

**University of Waterloo  
Department of Economics  
ECON 322 section 001  
Econometric Analysis 1  
Winter 2023**

**Mondays & Wednesdays 1:00-2:20pm, AL 211**

**Instructor:** Kate Rybczynski

**Office:** HH 235, or virtually (*MS Teams, Zoom, etc*).

**Office Hours:** 12-1pm Monday & Wednesday, or by appointment.

**Office Phone:** 519-888-4567x42146. Please do not leave messages. Use e-mail to contact me.

**Email:** [krybczynski](mailto:krybczynski@uwaterloo.ca) at uwaterloo.ca

**Web Page:** <http://www.arts.uwaterloo.ca/~krybczyn/322/> (password protected- password posted on LEARN)

**Tutorial Sessions:** held Wednesdays in PAS 1237. tut101 is 4:30-5:20pm , tut102 is 5:30-6:20pm.

Tutorial materials available at [Tutorial Learning Objectives, Instructions and Code](#).

**TA (for Tutorials):** Zetian Zhang, z738zhan at uwaterloo

**Course Description:**

This course covers the core tools needed to estimate linear models using ordinary least squares and to interpret estimates for cross-sectional data. Students will learn to interpret the coefficients of linear models for continuous and discrete regressors, to conduct reliable inference for different specifications of the error term, and to understand the advantages and limitations of each econometric technique. Students will also be introduced to two statistical software packages and will be required to complete regular computer-based assignments throughout the course. These assignments are aimed to provide hands on experience working with social sciences data, understanding the statistical properties of the data, and estimating and reporting on estimated parameters in linear regression models.

**Course Goals and Learning Outcomes:**

ECON 322 covers the tools needed for proficient empirical analysis. This course explains how to construct and work with linear regression models, to understand the scope and limitations of these models, and to interpret and explain the results of these models. Upon completion of this course, the goal is for students to proficiently:

- Present and interpret basic statistical properties of several data sets and the variables contained therein.
- Conduct linear regression analysis.
- Present and interpret the estimated coefficients of linear regression models.
- Describe the scope and limitations of these models.

**Text:**

- The text book for this course is Introductory Econometrics, a Modern Approach, 7<sup>th</sup> Edition, by Jeffrey Wooldridge.

This text may be ordered through the UW Bookstore in physical and electronic formats.

[Click to purchase the Physical version of the Wooldridge text–Select hardcover {list price \\$159.95}](#)

[Click to purchase the Electronic version of the Wooldridge text {list price \\$76.95}](#)

You may also find new and used copies from other common on-line vendors , or at the Waterloo Undergraduate Student Association's [used bookstore](#). A previous edition of the text is on reserve at Dana Porter Library. I have placed an additional text on reserve for your reference (Introduction to Econometrics by Stock and Watson)

**Resources Available On Line:**

- Lecture slides, Tutorials, Detailed Course Schedule, Assignments, Tests/Exams & Study Questions
- LEARN contains the password for the 322 website, course videos, & dropbox for all submissions

## Course Requirements and Assessment:

| <i>Assessment</i>    | <i>Date &amp; Location</i>           | <i>Weighting</i> |
|----------------------|--------------------------------------|------------------|
| Term Assignments (9) | weekly on Thursdays at 9pm, on LEARN | 20%              |
| Mid-Term Test        | Wednesday, March 1, in-class         | 35%              |
| Final Exam           | TBA                                  | 45%              |

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Total 100%

Note: *I will drop the worst of your 9 Term Assignments (so only your 8 best will count for that grade).*

## Course Outline:

| Week  | Topic  | Readings  |
|-------|--|---|
| 1-3   | Introduction & Review<br>-Math, Probability, & Stats Review<br>-Goals of Econometrics<br>-Data Types                                     | Appendices & Chapter 1  |
| 3-9   | Regression Analysis<br>-Simple Regression Model<br>-Multiple Regression Model<br>-Inference<br>-Reporting Results                        | Chapters 2,3,7,4,6 & Stock & Watson   |
| 9-11  | Issues in Regression Analysis<br>-Specification Issues<br>-Multicollinearity<br>-Heteroskedasticity<br>-Data Issues<br>-Sample Selection | Chapter 3,8,6,9   |
| 12-13 | Instrumental Variables<br>-Selection and Omitted Variable Bias<br>-Measurement Error<br>-Instrument Validity                             | Chapter 15 < <b><i>We will not cover this section during the Winter 2023 term</i></b> > |

A [detailed schedule](#) is posted on the course website to facilitate keeping up with the course for lectures, assignments and exams.

## Course Delivery Approach (mixed):

In-class time will focus on deeper discussions of course material, and practical applications and example questions to solidify your understanding of econometric analysis.

## ECON 322 Policies:

### *Assignments-*

- Assignments will be posted on-line one week before they are due.
- Assignments must be submitted on LEARN by Thursday at 9pm.
- Although students are encouraged to work together, each student must submit their own assignment with individualized answers. Any two or more students who submit identical assignments are in violation of Policy 72 and disciplinary measures may be imposed under Policy 71.
- Late or missing assignments will receive a grade of zero, with the exception of approved medical documentation ([VIF/Declaration](#)). The instructor retains the right to accept non-medical documents at their discretion.
- Because sometimes we all have a bad week/glitches/etc, I will allow one freebie among your Term Assignments (so only your 8 best will count for that grade).

***Attendance -***

- Attending classes and tutorials, asking relevant questions, and participating in the class improves understanding of the course material for you and for your classmates. When interacting in the class, I expect that you treat everyone with respect, and are supportive of the learning environment.

***Missed Mid-Term Test -***

- The weight of a missed mid-term will shift automatically to your final exam. No make-up will be held.
- It is in your best interest to write the mid-term because I will automatically shift the weight of your mid-term to the final exam if you do better on the final. The mid-term is good practice for the final.

***Missed Final Exam Policy -***

- A student who misses the final exam must follow the Economics Department Deferred Final Exam Policy procedures found at <https://uwaterloo.ca/economics/undergraduate/resources-and-policies/deferred-final-exam-policy>. All deferred Final Exam requests for Economics courses are administered by the Economics Undergraduate Office.
- The deferred exam will be substantially different than that written by the rest of the class.

***Instruction Goals and Support -***

- My objective is to support your own individual learning goals, whether by answering questions during class/office hours/appointments/e-mail, or pointing you to further resources that will strengthen your ability to achieve your goals. Because achieving your goals is not just about effort. The appropriate tools, strategies, resources, and support systems are also important.
- In order to achieve a healthy balance between work hours and personal life, there will be a finite amount of time I can dedicate to appointments and emails. I will do my best to respond quickly to emails and appointment requests; but, be aware that I may not have the time resources to meet all requests. I encourage you to plan in advance to avoid heavy demand times (e.g. test dates).
- Many students at UW worry that they were admitted by mistake, that they aren't smart enough, or feel that they do not belong. You are not alone in this feeling, and it should pass, but I want you to know that however you got to UW, we are glad you are here. Whether you have failed past courses or current tests, you are smart enough. You belong here, and I look forward to being a part of your learning process. More than that, different levels of understanding and diverse perspectives enrich the learning experience for all of us, I look forward to learning from you as well.
- When determining your own learning goals, keep in mind that it may take more time or effort or support to achieve specific learning goals particularly if the goals are very high, or if you have not had the same level of preparation or experience as other students. Be kind to yourself, and know that most people will be adjusting their goals as the semester progresses. Also know that I am here to support your learning goals, whether they be to understand a subset of the econometric tools, to pass the course, or to achieve a high grade. Grades are never guaranteed of course! Part of my job is to assign a grade for each of you in this course, but I am not here to judge you, and I do not equate lower grades with lower intelligence or worth (we all have different interests and goals).
- Finally, note that struggles are an important part of the process of learning and growing your abilities. Learning from our struggles helps us not only survive, but also thrive.

**Territorial Acknowledgement:**

We acknowledge that we are living and working on the traditional territory of the Neutral, Anishinaabe and Haudenosaunee peoples. The main campus of 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. Our active work toward reconciliation takes place across our campuses through research, learning, teaching, and community building, and is centralized within the [Office of Indigenous Relations](#). Learn more about the [Anishinaabe](#), [Haudenosaunee](#), [Six Nations](#) and [territorial acknowledgement](#). For more information about the purpose of territorial acknowledgements, please see the [CAUT Guide to Acknowledging Traditional Territory](#).

### **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 the [AccessAbility Services](#) office at the beginning of each academic term.

### **Chosen/Preferred 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](#). Starting in winter 2020, your chosen/preferred first name will be used across campus (e.g. Learn, Quest, WaterlooWorks, WatCard, etc.). Important notes: your legal first name will always be used on certain official documents. Also, if you don't provide a chosen/preferred name, your legal first name will be used. Finally, if you included a preferred name on your OUAC application, it will be used as your chosen/preferred name unless you make a change. For more details, visit [Updating Personal Information](#). Note: I want to learn how to pronounce your name as you prefer it, so please do correct me if I get it wrong!

### **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 website](#) for more information.

**Grievance** - A student who believes that a decision affecting some aspect of their 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 academic offences, and to take responsibility for their 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 they have a ground for an appeal should refer to [Policy 72 - Student Appeals](#).

### **Mental Health Support:**

All of us need a support system. The faculty and staff in Arts encourage students to seek out mental health supports as needed. Full details can be found online at the Faculty of ARTS [website](#)

#### **On Campus**

- Counselling Services: [counselling.services@uwaterloo.ca](mailto:counselling.services@uwaterloo.ca) / 519-888-4567 ext 42655
- [MATES](#): one-to-one peer support program offered by the Waterloo Undergraduate Student Association (WUSA) and Counselling Services
- Health Services Emergency service: located across the creek from Student Life Centre
- A variety of campus groups offer further resources and support, including, but not limited to: [GLOW](#) centre for sexual and gender diversity peer support, the [Women's Centre](#), the [Waterloo Indigenous Student Centre](#), [UWRaise\(Racial Advocacy for Inclusion, Solidarity & Equity\)](#), [Committee on Access and Disability](#), [Food Support Service](#), please see [WUSA main web page](#) for further services and clubs which may provide more specific and personalized support for you.

#### **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: 519-749-4330 x6880

- [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 x 213

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

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

**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.

### **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. lecture slides)
- Questions or solution sets from various types of assessments (e.g. assignments, quizzes, tests, final exams)
- 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 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 or 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).

### **Cross-listed courses:**

Please note that a cross-listed course will count in all respective averages no matter under which subject code 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 subject code.

### **Instructor Illness & Other Potential Disruptions:**

If there is a physical space disruption (e.g. building shutdown) or if the instructor becomes ill for a short space of time, the class will be cancelled for those days and in-class discussions/exercises will be covered in subsequent class periods. Students should keep up with the lecture videos during that time. If the instructor becomes ill for an extended period of time, the department will coordinate appropriate alternative arrangements for the class, and will inform the class as soon as possible. Any broader public health issues (e.g. pandemic lockdowns) are unexpected but always a possibility and will be guided by University policy. In such cases, the instructor will inform the class as soon as possible.