensive final, which will carry a weight of approximately 67% (with approximately 33% for the other mid-term exam).

Office Hours: 2:00- 3:00 MW; 11-12 TTh, and by appt.; office, 335 Tyler; email, wjhaus@wm.edu.

You are responsible for reading the text chapter assignments and my notes PRIOR to attending class.
Starred (*) sections in my consolidated class notes on Blackboard correspond to section titles below. Readings indicated below (♠,♥,✿) are on Blackboard.

Week of: Chapter Assignment: Topic

Jan. 18 (one day)   Ch. 1: Introduction

Jan. 23   Ch. 2-3: Descriptive Statistics

Jan. 30   Ch. 5.1-5.2 and Web Supplements #1, 2 (Ch. 5): Probability Analysis ♠(see
                                                below)

Feb. 6   Ch. 5.3-5.4 and Web Supplements #3, 4: Random Variables, Expected
                                                Values, Joint Probability Distributions,
                                                Covariance

Feb. 13   Ch. 5.5-5.7 - The Binomial and Normal Distributions

Feb. 20   First Exam, Wed., Feb. 22

Feb. 27   Ch. 4, 6: Sampling, Sampling Distributions, and Confidence Intervals

Mar. 6   Spring Break

Mar. 13   Ch. 7: Hypothesis Testing

Mar. 20   Ch. 8, 10: Two-sample Tests; Chi-square Test on Contingency Tables

Mar. 27   Second Exam, Wed., Mar. 29

Apr. 3   Ch. 11: Simple Regression ♥(see below)

Apr. 10   Ch. 9.3 and Web Supplement #5 (Ch. 14): Multiple Regression ✿(see
                                                below)

Apr. 17   Multiple Regression continued

Apr. 24   Multiple Regression continued

Final Exam: Monday, May 1, 9:00 a.m.

♠ Reading: Charles Whelan, "Basic Probability," *Naked Statistics*, pp. 68-89.
♥ Reading: Stephen Ziliak, "Guinessometrics: The Economic Foundation of 'Student's' *t*," *Journal of Economic Perspectives*, 22 (Fall 2008), 199-216.
✿Reading: Charles Whelan, "Identifying Important Relationships" and "Regression Analysis," *Naked Statistics*, pp. 9-14, 185-211.

Recommended Problems from Smith (absolute minimum that should be worked):

Ch. 2: 2,6,11,12,15,50

Ch. 3: 1,3,5,10,15,17,22,43

Ch. 4: 6,8,18,21,25,32,37

Web Supplement Ch. 5: 1,4,10,14,21,22,25,26,27,54,56,57

Ch. 5: 2,11,12,14,17,18,21,23,26,27,31,33,34,46

Ch. 6: 1,2,3,5,7,9,12,17,19,22,28,29,33,36,40,41,45

Ch. 7: 2,4,6,9,11,13,15,20,27,31,34,37,45

Ch. 8: 1,2,7,8,10,17

Ch. 10: 2,6,7,28,40

Ch. 11: 1-29

Web Supplement Ch. 14: 1-15