University of Waterloo
Department of Economics
Economics 621 – Econometrics I (001)
Course Outline
(Fall 2018)

Instructor: Xu , Dinghai

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Lecture Time: T. & Th. 11:30 to 12:50   **Lecture Location**: RCH 205

Office Hours: Th. 16:00 -- 17:00 or by appointment

Course Description

This course is the first term course for Economics graduate students (MA and PhD). This course is also designed as one of the major components for the Ph.D comprehensive exams. The main goal of this course is to provide students with an econometric (statistical) foundation for pursuing applied and theoretical research in economics. We will discuss modern econometrics methods and theory. The topics are listed below.

Textbook

Main Textbooks (Optional)

   *[1] **Econometric Theory and Methods** (ETM), by R. Davidson and J. G. Mackinnon, Oxford University Press.

   [2] **Econometric Analysis** (EA), by W.H. Greene, New York, Macmillan.

Topics

Mathematics/Statistics Foundation -- Chp 2, 3 (EA)
Linear Regression Models (Simple and Multiple) -- Chp 1 (ETM), Chp 6 (EA)
Statistical Properties of OLS -- Chp 3 (ETM), Chp 4 (EA)
Method of Maximum Likelihood -- Chp 10 (ETM), Chp 4 (EA)
Hypothesis Testing in Linear Regression Models -- Chp 4 (ETM), Chp 9 (EA)
Method of Moments -- Chp 9 (ETM), Chp 11 (EA)
Generalized Least Squares and Related Topics -- Chp 7 (ETM), Chp12 (EA)
Model Mis-Specification -- Chp 3 (ETM), Chp 8 (EA)
Non-Linear Regressions and Hypothesis Testing -- Chp 6 (ETM), Chp 10 (EA)
Instrumental Variable -- Chp 8 (ETM), Chp 9 (EA)
Intro of Multivariate Models --Chp 12(ETM),Chp 15 (EA)
[Time Permitting] Financial Econometrics Topics (Time Series -- ARCH, GARCH and SV Models) -- Chp 13 (ETM), Chp18 (EA) + Papers

Note: **The topics might not be covered in the exact order shown above.**

Computing SoftWare

There will be several problem sets which require using statistical software for computation. Feel free to use any computing package you prefer. But I would suggest Stata or R, Matlab.

Course Requirements

- Homework (10%)
- Midterm Exam (40%)
- Final Exam (50%)

Note on Grading of Assignments: The assignment for this course is graded as the following:

2 – Excellent; 1 – Satisfactory; 0 – Unsatisfactory

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Academic integrity, grievance, discipline, appeals and note for students with disabilities:

Academic integrity: In order to maintain a culture of academic integrity, members of the University of Waterloo community are expected to promote honesty, trust, fairness, respect and responsibility. [Check the Office of Academic Integrity for more information.]

Grievance: A student who believes that a decision affecting some aspect of his/her university life has been unfair or unreasonable may have grounds for initiating a grievance. Read Policy 70, Student Petitions and Grievances, Section 4. When in doubt, please be certain to contact the department's administrative assistant who will provide further assistance.

Discipline: A student is expected to know what constitutes academic integrity to avoid committing an academic offence, and to take responsibility for his/her actions. [Check the Office of Academic Integrity for more information.] A student who is unsure whether an action constitutes an offence, or who needs help in learning how to avoid offences (e.g., plagiarism, cheating) or about "rules" for group work/collaboration should seek guidance from the course instructor, academic advisor, or the undergraduate associate dean. For information on categories of offences and types of penalties, students should refer to Policy 71, Student Discipline. For typical penalties, check Guidelines for the Assessment of Penalties.

Appeals: A decision made or penalty imposed under Policy 70, Student Petitions and Grievances (other than a petition) or Policy 71, Student Discipline may be appealed if there is a ground. A student who believes he/she has a ground for an appeal should refer to Policy 72, Student Appeals.

Note for students with disabilities: AccessAbility Services, located in Needles Hall, Room 1132, collaborates with all academic departments to arrange appropriate accommodations for students with disabilities without compromising the academic integrity of the curriculum. If you require academic accommodations to lessen the impact of your disability, please register with AccessAbility Services at the beginning of each academic term.

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