ECON 307-01 Empirical Analysis in Economics

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Course Description

The purpose of this course is to introduce you to econometrics-the practice of using statistical techniques to analyze economic data. We will theoretically explore the foundations of economic theory and you will learn how to manipulate and analyze data, with the goal of accurately answering an economic question.

We will also be learning how to use Stata. Stata is the most widely used software in economics and is a useful program to know, no matter where you envision ending up after your undergraduate studies. A number of days throughout the term will be spent focusing on how to efficiently use Stata. The computer lab will have a number of computers with Stata installed, however, if you are interested in having a powerful statistics program in the comforts of your home, Stata offers good deals for students.

Learning Goals

By the end of the course, you should:

- Be able to collect, evaluate and perform a correct econometric analysis.
- Present your analysis in a clear and professionally written document.
- Understand the use of econometrics beyond an academic project.

Course Materials

Textbook: Introduction to Econometrics, James Stock and Mark Watson, 3rd Edition
Assignments will use datasets that are available at the textbook website: http://wps.aw.com/aw_stock_ie_3

I will provide you with supplemental materials on the course website. I will not use Canvas, but I will have a link on Canvas to the website.

Website Address: http://site.xavier.edu/langm1/index_files/ECON30701.htm

Pre-Requisites: ECON 200, 201, STAT 210

I will briefly review the statistics topics that you need to know in the course, however, I expect you to be comfortable with basic probability, probability density functions, expected value, the Central Limit Theorem and hypothesis testing.

Academic Dishonesty

If I catch you cheating on an exam or plagiarizing on a paper, you will receive an “F” for the assignment at a minimum. All occurrences will be passed on to the Dean of the College. If you are uncertain about what constitutes as plagiarism when writing papers, please come and talk to me.

Williams College of Business Mission Statement: “We educate students of business, enabling them to improve organizations and society, consistent with the Jesuit tradition.”
Course Components

Exams (50%): There will be two exams in the course, one midterm and one final. The final will be comprehensive, but a majority of the questions in the final will come from the second half of the course. The exams will take the following weights:

Lowest exam score: 20%
Highest exam score: 30%

Research Project (35%): This course is intended to introduce you to the methods in which economics research projects should be carried out. Because this is not a capstone course, the project will not focus solely on original economic research and instead, you will do a replication of an empirical economic paper from an academic journal. Like all term projects, the earlier you start thinking about the project, the better the project will turn out (and you will be significantly less stressed than if you procrastinate). I will provide you with more information on the research project as the term progresses.

Problem Sets (5%): There will be 5 problem sets throughout the term. They will be a combination of theoretical and empirical exercises. I will post the homework answers on the website after the due date. I will not grade your homework in detail, but I will check to see whether you made an honest attempt to answer all the problems. Handed in homework assignments will receive a check-plus (~85-100%), check (~70-85%) or check-minus (~<70%).

Participation/Miscellaneous (10%): A tenth of your grade will be based on participation. Participation scores will come from your general attitude and conduct in class (i.e. no texting, laptops, etc.) and random quizzes that I reserve the right to administer. Random quizzes will always be based on topics we recently covered and will help me understand how well you understand the material.

How to Be Successful

This course is an advanced course in a difficult major, so expect it to be difficult. You will need to dedicate considerable time outside of class. Although you may (and should) work in groups, it is imperative that you understand the material without the help of others. Take good notes on paper (do not use a laptop or “phone”). I will always be available for students in the course beyond office hours.

Grading Scale

To guarantee a particular grade, you will need the following percentage score:

<table>
<thead>
<tr>
<th>Grade</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>A: 94+</td>
<td>A-: 91-93.9</td>
</tr>
<tr>
<td>B+:88-90.9</td>
<td>B: 86-87.9</td>
</tr>
<tr>
<td>C+: 80-82.9</td>
<td>C: 77-79.9</td>
</tr>
<tr>
<td>B: 83-85.9</td>
<td>C-: 74-76.9</td>
</tr>
</tbody>
</table>
Tentative Course Schedule

Part I: Introduction and Review

8/24, 8/26, 8/31, 9/2: Statistics Review (Read: SW Chapters 1, 2 and 3)
9/9: Computer Lab-STATA Intro
9/14: Statistics Quiz

Assignment 1 Due on 9/14

Part II: Fundamentals of Regression Analysis

9/16-9/28: Linear Regression and Hypothesis Tests with One Regressor (Read: SW Chapters 4 and 5)
9/30-10/12: Linear Regression and Hypothesis Tests with Multiple Regressors (Read: SW Chapters 6 and 7)
9/28, 10/12: Computer Lab-STATA Regressions
10/14: Review Exam 1

Paper Choice Due on 9/21
Assignment 2 Due on 9/30
Project Step 1 Due on 10/7
Assignment 3 Due on 10/14

MIDTERM EXAM on 10/19 (SW, Chapters 2 through 7)

Part III: Topics in Regression Analysis 1

10/21, 10/26: Nonlinear Regressions (Read: SW Chapter 8)
10/28, 11/2, 11/4, 11/9: Difference-in-Difference and Panel Data (Read: SW Chapters 10 and 13)
11/9: Computer Lab-STATA Advanced

Project Step 2 Due on 11/4
Assignment 4 Due on 11/11

Part IV: Topics in Regression Analysis 2

11/11: Research Design
11/16, 11/18: Binary Dependent Variables (Read: SW Chapter 11)
11/23, 11/25: Thanksgiving Break, No Class
11/30, 12/2: Instrumental Variables (Read SW, Chapter 12)
12/7: Computer Lab-STATA Analysis
12/9: Review

Project Step 3 Due 12/2
Assignment 5 Due 12/9

Final Paper Due 12/11

FINAL EXAM on 12/16 at 2:00PM (Cumulative, but with a strong emphasis on parts III and IV)