Department of Economics and Finance

ECON*4640/6050
Applied Econometrics I
Fall 2013

Instructor: Professor Yiguo Sun

Classes: T/TH 4:00pm-5:20pm at MacK309
Labs : Mon. 8:30am-9:20am at Mack028; computer labs hosted by a TA to help students to learn STATA
Office Hours: M/W 3:00pm-5:00pm or email me any time or take a casual after-class discussion

*I am willing to provide as necessary help as possible to all my students. However, to promote better results from my office hours, please read the textbook at least once before dropping by my office. Also, please **read** relevant chapters **before** working on assignments.*

It is your responsibility as a student to be aware of and to abide by the University's policies regarding academic misconduct, e-mail communication, maintaining copies of out-of class assignments, what to do when you cannot meet a course requirement and the drop date for a semester. To better understand these policies, please visit:

http://www.uoguelph.ca/economics/node/1115

COURSE OUTLINE

This is the first graduate course in econometrics, and is also open to undergraduates who have completed ECON3740. Students are expected to know some basic econometrics concepts; e.g., mean variance, sampling distribution of mean, central limit theory, law of large numbers, t statistic, F statistic, chi-squared statistic, linear regression models, OLS estimator and a very brief cover on maximum likelihood method. Matrix algebra and multivariate calculus are also required. (I will go through some of the basic concepts in the first two or three weeks of the semester.)

Marking scheme:

15% Assignments (tentatively THREE, each worth 5%)
15% Term paper (team work; given topic; details to be revealed later; tentatively 4 students per group)
5% Three in-class presentations (brief presentation of each group's research results)
20% Midterm exam (in class; October 17, 2013)
45% Final exam (**Dec. 13th from 7-9 pm**)

Software: STATA

Textbook:
Wooldridge, J.M., 2013. Introductory Econometrics: a Modern Approach, 5th Edition. Thomson: South-Western. (*This book (both 3rd and 4th edition) is available at the Reservation Desk of Guelph McLaughlin Library for a two-hour loan.)*

Tentative course plan:

A. **Part I**: Reviews
   a. Review of basic mathematical tools, probability and statistics, and statistical inferences. (Appendix A, B and C in Wooldridge)
   b. Review of simple linear regression when classical linear model assumptions (MLR.1-MLR.6) hold. (Chapters 1-5 in Wooldridge)

B. **Part II**: Multivariate regression analysis when some of the classical linear model assumptions are violated. (Chapters 6-8 and 17 in Wooldridge)

C. **Part III**: Seemingly unrelated models; Instrumental variables estimation; Simultaneous equations models. (Chapters 15 and 16 in Wooldridge; depending on time)

The above is a tentative outline, which may be modified without notice.

Note:

A. Important date: **October 31st** is the fortieth class day and the last day to drop one-semester courses.

B. I will assign a term project to each team, and details will be distributed in class. The team is expected to work on the project in several steps, and gives three 5-minute in-class presentations of the team's research results at assigned time (details are to be revealed later). At the end of the semester, the team is required to wrap up all the reported results into a formal paper, which is due on **November 28, 2013**. It is preferable that the paper has a 1.5-sentence space to balance between easy reading and paper saving.

C. A general format of the term paper is given as follows, which can be slightly changed at personal discretion:
   - A title followed by your team members' names and the date of submission
   - Abstract: to summarize the paper
   - Introduction: to motivate and explain what the paper is about
   - Data: to give the source of the data and basic summary statistics of the data
   - *One in-class presentation is assigned to reporting summary statistics.*
   - Model and estimation results: to explain which econometric model is used to analyze the data and what are the empirical findings.
   - *One in-class presentation for reporting preliminary results.*
   - Conclusion: to conclude the main results of the paper and summarize the potential pitfalls of the econometric methods used in the paper.

- *One in-class presentation for reporting further results and potential issues with your analysis.*
- Tables and Figures: you can choose to either list all the tables and figures at the end of the paper or insert them in the context where it is required.
- References: to list relevant articles cited in the paper.
- Program Code: to insert your computer programming code used to produce all the tables and figures reported in the paper.
- **Effort distribution sheet**: to list percentage effort contribution from each team member. Each team member is expected to contribute equally in terms of time and effort. Penalty will be laid down for team members with significantly less contribution.

Please email your data and program code to yisun@uoguelph.ca when submitting your term paper (a hardcopy or a pdf file). If the data file itself is not clear enough to explain what the data are, please also write a Readme.txt file to describe the name of the data variables, etc.

D. I will post relevant class information to CourseLink to either clarify questions about course content or announce news, so please sign in the course listed at CourseLink **at least once per week**. Also, you are free to use "DISCUSSIONs" to reach me or your fellow students about this course.

E. You will be asked to complete **an evaluation in class** of this course at sometime during the last two weeks of the semester. The Department of Economics and Finance policy regarding the conduct and use of these evaluations will be found at:

http://www.uoguelph.ca/economics/academics/courses/course-evaluation

The Department of Economics and Finance Learning Objectives (skills and knowledge competencies) for this course:

Skills:

1) **Written Communication**—written assignments are used to evaluate your **understanding** of course material, and the term project is used to evaluate not only your **understanding** of course material, but also your **analytical** skill for real world issue.
2) **Oral Communication/Presentation**—in-class presentations will be scheduled to report your ongoing **analysis** of your term project. You are expected to **understand** how to **apply** the skills learned in class to real world problem.
3) **Numerical Problem Solving**—STATA is used to work on data **analysis**.
4) **Analytical Problem Solving—**you are required to **calculate** mean, variance and covariance for conditional and unconditional case.
5) **Problem Solving in a Real World Context**—the term project is aimed to **apply** econometrics skill s learned in class to real world economic and finance problem.
6) **Group work**—the term project involves *two* students to work on one topic together.
7) **Computer skills**—STATA is used to work on data analysis.

Knowledge:

1) **Mathematical Methodology**—basic mathematical skills are required.
2) **Statistical and Econometric Methodology** – this course covers time series and panel data analysis.
3) Macroeconomic Modeling—Phillips inflation curve with or without rational expectation is to be **analyzed**.
4) **Understanding of Specific Markets**—in-class examples come from financial econometrics, labor economics and macroeconomics.
5) **Historical context**: students need to write a brief historical review on the term project.
6) **Economic Policy and Regulation**: panel data models are to be **applied** to **evaluate** impacts of government policy changes.
7) **Financial Asset Pricing, Corporate Finance, and Risk Analysis**—Financial market efficient hypothesis is to be **analyzed** and tested as examples.