

**University of Waterloo**  
**Department of Economics**  
**ECON 323-001 and 002**  
**Econometric Analysis 2**  
**Fall 2021**  
**online**

Instructor: Emmanuelle Piérard

Class schedule: Mondays 8:30-9:50am (section 001) and Tuesdays 10-11:20am (section 002)

Office hours: Tuesdays 1-2:30pm and Thursdays 9:30-11am (both sections; virtual)

Email: [emma.pierard@uwaterloo.ca](mailto:emma.pierard@uwaterloo.ca). When emailing the instructor, the subject line of the email must contain ECON 323.

Teaching Assistant: TBA

### **Course Description**

This course covers the most important methods used in applied economics research beyond the least-squares estimator. It explores solutions to the endogeneity problem in detail, emphasizing proper ways of conducting causal inference. It extends the methods covered in ECON 322 to the case in which the data are observed over time. Students will learn how to estimate and interpret dynamic models and how these models affect our ability to do inference. The course also covers methods for data in which the response variable is either qualitative, with or without multiple levels, or count data. For that purpose, it introduces students to maximum likelihood estimation, and the estimation of models by probit, logit, and Poisson regressions. Assignments have the same data-based focus as in ECON 322.

**Prerequisites:** ECON 322 or equivalent.

### **Required Text**

- Wooldridge, Jeffrey M., *Introductory Econometrics – A modern approach*, 7th edition, 2020, 912 p.

OR

- Stock, J. H. and M. W. Watson, *Introduction to Econometrics*, 3rd edition, 2015, 790 p.

I do not expect you to buy a new textbook for this course. Use the text that you already own but if you do not own one, please get access to one. A correspondence table for the topics covered in this class is available on D2L. For Wooldridge, any edition (3<sup>rd</sup> and up) is fine.

### **Readings Available on LEARN**

- I will post class announcements, notes, assignments and other relevant material on the Desire2Learn network ([learn.uwaterloo.ca](http://learn.uwaterloo.ca)).

## Course Requirements and Assessment

Assessment	Date of Evaluation	Weighting
2 Small Assignments	September 21 <sup>st</sup> , 3pm November 16 <sup>th</sup> , 3pm	12.5% each (25% total)
3 Large Assignments	October 5 <sup>th</sup> , 3pm November 2 <sup>nd</sup> , 3pm November 30 <sup>th</sup> , 3pm	Best 2 of 3 are 20% each Worst is 10% (50% total)
3 Midterms (in class)	October 18/19 November 8/9 December 6/7	Best 2 of 3 are 10% each Worst is 5% (25% total)
Class Attendance /Participation	Throughout the term	5% Bonus
<b>Total</b>		<b>100%</b>

## Course Outline

Review of regressions using Cross-sectional Data

Instrumental Variable Estimation and Two Stage Least Squares

Limited Dependent Variable Models

Sample Selection Corrections

Regressions using Time Series Data

Panel Data Methods

## Late Work

You are allowed 1 slip day (24 hrs) to use at your discretion for an assignment during the term. This means that you can hand in 1 assignment late by 1 day no question asked without a late penalty. You have to let me know that you are using your slip day when you do so (please note it when you file your assignment in the dropbox). If you are not using your slip day, a **late penalty of 10%** will be applied for every 24hrs period that your assignment is late. All assignments will

be turned in through D2L and time and date of submission will be tracked by the Dropbox (ET).  
**The slip day cannot be used for the Midterms.**

Answers to the short assignments will be released 24hrs after the due date as the results of the short assignments are needed to progress to the longer assignments (i.e. you must have completed Short assignment 1 to start Large Assignment 1). If you have not handed your assignment by the time the answers are released, you will receive a grade of 0 for that assignment, unless you are able to document a reason justifying that the weight be transferred.

### **Policies concerning assignments**

Collaboration on assignments is encouraged but plagiarism is not. Stating who you worked with on the assignment is optional. You must hand in your own scanned hand-written (except for the computer code and output) copy of the assignment. Assignments will contain both an analytic part and a computer-based part, for which you must use Stata or R. If you wish to use a different software package than Stata or R, you must obtain the agreement of the instructor one week prior to handing in the assignment. The instructor and TA will not provide any support to use other software packages than Stata and R. Stata can be used through <https://uwaterloo.ca/arts-computing/students/remote-access-software#remote-desktop-application-WVD> free of charge. R can be downloaded onto your personal machine.

### **Policies concerning midterms**

You will write your midterm on Monday or Tuesday during class time (i.e. these midterms will be held synchronously but you can choose the class you want to write with, i.e. Monday or Tuesday). If you access the Monday midterm, you will not be granted access to the Tuesday one. If you cannot write the midterm with the class due to extenuating circumstances, please get in touch with me within 2 business days through email so that we can evaluate what will be needed in terms of documentation. If you experience issues handing in your midterm on D2L, you can email it to me at [epierard@uwaterloo.ca](mailto:epierard@uwaterloo.ca) as a time stamp. You will have to submit the same version on D2L for marking.

### **Attendance Policy: Classes**

Class attendance is **mandatory**. Class will meet on MS Teams (links will be provided on D2L). If you are not able to attend the lectures live, you will be expected to watch the recordings (to be posted on D2L). You are expected to attend classes live when there is a midterm.

### **Attendance Policy: Tutorials**

Tutorials are **mandatory**. You are encouraged to attend as the material covered will enhance your understanding of concepts covered in class. No new material will be covered but the exercises and programming covered will help you for the assignments and midterms. Schedule and links to be posted on D2L.

*If you attend at least 80% of classes and tutorials throughout the term, you can earn a 5% bonus.*

### **Note on the scheduling of exams and religious holidays**

If an exam is scheduled on the day of a religious holiday that is not observed by the university and you anticipate this to be a problem, you must consult with the associate dean of the faculty

of Arts regarding other arrangements. You have 1 week after the announcement of the date of the exam to make a request of rescheduling based on these grounds (i.e. you have one week after the first class for midterms and one week after the schedule of the finals is publicized for the final exam). This is the University's policy.

### **Economics Department Deferred Final Exam Policy**

Deferred Final Exam Policy found at <https://uwaterloo.ca/economics/current-undergraduates/policies-and-resources/deferred-final-exam-policy>.

### **Cross-listed course (requirement for all Arts courses)**

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**

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. Check the Office of Academic Integrity website for more information.

### **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.

### **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.

### **Chosen/Preferred First Name**

Do you want professors and interviewers to call you by a different first name? Take a minute now to verify or tell us your chosen/preferred first name by logging into WatIAM.

Why? Starting in winter 2020, your chosen/preferred first name listed in WatIAM will be used broadly across campus (e.g., LEARN, Quest, WaterlooWorks, WatCard, etc). Note: Your legal first name will always be used on certain official documents. For more details, visit [Updating Personal Information](#)

### **Important notes**

- If you included a preferred name on your OUAC application, it will be used as your chosen/preferred name unless you make a change now.
- If you don't provide a chosen/preferred name, your legal first name will continue to be used.

### **Intellectual Property**

Students should be aware that this course contains the intellectual property of their instructor, TA, and/or the University of Waterloo.

Intellectual property includes items such as:

- Lecture content, spoken and written (and any audio/video recording thereof);
- Lecture handouts, presentations, and other materials prepared for the course (e.g., PowerPoint slides);
- Questions or solution sets from various types of assessments (e.g., assignments, quizzes, tests, final exams); and
- Work protected by copyright (e.g., any work authored by the instructor or TA or used by the instructor or TA with permission of the copyright owner).

Course materials and the intellectual property contained therein, are used to enhance a student's educational experience. However, sharing this intellectual property without the intellectual property owner's permission is a violation of intellectual property rights. For this reason, it is necessary to ask the instructor, TA and/or the University of Waterloo for permission before uploading and sharing the intellectual property of others online (e.g., to an online repository).

Permission from an instructor, TA or the University is also necessary before sharing the intellectual property of others from completed courses with students taking the same/similar courses in subsequent terms/years. In many cases, instructors might be happy to allow distribution of certain materials. However, doing so without expressed permission is considered a violation of intellectual property rights.

Please alert the instructor if you become aware of intellectual property belonging to others (past or present) circulating, either through the student body or online. The intellectual property rights owner deserves to know (and may have already given their consent).

## **Academic freedom at the University of Waterloo**

Policy 33, Ethical Behaviour states, as one of its general principles (Section 1), “The University supports academic freedom for all members of the University community. Academic freedom carries with it the duty to use that freedom in a manner consistent with the scholarly obligation to base teaching and research on an honest and ethical quest for knowledge. In the context of this policy, 'academic freedom' refers to academic activities, including teaching and scholarship, as is articulated in the principles set out in the Memorandum of Agreement between the FAUW and the University of Waterloo, 1998 (Article 6). The academic environment which fosters free debate may from time to time include the presentation or discussion of unpopular opinions or controversial material. Such material shall be dealt with as openly, respectfully and sensitively as possible.” This definition is repeated in Policies 70 and 71, and in the Memorandum of Agreement, Section 6

## **Accommodation for Students with Disabilities**

Note for students with disabilities: AccessAbility Services, located in Needles Hall, Room 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 AccessAbility Services 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 support if they are needed.

On Campus

- Counselling Services: [counselling.services@uwaterloo.ca](mailto: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: 519-749-4300 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 on the Faculty of Arts website

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), Anishinaabe and Haudenosaunee peoples. The University of Waterloo is situated on the Haldimand Tract, the land promised to the Six Nations that includes ten kilometres on each side of the Grand River.

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