

## **ECO418H1F -- Empirical Applications of Economic Theory (UG)**

Wednesday 2 pm – 4 pm

**Instructor:** Yao Luo

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**Office hours:** Tuesday 10:30 am – 11:30 am, or by appointment

### **Objectives**

This course focus on topics in applied econometrics and empirical industrial organization, including estimation of demand and supply, estimation of production functions, estimation of single agent decision problems, estimation of auction models. It emphasizes on a balanced treatment of theory and econometric techniques used in empirical research in industrial organization.

This course will be based on published and working papers. There will be no text book. The papers which appear with an asterisk in the reference are required. Students are expected to read them before class. Students are expected to learn STATA. Learning a computing language such as Matlab, Gauss or Fortran is not necessary. But it will be useful if you plan to apply for graduate school and are interested in empirical work.

**Prerequisite:** ECO327Y/ECO374H1/ECO375H1

The Department of Economics checks whether students have the course prerequisites, and students are removed if they do not have them. It is the students' responsibility to read the calendar. The instructor cannot waive prerequisites.

### **Grading**

There will be two problem sets, one presentation, one term test and one term paper. Each problem set counts for 10%. The presentation counts for 10%. The term test counts for 35%. The term paper counts for 35%. Collaboration on the problem sets is encouraged. But students should write and submit the answer individually, and acknowledge the help received in the front page.

You are encouraged to type your homework, but hand-written work will be accepted if it is cleanly presented. Make sure to put your name and student number in the front page. Students can either hand in the problem set to the

instructor by the end of the lecture on the due date, or hand in it to the receptionist of the economics department at least one day before the due date. No late problem sets will be accepted.

Students who fail to submit problem sets on time or miss the term test for medical reasons may seek special consideration by emailing the instructor AND submitting an *acceptable* medical note within a week after the due date. Petitions based on travel, employment or personal plans will not be considered. Students who miss the final exam for reasonable reasons may initiate petitions to the Faculty of the Art and Science. See the website for details.

Only if the instructor accepts students' medical notes, their marks for the missed problem sets will be calculated as follows:

1. If you miss one problem set, your mark for the missed problem set is equal to the lower mark for the other problem set and your presentation.
2. If you miss two problem sets, you will get zero for the second missed problem set. Your mark for the first missed problem set is equal to the mark for your presentation.

Only if the instructor accepts students' medical notes, their marks for the missed term test will be based on their marks of the makeup term test:

1. The makeup term test will be held on Nov 19<sup>th</sup>, 4:10 pm - 6:10 pm, location TBA.
2. Consistent with university policy, there will be no "makeup" test for the makeup term test. No medical excuses will be accepted, and a grade of zero will be applied if the students fail to write the makeup test.
3. The makeup test will include all the materials covered right up to the lecture before the makeup exam.

### **Acceptable Medical Notes**

The only acceptable medical note is a fully completed University of Toronto Verification of Student Illness or Injury form. It must be original and completed by a qualified medical doctor or nurse practitioner (e.g., not an acupuncturist, chiropractor, or other health care professional). The doctor's OHIP registration number must be provided on the note.

When you miss a problem set, the note must clearly state that either on the due date of the problem set or one day before the due date, the student was too ill to work on the problem set. When you miss a term test, the note must clearly state the on the date of the term test, the student was too ill to write the test.

### **Important Dates**

1. Homework due dates: Oct 1, 2014 (HW1) and Nov 5, 2014 (HW2)
2. Term test: Oct 22, 2014

3. Presentation: Nov 26, 2014
4. Term paper due date: Dec 10, 2014

### **Academic Misconduct**

Students should note that I do not tolerate any form of academic misconduct. Any student caught engaging in such activities will be subject to academic discipline ranging from a mark of zero to dismissal from the university as outlined in the academic handbook. Any student abetting or otherwise assisting in such misconduct will also be subject to academic penalties.

### **Email policy**

I will respond to email within 24 hours on a week day, 48 hours on a weekend, according to these policies:

- a) I only respond to emails posing questions that can be answered in 1-3 sentences. For detailed questions, please come to my office hours.
- b) I do not respond to emails that request information that can be found on the website or the syllabus.
- c) For the results of the graded materials, please come to my office hours.

### **Test score appeals**

- a) Please write a short paragraph explaining why you should obtain additional points. Turn in a hard copy of this by the end of the week following the week in which exams are first handed back. This holds regardless of whether you are in class when exams are returned.
- b) Conditional on this argument found persuasive by me, the entire exam will be re-graded. Your score may go up or down.

### **Course Outline**

1. Introduction (1 week)
2. Demand and Supply Estimation (4 weeks)
3. Production Function Estimation (2 weeks)
4. Single Agent Dynamic Models (2 weeks)
5. Auctions (1 week)
6. Student Presentations (1 week)

## References

1. Introduction (1 week)
  - a) \*\*\*Akerberg, D., Lanier Benkard, C., Berry, S., & Pakes, A. (2007). Econometric tools for analyzing market outcomes. *Handbook of econometrics*, 6, 4171-4276. --- ABBP, hereafter
  - b) \*\*\*Reiss, P. C., & Wolak, F. A. (2007). Structural econometric modeling: Rationales and examples from industrial organization. *Handbook of econometrics*, 6, 4277-4415. – RW, hereafter
2. Demand and Supply Estimation (4 weeks)
  - a) \*\*\*ABBP Section 1
  - b) RW Section 5 – 7
  - c) \*\*\*Berry, S., Levinsohn, J., & Pakes, A. (1995). Automobile prices in market equilibrium. *Econometrica*, 841-890.
  - d) Nevo, A. (2001). Measuring market power in the ready-to-eat cereal industry. *Econometrica*, 69(2), 307-342.
  - e) Fan, Y. (2013). Ownership consolidation and product characteristics: A study of the US daily newspaper market. *American Economic Review*, 103(5), 1598-1628.
3. Production Function Estimation (2 weeks)
  - a) \*\*\*ABBP Section 2
  - b) \*\*\*Olley, G. S., & Pakes, A. (1996). The Dynamics of Productivity in the Telecommunications Equipment Industry. *Econometrica*, 64(6), 1263-1297.
  - c) Levinsohn, J., & Petrin, A. (2003). Estimating production functions using inputs to control for unobservables. *Review of Economic Studies*, 70(2), 317-341.
  - d) Petrin, A., Poi, B. P., & Levinsohn, J. (2004). Production function estimation in Stata using inputs to control for unobservables. *Stata Journal*, 4, 113-123.
4. Single Agent Dynamic Models (2 weeks)
  - a) \*\*\*Rust, J. (1987). Optimal replacement of GMC bus engines: An empirical model of Harold Zurcher. *Econometrica*, 999-1033.
  - b) Hotz, V. J., & Miller, R. A. (1993). Conditional choice probabilities and the estimation of dynamic models. *The Review of Economic Studies*, 60(3), 497-529.
  - c) Aguirregabiria, V., & Mira, P. (2010). Dynamic discrete choice structural models: A survey. *Journal of Econometrics*, 156(1), 38-67.

d) Holmes, T. J. (2011). The Diffusion of Wal-Mart and Economies of Density. *Econometrica*, 79(1), 253-302.

5. Auctions (1 week)

a) \*\*\*Guerre, E., Perrigne, I., & Vuong, Q. (2000). Optimal Nonparametric Estimation of First-price Auctions. *Econometrica*, 68(3), 525-574.

b) Paarsch, H. J., & Hong, H. (2006). An introduction to the structural econometrics of auction data. *MIT Press*.