

University of Waterloo
Department of Economics
ECON 421 Econometric Theory, Winter 2019
Class Hours: 02:30-03:50MW, Lecture Location: HH 334

Instructor Information

Instructor: Renfang Tian
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Office: HH 237
Office Hours: TBA

Course Description

This course provides an advanced treatment of fundamental econometric topics through the extensive application of matrix algebra and statistical theory. Topics covered will include classical linear regression models, weighted least squares, instrumental variables, non-linear least squares, maximum likelihood and limited dependent variable models. The goal of this course is to familiarize students with econometric models and techniques that are commonly used in empirical research.

Recommended Textbook

Wooldridge, Jeffrey M. Introductory econometrics: A modern approach. Nelson Education, 2015.

Grading

The overall grade will be based on five assignments and three mid-term exams. The first four assignments worth 40% in total, and the fifth one is a bonus that counts up to 5% extra credits. No late assignments will be accepted. The mid-term exams worth 60% in total; the highest two marks will count for the final grade, and the lowest one will be dropped automatically. No make-up exams unless you have verifiable reasons why you cannot take the exams at the scheduled time.

Assessments and Important Dates	
Assignment 1	Jan. 23
Assignment 2	Feb. 06
Mid-term Exam 1	Feb. 13
<i>Family day and reading week</i>	<i>Feb. 18 – Feb. 22</i>
Assignment 3	Mar. 06
Mid-term Exam 2	Mar. 13
Assignment 4	Mar. 27
Mid-term Exam 3	Apr. 03 (Last class)
Assignment 5 (optional)	TBA

Course Outline

1. Overview and introduction (0.5 week)
2. Review of mathematics and statistics (0.5 week)
3. Asymptotic theory (1 week)
4. Classical linear regression model and ordinary least squares (3 weeks)
5. Heteroskedasticity and weighted least squares (0.5 week)
6. Instrumental variables (1 week)
7. Nonlinear least squares (1.5 weeks)
8. Maximum likelihood (1.5 weeks)
9. Limit dependent variable models (2.5 weeks)

Economics Department Deferred Final Exam Policy

Cross-listed course

Please note that a cross-listed course will count in all respective averages no matter under which rubric it has been taken. For example, a PHIL/PSCI cross-list will count in a Philosophy major average, even if the course was taken under the Political Science rubric.

Academic Integrity

Academic Integrity: In order to maintain a culture of academic integrity, members of the University of Waterloo are expected to promote honesty, trust, fairness, respect and responsibility. See the [UWaterloo Academic Integrity](#) webpage and the [Arts Academic Integrity](#) webpage for more information.

Discipline: A student is expected to know what constitutes academic integrity, to avoid committing academic offences, and to take responsibility for his/her actions. 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 professor, academic advisor, or the Undergraduate Associate Dean. When misconduct has been found to have occurred, disciplinary penalties will be imposed under Policy 71 – Student Discipline. For information on categories of offenses and types of penalties, students should refer to [Policy 71 - Student Discipline](#). For typical penalties check [Guidelines for the Assessment of Penalties](#).

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.

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](#).

Accommodation for Students with Disabilities

Note for students with disabilities: [The AccessAbility Services office](#), located on the first floor of the Needles Hall extension (1401), 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 the AS office at the beginning of each academic term.

If you are using Turnitin® in your course

Turnitin.com: Text matching software (Turnitin®) will be used to screen assignments in this course. This is being done to verify that use of all material and sources in assignments is documented. Students will be given an option if they do not want to have their assignment screened by Turnitin®. In the first week of the term, details will be provided about arrangements and alternatives for the use of Turnitin® in this course.

Note: students must be given a reasonable option if they do not want to have their assignment screened by Turnitin®. See [guidelines for instructors](#) for more information.

Mental Health Support

All of us need a support system. The faculty and staff in Arts encourage students to seek out mental health supports if they are needed.

On Campus

- Counselling Services: counselling.services@uwaterloo.ca / 519-888-4567 ext 32655
- [MATES](#): one-to-one peer support program offered by Federation of Students (FEDS) and Counselling Services
- Health Services Emergency service: located across the creek from Student Life Centre

Off campus, 24/7

- [Good2Talk](#): Free confidential help line for post-secondary students. Phone: 1-866-925-5454
- Grand River Hospital: Emergency care for mental health crisis. Phone: 519-749-433 ext. 6880
- [Here 24/7](#): Mental Health and Crisis Service Team. Phone: 1-844-437-3247
- [OK2BME](#): set of support services for lesbian, gay, bisexual, transgender or questioning teens in Waterloo. Phone: 519-884-0000 extension 213

Full details can be found online at the Faculty of ARTS [website](#)

Download [UWaterloo and regional mental health resources \(PDF\)](#)

Download the [WatSafe](#) app to your phone to quickly access mental health support information

Territorial Acknowledgement

We acknowledge that we are living and working on the traditional territory of the Attawandaron (also known as Neutral), Anishinaabeg and Haudenosaunee peoples. The University of Waterloo is situated on the Haldimand Tract, the land promised to the Six Nations that includes six miles on each side of the Grand River.