



**Economics 346W-Econometrics, Spring 2014**  
Mon/Wed/Fri 10:25 – 11:15, Maguire Hall Room 303

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Office Hours: Mon 1:30 - 3  
Wed 3 – 4:30  
Fri 11:30 - 1  
and by appointment

#### Catalog Description

- ◆ This course teaches students how to use statistical tools to evaluate hypotheses derived from economic models.

#### Course Overview

- ◆ The course provides an understanding of empirical techniques in economics. Building on your knowledge of probability theory and statistics, you will learn how to estimate economic relationships of interest and perform hypothesis testing on predictions from economic models. This course will enhance your understanding of regression analysis and develop skills for the interpretation of quantitative data in economics. You will gain hands-on experience in working with data, performing statistical estimation and writing up the results of your findings in a research paper. The ultimate goal is to estimate the magnitude and statistical strength of causal relationships derived from economic models.

#### Course Objectives and Learning Outcomes

- ◆ Students will be able to interpret and critically analyze quantitative information related to economics.
- ◆ Students will understand regression analysis and understand how to use it to test economic models and to measure important economic parameters.

#### Required Materials

Textbook: Introduction to Econometrics, by Stock and Watson, 2<sup>nd</sup> or 3<sup>rd</sup> edition

Software: STATA will be used for data analysis in this course. It is available on networked Loyola computers (Start/Loyola Software/Statistical Applications). You can purchase small STATA for a 6 month student license for \$29 if you wish (but this is not required). If you already use a statistical software package (Eviews, SPSS, SAS, etc), you are free to use that.

## Course Requirements and Grading Criteria

Since this is a writing intensive course, a significant portion of your grade will be based on the preparation of a research paper which will be developed over the course of the semester. You will work in groups of two for this project and there will be several submissions of work over the course of the semester. There will also be two presentations of your research project (a short 5 minute discussion of your idea and a 15 minute presentation of results). In addition to the project, a midterm and final exam will serve as the primary basis for your grade in this course. There will be no make-up exams. If you are unable to take the exams on their scheduled dates, you will need to arrange to take the exam prior to its scheduled time. There will be three or four problem sets that will allow you to apply the techniques from class to actual data. The relative weights of these components are:

- Research Paper and Presentations: 40% (Paper due Friday, April 25)
- Midterm exam: 20% (Wednesday, February 26)
- Final Exam: 25% (Monday, April 28)
- Problem Sets: 10%
- Course attendance and participation: 5%

NOTE: All papers should contain full attribution for any quoted or paraphrased material. Failure to fully acknowledge any portion of another author's work is plagiarism and will be treated as serious academic misconduct. You will submit your final papers via the Turnitin software which scans text for instances of plagiarized passages.

## Classroom Expectations

- Turn off cell phones. No texting, please.
- Laptops may NOT be used during class.
- If you're eating something, select quiet foods
- Ask questions when you're confused about something. Some of your classmates almost certainly are confused as well if you're lost during the class.
- Adherence to Loyola's Statement on Academic Integrity is mandatory. Plagiarism or cheating will result in a failing grade for the class.

CourseSchedule (Tentative – Subject to change)

Weeks 1 & 2 (January 13 - 24) – Chapters 1 – 3

- Introduction to Econometrics
- Review of Statistics and Probability

Monday, January 20 – No Class for MLK Jr. Day

Weeks 3 & 4 (January 27 – February 7) – Chapters 4 & 6

- Univariate Regression Analysis
- Multiple Regression Analysis
- Ordinary Least Squares Estimation

WEDNESDAY, FEBRUARY 5 – SUBMIT 1 – 2 PAGE SUMMARY OF PAPER TOPIC, HYPOTHESIS AND POTENTIAL DATA SET IDENTIFIED

Weeks 5 & 6 (February 10 - 21) – Chapters 5 & 7

- Hypothesis Testing
- Confidence Intervals
- Limitations to causal inference from regressions

Week 7 (February 24) – Review Chapters 1 – 7

Midterm Exam, Wednesday, February 26

Week 7 (February 28) – STATA Lab Session for Data Work

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March 3 – 7 – No classes, Spring Break

Week 9 (March 10 - 14) – Chapter 8

- Nonlinear regressors and dependent variables

WEDNESDAY, MARCH 12 – SUBMIT LITERATURE REVIEW FOR PAPER

WEDNESDAY, MARCH 19 – BRIEF PRESENTATIONS OF PROJECT IDEAS

Week 10 (March 17 - 21) – Chapter 9

- Other issues in model specification and data problems
- External validity

MARCH 19 – 26 – MEET DURING OFFICE HOURS TO DISCUSS PAPER PROJECT

Monday, March 24 – Last Day to Withdraw with grade of ‘W’

Week 11 (March 24 - 28) – Chapter 11

- Limited (binary) dependent variable models
- Probit and Logit estimation

Week 12 (March 31 – April 4) – Chapters 10 & 12

- Panel data and fixed effects methods
- Methods of Instrumental Variable estimation

FRIDAY, APRIL 4 – SUMMARY OF DATA AND EMPIRICAL MODEL DUE

Week 13 (April 7 - 11) – Chapter 14

- Time series estimation
- Forecasting

Week 14 (April 14 & 16) – Project Presentations

Friday, April 18 and Monday, April 21 – No classes for Easter break

Week 15 (April 23 & 25) – Wrap up topics and Lab Sessions for Projects

FINAL VERSION OF PAPERS DUE – Friday, April 25

FINAL EXAM – Monday, April 28, 9:00 – 11:00 AM

Pleasenote: This class may occasionally deviate from the course outline above.  
The instructor reserves the right to make changes as needed to the course syllabus.

## Guidelines for Econometrics Research Paper

### Important Deadlines

Friday, January 24 – Partner for project identified. Any unmatched students will be matched to a partner by me. Email me group member names and initial topic idea(s) or area of interest.

Wednesday, February 5 – 1-2 page motivation of paper topic, hypotheses of interest and idea for data set to be used is due. This submission will be graded for content, grammar, clarity of thesis and organization.

Friday, February 28 – Data set for analysis should be in hand (or more precisely, on your hard drive or in Dropbox). DATA AVAILABILITY IS ESSENTIAL FOR A SUCCESSFUL PROJECT. A cool idea with no data will not result in a passing grade for the project.

Wednesday, March 12 – 3 – 5 page literature review and contribution of your project to the literature is due. This must include summaries and discussion of at least four (4) academic journal articles (newspaper and magazine articles do not count) related to your topic of interest along with a bibliography of references used to motivate your hypotheses. This will be graded on the basis of the organization of ideas, relevance of articles to your topic, grammar and discussion of your paper's contribution.

Wednesday, March 19 – Brief (5 minutes) presentation of project ideas, main hypotheses and discussion of data set being used.

March 19 – 26 – Both group partners meet with Prof. Classen during office hours to discuss progress on research paper project.

Friday, April 4 – 3 – 4 page discussion of summary statistics of data set to be used for analysis and empirical model to be employed to estimate relationships of interest to test hypotheses is due. This will be graded based on clarity of discussion of model and relationships of interest, correct use of statistical language in discussing summary statistics, and grammar.

Week of April 14 - 16 – 12 minute presentation on topic background, summary of data set used, empirical model specified and results from project. This should be a PowerPoint presentation and both group members should share presentation responsibilities equally and be prepared to answer questions from the class and Prof. Classen.

Friday, April 25 – FINAL PAPER DUE. NO EXCEPTIONS. In addition to the previous three submissions (which should be edited in response to any comments provided as part of their grading), this submission will include your results and conclusions from your research project. The final paper may range from 25 - 40 pages (not including tables and figures) as you see fit. I will grade this paper in its entirety (including the sections previously submitted and presumably edited) on the basis of clarity of exposition, organization of ideas, grammar, appropriateness of statistical methods employed and validity of conclusions reached.

## Content of Paper

Your paper should include at a minimum these five sections:

I. Introduction and Motivation – This section should clearly state your question of interest, why it is of interest to you (and why it should interest the reader) and your specific hypotheses of what you expect to find on the basis of your economic knowledge and reading of the previous literature on the topic.

II. Literature Review and Contribution – This section will summarize some of the previous research that has been conducted on your topic of interest or is related to your interesting question. It should also identify how your work will differ from previous research (either in the data set used, empirical techniques employed or variables included).

III. Empirical Model and Data Summary – This section will discuss your included variables and justification for their inclusion. As well, it should address any potentially omitted variables that may bias your findings. This section should also include a description of the data source used, any limitations to its sampling criterion to allow for inference on a wider population of interest and summary statistics of the variables of interest. If needed, this section can be divided into separate sections for the empirical model and data summary.

IV. Results of Model Estimation – This section will discuss the results of your regression analysis to estimate the relationships of interest. Care should be taken to properly discuss the statistical significance and meaning of the estimated coefficients.

V. Conclusions and Discussion – This section should summarize your findings relative to previous research on the topic, identify the major weaknesses of your study (i.e. the caveats and limitations due to data or empirical techniques) and state the conclusions that can be drawn from your work. You should also include a discussion of future work on the topic that could improve upon what you have done.

## Quinlan School of Business Policies:

### Attendance

Class attendance and participation are fundamental components of learning, so punctual attendance at all classes, for the full class meeting period, is expected of Quinlan students. The student is responsible for any assignments or requirements missed during an absence.

### Examination Policy

Loyola University academic policy provides that tests or examinations may be given during the semester or summer sessions as often as deemed advisable by the instructor. Because Quinlan faculty believe examinations represent a critical component of student learning, required examinations should be taken during the regularly scheduled class period. A make-up final examination may be scheduled only with the permission of the appropriate Quinlan Assistant or Associate Dean.

For a student with a documented special testing need, please consult University policy concerning use of the testing center in Sullivan Center at Lake Shore Campus.

### Academic Integrity

All members of the Quinlan School shall refrain from academic dishonesty and misconduct in all forms, including plagiarism, cheating, misrepresentation, fabrication, and falsehood. Plagiarism or cheating on the part of the student in individual or group academic work or in examination behavior will result minimally in the instructor assigning the grade of "F" for the assignment or examination. In addition, all instances of academic dishonesty must be reported to the chairperson of the department involved.

For further information about expectations for academic integrity and sanctions for violations, consult the complete Quinlan School of Business Honor Code and Statement of Academic Integrity on the Quinlan website:

<http://www.luc.edu/media/lucedu/quinlanschoolofbusiness/pdfs/Honor-Code-Quinlan-July2012.pdf>

# Loyola's Statement on Academic Integrity

[http://www.luc.edu/academics/catalog/undergrad/reg\\_academicintegrity.shtml](http://www.luc.edu/academics/catalog/undergrad/reg_academicintegrity.shtml)

The basic commitment of a university is to search for and to communicate the truth as it is honestly perceived. The university could not accomplish its purpose in the absence of this demanding standard. To the extent that this standard is respected, a genuine learning community can exist. Students of this university are called upon to know, to respect, and to practice this standard of personal honesty.

Plagiarism is a serious form of violation of this standard. Plagiarism is the appropriation for gain of ideas, language, or work of another without sufficient public acknowledgement and appropriate citation that the material is not one's own. It is true that every thought probably has been influenced to some degree by the thoughts and actions of others. Such influences can be thought of as affecting the ways we see things and express all thoughts. Plagiarism, however, involves the deliberate taking and use of specific words and ideas of others without proper acknowledgement of the sources.

The faculty and administration of Loyola University Chicago wish to make it clear that the following acts are regarded as serious violations of personal honesty and the academic ideal that binds the university into a learning community:

Submitting as one's own:

1. Material copied from a published source: print, internet, CD-ROM, audio, video, etc.
2. Another person's unpublished work or examination material.
3. Allowing another or paying another to write or research a paper for one's own benefit.
4. Purchasing, acquiring, and using for course credit a pre-written paper.

The critical issue is to give proper recognition to other sources. To do so is both an act of personal, professional courtesy and of intellectual honesty.

Plagiarism on the part of a student in academic work or dishonest examination behavior will result minimally in the instructor assigning the grade of "F" for the assignment or examination. In addition, all instances of academic dishonesty must be reported to the chairperson of the department involved. The chairperson may constitute a hearing board to consider the imposition of sanctions in addition to those imposed by the instructor, including a recommendation of expulsion, depending upon the seriousness of the misconduct.

Academic cheating is another serious act that violates academic integrity. Obtaining, distributing, or communicating examination materials prior to the scheduled examination without the consent of the teacher; providing information to or obtaining information from another student during the examination; attempting to change answers after the examination has been submitted; and falsifying medical or other documents to petition for excused absences all are violations of the integrity and honesty standards of the examination process.

In the case of multiple instances of academic dishonesty across departments, the academic dean of the student's college may convene a hearing board. Students retain the right to appeal the decision of the hearing board to the academic dean of the college in which they are registered. The decision of the dean is final in all cases except expulsion. The sanction of expulsion for academic dishonesty may be imposed only by the Provost upon recommendation of the dean.