

# Econometrics II Syllabus

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## Objectives

This course introduces advanced tools and methodologies that allow us to undertake causal inference and prediction in the context of both cross sectional and time series data. We will cover:

1. Estimation when the zero conditional mean assumption is violated (instrumental variables).
2. Analysis and interpretation of data collected in experiments and quasi-experiments.
3. Analysis of binary dependent variables (least-squares and maximum likelihood).
4. Modeling and forecasting macroeconomic and financial data.
5. Estimation of causal effects through time.
6. Various other topics such as cointegration and volatility clustering.

The overall objective is for the student to learn new theory and methodology to help him/her critically examine economic data.

## Prerequisites

Econometrics I or the following:

1. Basic knowledge of the concepts of statistical inference, hypothesis testing and constructing confidence intervals.
2. Knowledge of the methodology of estimation by OLS, obtaining and interpretation of estimators, hypothesis testing, causes and consequences of problems of internal and external validity of the models.
3. Basic knowledge of the use of econometric software such as STATA.
4. Knowledge of the basic concepts of microeconomics and macroeconomics that allow students to design and interpret the results of empirical studies using econometric techniques studied.

## Organization

Teaching consists of 20 lectures and 6 seminars of 1.5 hours each. Lectures will develop the concepts and methodologies of the subject. Seminars will cover solutions to the homework problems and any other material not covered in lectures. Homework problems may also cover material not covered in lectures. Students are encouraged to work in groups of 3 – 4 in order to practice teamwork and share different ways to tackling the problems. Members of each group must belong to the same seminar group. Each group submits a single solution set for each problem set. Each member of a group receives the grade corresponding to the submitted solution set (i.e. the same grade). Participation and asking questions in lectures and seminars is highly encouraged.

## Evaluation

To pass the course, you should get at least 50 points out of 100, according to the following distribution:

Homework: 15 points

Seminar Attendance: 15 points

Midterm: 30 points

Final: 40 points

Homework will be due at 12:00 (noon) on the due dates given in the course plan. No late homework will be accepted. Attendance will be taken at the start of each seminar. Any student arriving after attendance has been taken will be considered absent. The midterm is scheduled for Monday 5/11/2012 and will cover all material up to that point. The final will cover all topics in the course but the focus will be mainly on the material covered after the midterm. The February make up exam carries 100% of the grade and covers all of the topics in this course.

## Book

The course follows *Introduction to Econometrics* (3rd Edition) by Stock and Watson very closely. This book is useful not just as a textbook but also as a reference. Copies of the textbook are available in the university library. It is the student's responsibility to ensure they have access to a copy throughout the term.

## Course Plan

Date	Topic & Chapters
01/10	Revision (2 – 9).
02/10	Revision (2 – 9). No Seminars.
08/10	Instrument Variable Regression (12).
09/10	Instrument Variable Regression (12). No Seminars.
15/10	Instrument Variable Regression (12).
16/10	Experiments and Quasi-Experiments (13).
17/10	Homework #1 due.
22/10	Experiments and Quasi-Experiments (13).
23/10	Experiments and Quasi-Experiments (13).
24/10	Homework #2 due.
29/10	Binary Data (11).
28/10	Binary Data (11). No Seminars
05/11	Midterm (5/11/2012)
06/11	Time Series (14).
07/11	Homework #3 due.
12/11	Time Series (14).
13/11	Time Series (14).
14/11	Homework #4 due.
19/11	Dynamic Causal Effects (15).
20/11	Dynamic Causal Effects (15).
21/11	Homework #5 due.
26/11	Dynamic Causal Effects (15).
27/11	Additional Topics in Time Series (16).
28/11	Homework # 6 due.
03/12	Additional Topics in Time Series (16).
04/12	Additional Topics in Time Series (16). No Seminars.