

ECON 422: Applied Econometrics, Winter 2021

Instructor: Tom Parker

Course material on the [course website](#), some information on [Learn](#)

Office Hours: Tuesdays, 9am - 10am

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Course Objectives

This course is an introduction to econometric methods that are often used for microeconomic analysis with observational data. It begins with a review of some basic concepts that are used to analyze the behaviour of statistical estimators and nonparametric methods for flexible estimation of economic relationships. Then it turns to models and estimation approaches used to estimate causal effects with observational data. The course concludes with some models of limited dependent variables and quantile regression. By the end of this course, you should have a deeper understanding of how to use statistical tools to analyze the impact of economic policy on workers and firms.

References

The references that most closely match parts of the course are:

- A. C. Cameron and P. K. Trivedi (2005). *Microeconometrics*, Cambridge University Press.
- J. D. Angrist and J.-S. Pischke (2009). *Mostly Harmless Econometrics*, Princeton University Press.

Cameron and Trivedi is available from the university library website. Angrist and Pischke is recommended but optional.

The examples in the notes use R, a freely available statistical software package. You are not required to choose any particular language for assignments, although I encourage you to learn R. It is very useful, popular among social scientists and free to use.

Topics

The material will be sequenced as follows.

1. Data, models and asymptotic theory
2. Introduction to nonparametric methods
3. Methods for causal inference: regression, matching, instrumental variables, regression discontinuity
4. Models for panel data
5. Models for limited dependent variables and quantile regression (time permitting)

Evaluation

Your mark will be made up of the following parts, with relative weights in parentheses below. Homework will be completed in rotating assigned groups of two or three people. Group assignments and a description of best practices for completing assignments will be distributed when the first assignment is posted on the course website. The other assessments, quizzes used to check your understanding of the statistical concepts, will be completed individually.

1. (30%) Three quizzes at the ends of topics 2, 3 and 4 in the topics list above

2. (70%) Assignments posted over the course of the term, approximately one every three weeks

Other administrative details:

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.

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 live and work on the traditional territory of the Attawandaron (Neutral), Anishinaabeg and Haudenosaunee peoples. The University of Waterloo is situated on the Haldimand Tract, the land promised to the Six Nations that includes ten kilometers on each side of the Grand River.