

General Course Information

Instructor: Alex Maynard
Email maynarda@uoguelph.ca
Office Location MCKN741 or MCKN 720 or Zoom
Office Hours Fridays, 1:00-3:00 pm
Department/School Department of Economics/Gordon S. Lang School of Business and Economics

Class Schedule: Section 01: TR 3:30pm-4:20pm, MCKN, 116 and asynchronous instruction
Section 02: TR 5:30pm-6:20pm, MCKN 116 and asynchronous instruction
Section 03: TR 7:00pm-7:50pm, MCKN 116 and asynchronous instruction

Lab Schedule: Section 01: F 9:30 AM - 10:20 AM (AD-S, VIRTUAL)
Section 02: F 10:30 AM - 11:20 AM (AD-S, VIRTUAL)
Section 03: F 11:30 AM - 12:20 PM (AD-S, VIRTUAL)

Prerequisites: ECON*2310, ECON*2410, (ECON*2740 or STAT*2040), (ECON*2770 or MATH*1210).

Restrictions: NA

Course Description

The purpose of this course is to familiarize undergraduate students with basic techniques of econometric analysis. You will learn how to test economic hypotheses using real data sets, and some simple methods of estimating economic models. You will also study some of the basic properties of regression using both summation notation and matrix algebra, along with basic concepts from probability and statistics. To help consolidate concepts studied in class, there will be homework assignments that you need to hand in individually, as well as two out-of-class term tests. Lab sessions will be held on a regular basis in addition to the main lectures. Through the labs, you will gain experience with empirical analysis and econometric software by examining models applied to real data sets. To encourage you keep up with the material, there will be participation marks for both the labs and lectures, and marks for textbook problems related to each completed chapter.

Course Learning Outcomes

Upon successfully completing this course, you will:

Knowledge and Understanding:

1. Mathematical Methodology (calculus, algebra, optimisation, etc.). You will learn practical applications of matrix algebra and basic calculus to econometric modelling.
2. Statistical and Econometric Methodology (including basic data analysis, sampling, probability, hypothesis testing, confidence intervals, regression analysis, robustness). You will learn how to use linear and nonlinear regression models to estimate economic relationships and test economic models.

Discipline/Professional and Transferable Skills:

3. You will gain practical experience using Python to perform data analysis, run regressions and provide predictions. You will learn how to perform diagnostic testing and sensitivity analysis and gain practice specifying models and interpreting results.

Attitudes and Values

4. You will gain appreciation of evidence-based research and knowledge, as well the distinction between correlation and causation. More generally, you will learn to consider both the evidence and plausible alternative explanations carefully before forming conclusions.

Summary of Course Content and Materials

Indicative Content

Please note that some topics discussed in lecture may not be included in the textbook and some topics in the readings may not be discussed in lecture. To do well in this course, it is strongly suggested that you both complete the readings and attend the lectures. It could be a costly mistake to assume that you can use the book as a substitute for the lectures or vice-versa. The following schedule is only approximate. Below is a preliminary list of topics covered. These may be updated as the course progresses. We will set our pace according to the comfort level of the class and may cover either more or less than what is listed below.

Approximate Week	Textbook Chapters	Topic
1	1, Math Refreshers A,B,C	Introduction and math review (self-study)
2	2,	Simple Regression Model
3-5	3, Advanced Treatments D,E	Multiple Regression Estimation, Matrix Algebra Review
6	4	Multiple Regression Analysis: Inference
7	5	Multiple Regression Analysis: OLS Asymptotics

8	6	Multiple Regression Analysis: Further Issues
9	7	Multiple Regression Analysis with Qualitative Information
9	8	Heteroskedasticity
10	9	More on Specification and Data Issues
11	10	Basic Regression Analysis with Time Series Data (Time Permitting)
12	11	Further Issues in Using OLS with Time Series Data (Time Permitting)
13	12	Serial Correlation and Heteroskedasticity in Time Series Regression (Time Permitting)

			Associated Learning Outcomes	Due Date/ location
Assessment 1:	15%(*)	Term Test 1	LO 1 – 4	<i>Saturday Sep 28 1:00PM-3:00PM in G ROZH 103</i>
Assessment 2:	15%(*)	Term Test 2	LO 1 – 4	<i>Sat Nov 16, 1:00PM-3:00PM in G ROZH 103</i>
Assignment 3:	30%(*)	Final Exam	LO 1-4	<i>TBA (during finals period as scheduled by the registrar)</i>
Assessment 5:	5%	Lab Participation	LO 3	<i>During Lab</i>
Assessment 6:	5%	Lecture Participation	LO 1,2,4	<i>During Lecture and/or CourseLink Quiz</i>
Assessment 7:	10%	Conceptual and Analytic Homework (including MindTap)	LO 1,2,4	<i>Due at the end of each week that a chapter is covered</i>
Assessment 8:	20%	Empirical and coding Homework (including MindTap)	LO 1,2,4	<i>Due at the end of each week that a chapter is covered</i>
Total	100%			

Obtaining a Passing Grade

(*)NOTE: To pass this course you must **both** obtain a course mark of 50% or higher **and** obtain an In-Person Exam Average of 40% or higher. If your In-Person Exam Average is below 40%, then your course mark will be set equal to your In-Person Exam Average. Your In-Person Exam Average, uses a weight of 25% on each term test and a weight of 50% on the final exam and is therefore defined by the following formula (denoting multiplication by *):

$$\text{In Person Exam Average} = (0.25) * (\text{Term Test 1}) + (0.25) * (\text{Term Test 2}) + 0.5 * (\text{Final Exam}),$$

This requirement is to encourage students to work on all aspects of the course and to approach assignments as learning opportunities.

Teaching and Learning Practices

Lectures

This is mixed methods course. On average, there will be one hour of pre-recorded lectures in addition to the one-hour and forty minutes of scheduled lectures. Students will have some flexibility as to when they watch the prerecorded lectures, provided that they complete them by their assigned dates. Due to the notation involved, students should avoid using a small-screened device, such as cell phone, to watch the pre-recorded lectures. Students will be notified, in advance, when possible, if a scheduled lecture is held on-line. Otherwise, it will be held in person. Students are expected to arrive having completed readings and ready to participate in lecture when appropriate. This is not a hybrid course. However, at the instructor's discretion students may occasionally be given the option of attending in-person lectures in hybrid mode with their cameras on. When permitted, hybrid attendance of an in-person lecture is at the student's own risk (no quality or availability guarantee can be provided). Students who attend an in-person class in hybrid mode without putting their camera on may be removed from the meeting and will not be given credit for class participation. Cameras may be turned off for privacy when there is no in-person option. Lecture attendance is necessary, but not by itself sufficient, for participation credit. Attendance may be taken, students may complete participation assignments during lecture, and the instructor may take informal notes of participation. Please say your first name and last initial before speaking.

Course Resources

Required Text: Jeffrey M. Wooldridge, "Introductory Econometrics: A Modern Approach" edition 7. Please purchase the latest edition that comes with access to the publisher's online resources, as you will be completing on-line problems associated with each chapter.

Other Resources: Statistical software:

- Python in labs and assignments (R is an option for Assignments).

Python is free, and so is R. You do not need to purchase Stata. In the lab you will use Python with Google Collabs (which is free). Your python skills will be developed in the labs and in the MindTap: Empirical and coding Homework. It will be tested as part of the Term Tests and Final Exam.

Laptop

A working laptop with working batteries, Zoom, Teams, and Respondus Lockdown Browser installed will be needed for in-class exams involving a laptop. A laptop or computer is also needed for labs, which are remote synchronous, and for those lectures given remotely, as well as for the viewing of asynchronous materials and for one-line use of Google Collabs. Tablets and phones cannot be used to take exams and their use on Zoom or Teams is highly discouraged due to the difficulty of following technical notation on small screen sizes.

Course Policies

Respondus will be employed. Only the Lock Down Browser will be employed when an in-person invigilator is present.

Policy on In-Person-On-Laptop Exams

Exams will be in-person. However, part or all, of the in-person exam may be taken on your laptop using Respondus Lockdown Browser and Courselink Quiz. Please ensure that you have a working laptop with good batteries and Respondus installed. Any student who takes an in-person exam from a remote location without written permission will receive a mark of zero.

Office Hours

My office hours are paid for by both your tuition dollars and Ontario taxpayers. As a student, it is both your right and your responsibility to ask when something is unclear to you. No student should ever feel hesitant or embarrassed to ask a question during office hours – asking questions is how we all learn. Unfortunately, I cannot field detailed questions by e-mail due to the technical nature of the material in this course.

Policy on Participation

Students must be physically and mentally present in lecture or lab to obtain participation marks, but attendance by itself does not constitute participation. From time to time, participation may be assessed by performance and effort on small in-class or in-lab assignments. Remote participation exercises may also be given in conjunction with asynchronous materials. Students should look for these questions on Courselink Quiz after accessing the asynchronous materials, as they may not be visible to the student until the asynchronous material has been reviewed. Asking or answering relevant questions that improve the classroom discussion may also count positively towards participation. Lab quizzes must be completed during the lab session and within the designated time they are available. The quiz will take place at any time during the session, based on the content covered. No make-up quizzes will be offered. Disruptive or disengaged behavior that lessens the quality of the course, including side conversations, cell phone use, scrolling, or texting during lab or lecture, may count negatively towards participation marks. Alternatively, the TA or instructor may invite a disengaged student to re-engage by answering a question. Participation marks will not be provided for a student who remotely attends an in-person lecture with their camera off. It is understood that for various legitimate reasons, students will not be able to attend every single lecture and lab. If a student misses a combination of more than five lectures and/or labs throughout the semester for valid reasons, then at the end of the semester they should provide their instructor a detailed list of, and explanation for, every missed lecture or lab, providing corroboration where possible. If convinced by the explanation and corroboration, the instructor may exercise discretion to either reweight the student's participation marks or move the weight of the missed participation marks to the final exam.

Policy on Digital Recording

NO digital or electronic recording of any kind may be made during either lectures or labs without explicit written permission from the course instructors. Moreover, NO digital or electronic recordings of any kind provided by the instructors or teaching assistants may be shared, posted, or distributed by any means. Any digital contact or electronic recordings remain the property of the instructors and are protected by copyright and privacy law. By accessing these recorded materials, you agree to these terms, and you agree to be responsible for any damages that may result if you breach them.

You acknowledge and understand that **lectures and labs may be videotaped by the instructor or TA and may be shared with the class on various internet platforms.** By turning on your camera, your microphone, or by using messaging clients, you agree to be included in the videotaped lecture and thereby waive any privacy or copyright rights. **If you do not agree to be videotaped, then please attend virtual lectures with your camera off and your microphone muted and attend in-person lectures physically, sitting out of range of the camera. If you choose to attend an in-person lecture virtually then, by so doing, you give your consent to be videotaped and will be asked to keep your camera on.**

Policy on Remote Attendance of in-Person Lectures

When lectures are held in-person, remote attendance may occasionally be permitted with camera on as a privilege when circumstances and technology allow. Remote attendance of an in-person class is never a right and even when permitted no quality assurances can be provided. A remotely participating student who keeps their camera off will be removed from the meeting and will not receive participation marks. Even for a student who attends remotely with their camera on, we cannot guarantee that their participation will be counted towards their mark, despite our best efforts. In summary, students who remotely attend an in-person lecture do so at their own risk and must keep their cameras on.

Policy on Remote Attendance of Remote Labs or Lectures

Students who attend a remote lecture or lab are encouraged, but not required, to keep their camera on. When there is no in-person alternative available, students have the right to maintain their privacy by turning their camera off and will not lose participation marks for doing so.

Policy on Independently Completed Assignments

Assignments are an opportunity for students to learn the material better. Therefore, students are strongly encouraged to stop by office hours when they have questions on assignment problems. Students may also consult with each other on assignments (but not on tests or exams). However, students should not be doing the homework for each other or copying answers from each other. Rather, any discussion between students should focus on explanation and understanding, with each student completing their own homework assignment for themselves.

While students may hire a tutor to help understand the course material the tutor should not complete the students' homework for them. Similarly, students should not search for the answers to homework questions

online or use web services designed to help students cheat. Nor should they ask AI bots, such as ChatGPT, for answers to their homework

When students are found to be getting or giving inappropriate assistance with assignments, the instructor may refer them to the Dean's office for academic misconduct. Some webpages designed to help students cheat may request that students upload copies of course material in exchange for help. Students should be aware that it is illegal to share or upload material under copyright without explicit written permission. In addition, it is not possible to pass the course on assignment marks alone, due to the required mark on the In-Person-Exam-Average. The in-person exams will include questions on both theory and coding. A student who relies on ChatGPT or Course Hero to complete their assignments for them may find themselves poorly prepared when entering the exam room.

Grading Policies

Late Assignments:

Assignments have a 48-hour grace period that can be used on an honor system basis. In the event of a reasonable cause of delay, students may use the grace period prior without written permission. Students should note to themselves the reason for delay in case the TA or instructor inquiries later. If the TA or instructor later determines that the use of the grace period was unjustified, a penalty of no more than 5% of the assignment value per day late may subsequently be applied. Generally, the only circumstance in which an explanation would even be requested is if a student is seen to be using the grace period on a regular basis. It is intended to be used only when genuinely needed.

After the 48-hour grace period expires, the assignment will no longer be accepted and a mark of zero will be given under normal circumstances. However, in special and well-documented circumstances, the student may write to the instructor to request that the weight of the missed assignment be transferred to the final exam.

There is no grace period or extension for participation exercises, as these constitute in-class participation rather than at-home assignments.

Students who find themselves unable to meet course requirements by the deadlines or the criteria expected because of medical or personal reasons, should review the regulations on academic consideration in the Academic Calendar and discuss their situation with the instructor, program counselor or other academic counselor as appropriate.

<http://www.uoguelph.ca/registrar/calendars/undergraduate/current/c08/c08-grds.shtml>

Missed Assignments:

A grade of zero will be assigned if you fail to submit an assignment, unless you are ill or have other compassionate reasons. However, in special and well-documented circumstances, the student may write to the instructor to request that the weight of the missed assignment be transferred to the final exam. Please read your Undergraduate Calendar for the regulations regarding illness and compassionate grounds. Please note, vacation travel, moving house, or outside work commitments will not be accepted as valid reasons for missing deadlines.

If you have religious observances which conflict with the course schedule or if you are registered with Student Accessibility Services, please contact the course instructor in order to make arrangements for your assessment if appropriate.

Re-grade Requests:

Any request to remark term tests or assignments must be addressed to your instructors in writing (PDF of a scanned, signed, hard copy) within three weeks and must include the following (i) your name, contact information (telephone and email), and signature, (ii) a clear description of where and why you feel that you were graded in error, and (iii) the following statement exactly as it appears here "In requesting a re-grade I confirm that I have not written on, erased, or in any way changed my copy of the exam/assignment since it was handed back to me. I understand that to do so would constitute a serious academic offense. I also understand that my entire exam/assignment will be re-graded (with particular attention paid to the points that I have brought up) and understand that as a result my score on the exam/assignment could fall as well as rise."

Equity, Diversity, and Inclusion Statement

At the Lang School of Business and Economics, we are committed to developing leaders with a social conscience, an environmental sensibility, and a commitment to their communities. A core tenet within this vision is that diversity is a strength with which we can experience greater connection and understanding.

As such, we affirm the importance and shared responsibility of our students, faculty, and staff creating and promoting equity and inclusion within our learning spaces. Creating these kinds of learning cultures is a process, not a destination; it requires ongoing willingness on the part of each person to thoughtfully and critically listen, unlearn, learn, and engage as they are exposed to a multitude of perspectives and lived experiences. We encourage dialogues between students and instructors to address and advance opportunities for fostering greater diversity and inclusion in the learning environment. Openness to conversations with each other enables us to reflect and grow as we learn from one another respectfully and holistically.

As a department that is training the professionals of the future, we expect our learning spaces to abide by all institutional policies and guidelines, in particular those outlined by the Office of Diversity and Human Rights and the [University of Guelph Human Rights Policy](#). Discrimination and harassment, as defined by our policies, will not be tolerated. Individuals should inform the appropriate party as per University policies if they experience any such behaviours.

University Policies

Academic Consideration

When you find yourself unable to meet an in-course requirement because of illness or compassionate reasons, please advise the course instructor in writing, with your name, id#, and e-mail contact. See the academic calendar for information on regulations and procedures for Academic Consideration:

<http://www.uoguelph.ca/registrar/calendars/undergraduate/current/c08/c08-ac.shtml>

Academic Misconduct

The University of Guelph is committed to upholding the highest standards of academic integrity and it is the responsibility of all members of the University community, faculty, staff, and students to be aware of what constitutes academic misconduct and to do as much as possible to prevent academic offences from occurring.

University of Guelph students have the responsibility of abiding by the University's policy on academic misconduct regardless of their location of study; faculty, staff and students have the responsibility of supporting an environment that discourages misconduct. Students need to remain aware that instructors have access to and the right to use electronic and other means of detection. Please note: Whether or not a student intended to commit academic misconduct is not relevant for a finding of guilt. Hurried or careless submission of assignments does not excuse students from responsibility for verifying the academic integrity of their work before submitting it. Students who are in any doubt as to whether an action on their part could be construed as an academic offence should consult with a faculty member or faculty advisor.

The Academic Misconduct Policy is detailed in the Undergraduate Calendar:

<https://www.uoguelph.ca/registrar/calendars/undergraduate/current/c08/c08-amisconduct.shtml>

Accessibility

The University of Guelph is committed to creating a barrier-free environment. Providing services for students is a shared responsibility among students, faculty and administrators. This relationship is based on respect of individual rights, the dignity of the individual and the University community's shared commitment to an open and supportive learning environment. Students requiring service or accommodation, whether due to an identified, ongoing disability or a short-term disability should contact Student Accessibility Services as soon as possible.

For more information, contact SAS at 519-824-4120 ext. 56208 or email sas@uoguelph.ca or see the website:

<https://wellness.uoguelph.ca/accessibility/>

Course Evaluation Information

Please refer to the [Blue by Explorance system](#).

Recording of Materials

Presentations which are made in relation to course work—including lectures—cannot be recorded or copied without the permission of the presenter, whether the instructor, a classmate or guest lecturer. Material recorded with permission is restricted to use for that course unless further permission is granted.

Drop date

The last date to drop one-semester courses, without academic penalty, is **Friday November 29, 2024**. For regulations and procedures for Dropping Courses, see the Academic Calendar:

<https://www.uoguelph.ca/registrar/calendars/undergraduate/current/c08/c08-drop.shtml>