

Economics 480-1: Introduction to Econometrics (Fall 2011)

Economics 480-1 is the first third of the year-long introduction to econometrics for first-year Ph.D. students in economics. After completion of 480, students may wish to enroll in components of Economics 481, a set of courses in econometric methods; Economics 482, a course in time-series methods; and/or Economics 483, a course in applied microeconometrics. Prerequisites for 480-1 include undergraduate courses in probability and mathematical statistics with calculus emphasis. Grading is based on problem set assignments (20%), a midterm examination (40%), and a final examination (40%).

Text: C. Manski, *Identification for Prediction and Decision* (IPD), Harvard University Press, 2007. (Purchase at bookstore or order online at www.amazon.com or www.bn.com.)

Syllabus (tentative schedule)

1. Conditional Prediction (9/20, 9/22, 9/27)
IPD, Introduction and Chapter 1

2. Prediction with Incomplete Data (9/29, 10/4, 10/6, 10/11, 10/13)
IPD, Chapters 2 through 5

3. The Selection Problem (10/18, 10/20, 10/25)
IPD, Chapter 7

Midterm Examination: Thursday October 27, in class

4. Simultaneity and Monotone Treatment Response (11/1)
IPD, Chapters 8 and 9

5. Planning with Partial Knowledge of Treatment Response (11/3, 11/8, 11/10)
IPD, Chapters 11 and 12

6. Predicting Choice Behavior (11/15, 11/17, 11/22, 11/29)
IPD, Chapters 13 through 15

Final Examination: Thursday December 1, in class

Lectures, Sections, Exams, and Problem Sets (tentative schedule)

Lecture 9/20: IPD Introduction.

Lecture 9/22: Conditional prediction, IPD 1.2 and 1A.

Section 9/23: NU computer facilities. Introduction to STATA, with application to linear regression.

Lecture 9/27: Kernel Estimation of Best Predictors, IPD 1.3 and 1B.
Post Problem Set 1.

Lecture 9/29: Missing Outcomes Using the Data Alone, IPD 2.1–2.4 and 2A.

Section 9/30: Proof of consistency of the uniform kernel estimate.

Lecture 10/4: Missing Outcomes with Distributional Assumptions, IPD 2.5–2.6. Statistical Inference, IPD 2.7 and 2C.

Problem Set 1 due.

Post Problem Set 2.

Lecture 10/6: Instrumental Variables, IPD 3.

Section 10/7: Discuss Problem Set 1.

Lecture 10/11: Parametric Prediction, IPD 4.

Problem Set 2 due.

Lecture 10/13: Decomposition of Mixtures, IPD 5.

Section 10/14: Discuss Problem Set 2

Lecture 10/18: The Selection Problem, IPD 7.1–7.2.

Post Problem Set 3.

Lecture 10/20: The Selection Problem, IPD 7.3–7.6.

Section 10/21: Perspectives on treatment comparison, IPD 7A.

Lecture 10/25: The Selection Problem, IPD 7.7.

Problem Set 3 due.

Section 10/25 or 26: Discuss Problem Set 3. Review for midterm exam.

Midterm Exam 10/27

Lecture 11/1: The Simultaneity Problem, IPD 8. Monotone Treatment Response, IPD 9.

Lecture 11/3: Treatment Choice under Ambiguity, IPD 11.1–11.3.

Section 11/4: Discuss Midterm Exam.

Lecture 11/8: Treatment Choice under Ambiguity, IPD 11.4–11.8.
Post Problem Set 4.

Lecture 11/10: Treatment Choice with Sample Data, IPD 12.

Section 11/11: Minimax regret treatment choice, IPD 11A

Lecture 11/15: Revealed Preference Analysis, IPD 13.1–13.3
Problem Set 4 due.

Lecture 11/17: Revealed Preference Analysis, IPD 13.4. Measuring Expectations, IPD 14.

Section 11/18: Discuss Problem Set 4.

Lecture 11/22: TBA
Post Problem Set 5.

Lecture 11/29: Studying Human Decision Processes, IPD 15.
Problem Set 5 due.

Section 11/29 or 11/30: Discuss Problem Set 5. Review for final exam.

Final Exam 12/1