

University of Waterloo
Department of Economics
ECON 322 section 001
Econometric Analysis 1
Winter 2024
Mondays & Wednesdays DWE 2527, 1:00-2:20pm

Instructor: Kate Rybczynski

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

Office Hours: 12-12:50pm Monday & Wednesday, or by appointment.

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 5:30-6:20pm , tut102 is 6:30-7:20pm.

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

TA (for Tutorials): Sudipto Ghosh, s52ghosh at uwaterloo etc

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, 7th Edition, by Jeffrey Wooldridge.

This text may be ordered through the UW Bookstore.

[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 & Location</i> | <i>Weighting</i> |
|----------------------|------------------------------------|------------------|
| Term Assignments (9) | weekly on Fridays at 5pm, on LEARN | 20% |
| Mid-Term Test | Wednesday, February 28, in-class | 35% |
| Final Exam | TBA | 45% |

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 -Math, Probability, & Stats Review -Goals of Econometrics -Data Types | Appendices & Chapter 1 |
| 3-9 | Regression Analysis -Simple Regression Model -Multiple Regression Model -Inference -Reporting Results | Chapters 2,3,7,4,6 & Stock & Watson |
| 9-11 | Issues in Regression Analysis -Specification Issues -Multicollinearity -Heteroskedasticity -Data Issues -Sample Selection | Chapter 3,8,6,9 |
| 12-13 | Instrumental Variables -Selection and Omitted Variable Bias -Measurement Error -Instrument Validity | Chapter 15 < <i>We will not cover this section during the Winter 2024 term</i> > |

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 the assigned due date and time.
- 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 (see [Declaring Absences](#) section below). 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/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:

The University of Waterloo acknowledges that much of our work takes place on the traditional territory of the Neutral, Anishinaabeg and Haudenosaunee peoples. Our main campus 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 [Anishinaabeg, Haudenosaunee, Six Nations](#) and [territorial acknowledgement](#). For more information about the purpose of territorial acknowledgements, please see the [CAUT Guide to Acknowledging Traditional Territory](#). Another venue for learning, from Indigenous (Turtle Island) artists, writers, activists, scholars and leaders, is the [Indigenous Speaker Series](#).

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.

Pronouns and chosen or preferred first name :

Students can verify their chosen or preferred first name and pronouns by logging into WatIAM. Your chosen or preferred first name and pronouns listed in WatIAM will be used across campus (e.g., in LEARN, Quest, WaterlooWorks, WatCard, etc). Your legal first name will always be used on certain official documents, such as diplomas and transcripts.

Students can view and change their pronouns in [Quest](#). Should you choose to include your pronouns in Quest, your pronouns will be accessible by instructors, advisors, and employees with access to Quest. If no pronoun is added, the field in Quest will remain blank.

Note: I hope 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 if they are needed.

On campus supports

For counselling (individual or group) reach out to [Campus Wellness and Counselling Services](#). Counselling Services strives to provide a secure, supportive environment for students of all orientations and backgrounds. They offer confidential counselling for a variety of areas including anxiety, stress management, depression, grief, substance use, sexuality, relationship issues, and much more.

Other on-campus supports

- [MATES](#): one-to-one peer support program offered by the Waterloo Undergraduate Student Association (WUSA) and Counselling Services
- Download the [WatSafe app](#) to your phone to quickly access mental health support information
- [Empower Me](#): to access create an account on the Dialogue mobile app or on the web at www.studentcare.ca/dialogue
- [Sexual Violence Prevention and Response Centre](#) - supports all members of the University of Waterloo campus community who have experienced or been impacted by sexual violence.
- 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
- [St. Mary's Hospital](#) - 519-744-3311
- [Here 24/7](#): Mental Health and Crisis Service Team. Phone: 1-844-437-3247
- 988 Suicide Crisis Helpline: a 24/7 urgent mental health care three-digit helpline
- [OK2BME](#): set of support services for Two-Spirit, lesbian, gay, bisexual, trans, queer, intersex, asexual (@SLGBTQIA+) and questioning kids, teens, adults, and their families in Waterloo Region. Phone: 519-884-0000 or e-mail ok2bme@caminowellbeing.ca
- [Sexual Assault Support Centre of Waterloo Region](#) - offers individual counselling to people of all genders, 16+ who have been sexually assaulted at any point in their lives. As well as short-term support for family members or friends of sexual assault survivors. Also, information and referrals

More information about resources and supports for students can be found online in on the [Faculty of Arts Student Support](#) page.

Anti-Racism Statement

The University of Waterloo does not tolerate racism or any other form of discrimination and expects campus community members to contribute to a culture where all members feel safe and valued. Any member of the campus community who has experienced racism or discrimination at the University is encouraged to review available processes for addressing their concerns under Policy 33 – Ethical Behaviour and to seek guidance from the Equity Office via email at equity@uwaterloo.ca or through their [website](#).

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).

Generative AI:

This course includes the independent development and practice of specific skills, such as building, coding and interpretation of econometric models and output. Therefore, the use of Generative artificial intelligence (GenAI) trained using large language models (LLM) or other methods to produce text, images, music, or code, like Chat GPT, DALL-E, or GitHub CoPilot, is not permitted in this class. Unauthorized use in this course, such as running course materials through GenAI or using GenAI to complete a course assessment is considered a violation of [Policy 71](#) (plagiarism or unauthorized aids or assistance). Work produced with the assistance of AI tools does not represent the author's original work and is therefore in violation of the fundamental values of academic integrity including honesty, trust, respect, fairness, responsibility and courage ([ICAI](#), n.d.).

You should be prepared to show all stages of your work. To demonstrate your learning, you should keep your rough notes, including research notes, brainstorming, and drafting notes. You may be asked to submit these notes along with earlier drafts of their work, either through saved drafts or saved versions of a document. If the use of GenAI is suspected where not permitted, you may be asked to meet with your instructor or TA to provide explanations to support the submitted material as being your original work. Through this process, if you have not sufficiently supported your work, academic misconduct allegations may be brought to the Associate Dean. In addition, you should be aware that the legal/copyright status of generative AI inputs and outputs is unclear. More information is available from the Copyright Advisory Committee:

<https://uwaterloo.ca/copyright-at-waterloo/teaching/generative-artificial-intelligence>

Students are encouraged to reach out to campus supports if they need help with their coursework including:

- [Student Success Office](#) for help with skills like notetaking and time management
- [Writing and Communication Centre](#) for assignments with writing or presentations
- [AccessAbility Services](#) for documented accommodations
- [Library](#) for research-based assignments

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.

Declaring Absences (for students):

For all of the following categories of absence students are responsible for getting in touch with their course instructors as soon as possible to discuss possible accommodations for missed course component(s). The course instructor will determine how the missed work is accommodated. Absences will be accommodated according to the [accommodation guidelines section of the undergraduate calendar](#).

If you are unable to complete a course component due to [self-declared COVID-related reasons](#) or a [two-day short-term absence](#) then you should submit a self-declaration of absence through [Quest](#).

If your absence is due to an [illness not pandemic-related](#), then a UW [Verification of Illness form](#), completed by a health professional, must be uploaded and submitted through [the Verification of Illness or Extenuating Circumstances Process](#). The VIF is the only acceptable documentation for an absence due to illness. Do not submit the VIF or any other medical documentation to your instructors, teaching assistants, or other course personnel.

If your absence is due to other [extenuating circumstances](#) (e.g., bereavement), then you must submit all documentation related to the absence (e.g., obituary) through the [Verification of Illness or Extenuating Circumstances Process](#).

Submission through the VIF or Extenuating Circumstances System, once approved, will notify your instructors of your absence. However, you are responsible for contacting instructors to discuss accommodation arrangements.

Accommodating Religious and Spiritual Observances:

The University of Waterloo has a duty to [accommodate religious, spiritual, and other creed-based beliefs and practices](#) under the Ontario Human Rights Commission (2015) [Policy on preventing discrimination based on creed](#). Students may seek accommodations for missed course components on religious, spiritual, or other creed grounds. In such cases the students should please consult the instructor within two weeks of the announcement of the due date for which the accommodation is being sought.