

FALL 2003
WWS 507C Quantitative Analysis: Advanced
Mark Watson
Tuesdays/Thursdays, 9:00 am – 10:30 am
Robertson Hall, room 002

Administrative Details

1. Your grade in this class will be based on your performance on a midterm exam (20%), a final exam (35%), three projects (30%), and a series of exercises (15%).
2. The preceptor for this course is Peter Bondarenko. There will be weekly precepts. The time and location will be announced in class.
3. You may work in teams on the exercises. Teams should have four or fewer members, and each team should turn in only one assignment listing all team members' names. You may also work together on the statistical analysis for the projects. You may NOT work together on the project write-ups. Each of you must turn in your own write-up of the project. You may turn in exercises and projects early, but we will not accept late assignments.
4. My contact information is:
Office: Bendheim 321
Phone: 8-4811
Email: mwatson@princeton.edu
Secretary: Tim Waldron (Bendheim 216, 8-4143)
Office Hours: Thursday 2:30-4:00

6. Important Dates:

Thursday, 9/18	Project 1 Distributed
Thursday, 10/16	Project 1 Due
Thursday, 10/23	Midterm Examination
Tuesday, 11/4	Project 2 Distributed
Thursday, 12/4	Project 2 Due, Project 3 Distributed
Tuesday, 1/13/04	Project 3 Due

7. There are two texts for the course:

(WMS) Wackerly, Dennis, William Mendenhall, and Richard Scheaffer, *Mathematical Statistics with Applications*, 6th Edition (Duxbury)

(SW) Stock, James H. and Mark W. Watson, *Introduction to Econometrics*, 1st Edition, (Addison-Wesley)

WMS is the bestselling textbook in mathematical statistics. It will be the primary textbook for the first half of the course. It provides more detail than my lectures and is at a somewhat higher mathematical level.

SW is a relatively new book covering the material in the second half of 507 and the material in 508. It is based on lectures from WWS 507 and KSG's version of 508.

Reading List and Course Outline

Topics	Readings
Introduction, Summarizing Data, Descriptive Statistics	WMS: Chapter 1 SW: Chapter 1
Probability, Conditional Probability, Probability Rules	WMS: Chapter 2
Random Variables, Probability Distributions, Expectations	WMS: 3.1-3.4, 3.9, 4.1-4.5, 4.9, Chapter 5, 7.2 SW: Sections 2.1-2.4, Appendix 15.1
Sampling Theory and Design	TBA
The Sample Mean, the Law of Large Numbers and the Central Limit Theorem	WMS: 3.11, 7.3-7.4 SW: Sections 2.5-2.6, 3.1, Appendix 15.2
Estimators, Confidence Intervals, Hypothesis Tests	WMS: 8.1-8.7, 9.1-9.3, 9.6-9.8, 10.1-10.3, 10.5-10.6 SW: Chapter 3.2-3.5
Program Evaluation with Randomized Controlled Experiments	SW: Chapter 11.1-11.2, pages 385-386
Bivariate Regression	SW: Section 3.6, Chapter 4, Chapter 15
Multiple Regression	SW: Chapter 5
Nonlinearities and Choice of Functional Form	SW: Chapter 6
Regression with a Binary Dependent Variable	SW: Section 9.1
Assessing Studies based on Multiple Regression	SW: Chapter 7