

# Course Syllabus

Department of Economics  
University of Toronto Mississauga

ECO475H5 – Applied Econometrics II  
LEC9101 Winter 2021

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**Instructor:** Eduardo Souza-Rodrigues

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**Office Hours:** Wed 2pm – 3pm  
(online synchronous only)

**Teaching Assistants:**

| <u>Name</u>   | <u>Email</u>   | <u>Office Hours</u> |
|---------------|--|---------------------|
| Hammad Shaikh | <a href="mailto:hammy.shaikh@mail.utoronto.ca">hammy.shaikh@mail.utoronto.ca</a> | TBD                 |

**Lectures:** Wed, 9am-11am, online synchronous

**Tutorial 1:** Thu, 1pm-3pm, online synchronous

**Tutorial 2:** Thu, 3pm-5pm, online synchronous

**Links to lectures, practicals/tutorials, and office hours are provided on the Quercus course website. All events begin at 10 minutes after the hour.**

**OBS:** The first lecture will be January 13<sup>th</sup>.  
Tutorials will start on January 14<sup>th</sup>.

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## Time Zone Information

All lecture times, tutorial times, exam times, deadlines, etc. are stated in local Toronto time. Please note that Toronto adheres to Eastern Daylight Time, starting Sunday, March 14, 2021, 2:00 am. It is your responsibility to correctly convert local Toronto time to your time zone: we will not accept confusion about deadlines as an excuse for lateness or missed tests/work.

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## Course Objectives and Learning Outcomes:

We will discuss various econometrics methods from both theoretical and practical aspects. The objective is to provide students with a solid theoretical and practical foundation for the interpretation of empirical evidence in economics. As such, there is a dual focus on econometric theory and “hands-on” experience working with economic data. The centerpiece of the course is the multiple regression model. Statistical assumptions, theory, and results are developed, as are the necessary conditions for the valid application of regression analysis to economic data. Students are required to finish computer-based assignments and a term paper.

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## Prerequisites:

|                          |                                       |
|--------------------------|---------------------------------------|
| <i>Econometrics:</i>     | ECO375H                               |
| <i>Microeconomics:</i>   | ECO200Y/204Y/206Y                     |
| <i>Macroeconomics:</i>   | ECO202Y/208Y/209Y                     |
| <i>Statistics:</i>       | ECO220Y/227Y, STA256H/STA258H/STA260H |
| <i>Recommended Prep:</i> | MAT223H (Calculus and linear algebra) |
| <i>Exclusion:</i>        | ECO327Y5, ECO327Y1, ECO376H1          |

This course assumes that students have a background in mathematical statistics. Courses like ECO220, ECO227 or the STA256/260 combination provide great background in this regard, though probably at a higher level than necessary.

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Prerequisites are strictly checked and enforced and must be completed before taking a course. By taking this course, you acknowledge that you will be removed from the course at anytime if you do not meet all requirements set by the Department of Economics. For further information can be found in the 2019-2020 Academic Calendar: <https://student.utm.utoronto.ca/calendar>.

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## Lecture Schedule and Recordings

Weekly lectures will be live-streamed via Zoom every Wednesday, from 9:00 am - 11:00 am. The link to the Zoom meetings will be announced and posted on the course Quercus website. Each lecture will also be recorded and posted on Quercus. Students have the option of either attending the lecture live-stream or watching the recordings according to their own schedule. Note that there will be no in-person lectures.

During the online sessions, please mute your microphone when you are not speaking. I also encourage (but do not require) students to maintain their cameras turned on, as nonverbal cues provide immediate useful feedback during the lectures.

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## Course Materials:

### Required:

*Introductory Econometrics: A Modern Approach*, Jeffrey Wooldridge, South Western Cengage Learning, 7<sup>th</sup> Edition.

### Quercus:

The Quercus website will be used to manage class communications. Please, check the announcements posted there regularly.

### Software: STATA

The course involves a considerable amount of computing, and students must learn and use a sophisticated statistical software package. STATA is the only package that is supported by the instructor and the TAs. It is a powerful statistical package and a popular choice among economists. Older versions of STATA are likely to suffice. The TAs will give tutorials on how to implement the exercises using this software.

You must have access to STATA in order to take this course. You must be able to access it during tutorials, as well as at other times to do your homework. There are three options for accessing STATA:

- You can purchase STATA; Stata IC for 6 months or 1 year is all you need. See <https://onesearch.library.utoronto.ca/node/39537>
- You can use STATA for free online through Citrix, a service the university provides. See [https://uoft.service-now.com/kb\\_view.do?sysparm\\_article=KB0011866](https://uoft.service-now.com/kb_view.do?sysparm_article=KB0011866)
- Not recommended: You can access STATA in the library or computer labs. However, as you know, access to the library is complicated this year, and it may be difficult to have access during tutorials.

You must have Stata running before class begins; if you have trouble, you should contact I&ITS: <https://www.utm.utoronto.ca/iits/information-instructional-technology-services-iits>

While it is NOT supported by the instructor or TA, students interested in a more cumbersome, but otherwise excellent low-cost (i.e., “free”) alternative to STATA may consider R (details can be obtained from <http://www.r-project.org>).

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## Course Outline:

The following is the planned course outline (subject to minor changes). Students are recommended to preview the corresponding chapters before lectures.

| Week | Lecture                              | Chapters           |
|------|--------------------------------------|--------------------|
| 1    | Empirical Project, Measurement Error | Ch 19, Ch 9.4/15.4 |
| 2    | Simultaneous Equation Model          | Ch 16              |
| 3    | Time Series: Finite Sample           | Ch 10              |
| 4    | Time Series: Asymptotics             | Ch 11, Ch 12       |
| 5    | Time Series: Advanced Topics         | Ch 11.3, 18.2-18.4 |
| 6    | Panel data: Simple Methods           | Ch 13              |
| 7    | Panel data: Advanced Topics          | Ch 14              |
| 8    | Binary Response Model                | Ch 7.5, Ch 17.1    |
| 9    | Tobit and Truncated Models           | Ch 17.2, Ch 17.4   |
| 10   | Sample Selection                     | Ch 17.5            |
| 11   | Sample Selection                     | Ch 17.5            |
| 12   | Review                               |                    |

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## Evaluation:

The final score is based on three parts: graded homework, one exam, and a term paper. The weights are shown below.

### Homework (30%)

There are three graded assignments. Each of them accounts for 15% of course evaluation. Assignments will contain both theoretic and computer-based questions. **Delayed assignment will receive zero grades.** Please submit assignments well before the deadline to avoid technical problems.

All problem sets must be legible; if the grader cannot read your submission, you will receive no credit. In the front page, put your registered name and student number. When problem sets involve the use of STATA, you need to submit both a log file and texts. You will be instructed how to generate a log file during a tutorial session.

**Your assignment should contain a write-up that interprets and explains your computer output. Without a proper write-up of results, you will receive a mark of 0.**

Recommended exercises will be distributed throughout the semester. They will consist of both theoretical and computer-based problems. Together with the problem sets, they will serve to prepare students for the exam.

*Dates:* Homework 1 is due on March 5<sup>th</sup>. Homework 2 is due on April 9<sup>th</sup>. The deadline for submissions is 5pm on the given date.

### Exam (30%)

We will have one exam scheduled during the final exam period worth 30% of the final grade.

## Term Paper (40%)

Students are required to complete a term project. It can be done individually or in pairs (but not in groups with three or more students). It is due one week after the last lecture of the semester.

- The topic of the paper shall be an interesting economic/econometric question.
- Originality is encouraged. You can also revisit existing work with different data or different methods.
- The paper shall consist complete parts, including introduction, economic model (if necessary), econometric model, data description (if necessary), reporting results, conclusion and appendix (if necessary).
- The paper shall be no more than 20 pages (double spaced, 11pt). There is no limit on tables, figures and references, all of which shall appear in the appendix.
- Formula shall be written under appropriate format. I will discuss this in class.
- You can cite results in the existing works from academic journal articles and published books, but only with accurate references information listed in your paper. Newspapers and magazines will not be accounted as valid sources of citation for the term paper.
- A list of econometrics journals will be posted in class.
- You can hand in a two-page proposal of your project by February 10<sup>th</sup>. Please feel free to discuss the suitability of your topic with me.
- The term paper is due on April 14<sup>th</sup>.

**Important:** to detect possible plagiarism, the term paper must be submitted for review through [www.turnitin.com](http://www.turnitin.com), instructions will be provided together with the assignments requirements.

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### Late Submissions:

Late assignments will be assigned a grade of zero. Accommodations due to late registration into the course will NOT be approved. No time extensions will be granted. It is student's responsibility to ensure that his or her online submission is submitted successfully by the due date. Accommodations will not be made for unsuccessful submissions due to, but not limited to, (i) the system timing out, (ii) submitting the incorrect document(s), (iii) poor internet connection / no internet connection etc.

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### Technology:

In order to take this course, you will need reliable and regular access to a laptop/desktop; a cell phone is NOT sufficient. You will also need reliable and regular access to high-speed internet. See the University's [Recommended Technology Requirements for Remote/Online Learning](#) for more details. Read also the [UTM Library Learn Anywhere resource website](#).

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## Communication:

Email can be a useful tool in facilitating communication between faculty and students, but there are serious limitations to how useful email can be to address questions in econometrics:

- If the response requires more than one sentence, email is not the appropriate medium for discussion of course materials. If it takes more, class time or office hours are the more appropriate venue;
- In conformance with university policy, students are advised to ONLY use their utoronto email addresses. (Note that it avoids having your email trapped by my spam filter.)
- Always identify yourself in your email. You should include “ECO475” and a brief statement of the subject matter in the subject heading. Please do not send attachments of any kind, and never use email to submit term work.
- While I endeavour to respond to emails within 48 hours (except on weekends), if you do not get a response to your email, please attempt to contact me again.
- Please also note that it is not appropriate to request marks or the solutions to problem set or midterm questions by email.
- Email should NOT be seen as a means to receive private tutorials or review material that was covered in class but you missed.
- Do not use the Quercus Inbox Application; I do not answer these.
- I do not respond to phone calls.
- The TAs are under no obligation to respond to your email, so please limit your questions for them to their tutorials or office hours.

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## Student Conduct:

It is your responsibility as a student at the University of Toronto to familiarize yourself with, and adhere to, [The Code of Student Conduct](#), which is a University policy that sets out expectations for student behavior, and prescribes processes for dealing with prohibited behaviour.

The [Student's Companion to the Student Code of Conduct](#) is a set of frequently asked questions and the responses about the Code of Student Conduct. It aims to simplify and clarify Code usage for the University's community members.

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## Academic Integrity:

Academic integrity is essential to the pursuit of learning and scholarship in a university, and to ensuring that a degree from the University of Toronto Mississauga is a strong signal of each student's individual academic achievement. As a result, UTM treats cases of cheating and plagiarism very seriously.

The University of Toronto's [Code of Behaviour on Academic Matters](#) outlines behaviours that constitute academic dishonesty and the process for addressing academic offences. Potential offences include, but are not limited to:

*In papers and assignments:*

- Using someone else's ideas or words without appropriate acknowledgement.
- Submitting your own work in more than one course without the permission of the instructor.
- Making up sources or facts.
- Obtaining or providing unauthorized assistance on any assignment.

*On tests and exams:*

- Using or possessing unauthorized aids.
- Looking at someone else's answers during an exam or test.
- Misrepresenting your identity.

*In academic work:*

- Falsifying institutional documents or grades.
- Falsifying or altering any documentation required, including (but not limited to) doctor's notes.

With regard to remote learning and online courses, UTM wishes to remind students that they are expected to adhere to the [Code of Behaviour on Academic Matters](#) regardless of the course delivery method. By offering students the opportunity to learn remotely, UTM expects that students will maintain the same academic honesty and integrity that they would in a classroom setting. Potential academic offences in a digital context include, but are not limited to:

*Remote assessments:*

- Accessing unauthorized resources (search engines, chat rooms, Reddit, etc.) for assessments.
- Using technological aids (e.g. software) beyond what is listed as permitted in an assessment.
- Posting test, essay, or exam questions to message boards or social media.
- Creating, accessing, and sharing assessment questions and answers in virtual "course groups."
- Working collaboratively, in-person or online, with others on assessments that are expected to be completed individually.

All suspected cases of academic dishonesty will be investigated following procedures outlined in the [Code of Behaviour on Academic Matters](#). If you have questions or concerns about what constitutes appropriate academic behaviour or appropriate research and citation methods, you are expected to seek out additional information on academic integrity from your instructor or from other [institutional resources](#).

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## Course Policies

**Privacy and Use of Course Materials:** This course, including your participation, will be recorded on video and will be available to students in the course for viewing remotely and after each session. Course videos and materials belong to your instructor, the University, and/or other sources depending on the specific facts of each situation, and are protected by copyright. Do not download, copy, or share any course or student materials or videos without the explicit permission of the instructor. For questions about recording and use of videos in which you appear please contact your instructor.

**Attendance Policy:** Attendance at all lectures is expected and strongly recommended of all students. Lecture notes serve as lecture outlines and are not substitutions of the lecture themselves.

**Grade Dispute:** Requests for re-grading homework and/or exams must be submitted to instructor in writing within one month of when the exam and/or homework are returned. The instructor will re-grade the whole problem set and/or exam instead of a single question to ensure consistency.

**Off-class Meetings:** I will hold an office hour every week. It is reserved for one-to-one discussion of course materials

**Informing Your Professor and Submitting Appropriate Documentation:** Students who miss a due date because of circumstances beyond their control (e.g. illness or an accident) can request that the Department grant them special consideration. The following steps must be completed in order to be considered for academic accommodation for any missed assignment.

1. Your absence must be declared on ACORN on the day of the due date, or by the day after, at the latest.
2. You must notify your professor by e-mail within one week of the missed deadline.
3. Complete an online [Special Consideration Request](#) within one week of the missed due date. The University is temporarily suspending the need for a doctor's note or medical certificate for any absence from academic participation if you are experiencing COVID-19 symptoms. However, this policy may change at any point during the course. If you missed your deadline for a reason connected to your registered disability, the department will accept documentation supplied by Accessibility Services. If you visited a Dentist, Nurse/Nurse Practitioner, Physician/Surgeon, Psychologist, Psychotherapist or Social Worker registered and licensed in the Province of Ontario, have them fill out the University's [Verification of Student Illness or Injury](#) form. In other cases, a [Verification of Extenuating Circumstances](#) form is acceptable. Other documentation can include, but is not limited to, automobile collision or police reports, death certificates, and supporting documentation from employers, lawyers and other related personnel. Please email your form to [economics.utm@utoronto.ca](mailto:economics.utm@utoronto.ca).
4. Consult the Office of the Registrar should your absence be lengthy or affect multiple courses.

The written explanation and documentation that you submit represents an appeal from you, requesting the opportunity to account for that portion of your grade in some other manner. If an appeal is not received, or if the appeal is deemed unacceptable, you will receive a grade of zero



for the item you missed. If the appeal is granted – that is, your reason for missing the item is considered acceptable by the professor – then the professor will set a new due date for the item.

Note that it is your responsibility to ensure that your email account is working. Claims that a Departmental decision was not received will NOT be considered as a reason for further consideration.

Note that holidays and pre-purchased plane tickets, family plans, your friend's wedding, lack of preparation, or too many other tests/assignments are not acceptable excuses for missing an item of term work.

Students who cannot complete their online final examination due to illness or other serious causes must file an [online petition](#) within 72 hours of the missed examination. Late petitions will NOT be considered. Students must also record their absence on ACORN on the day of the missed exam or by the day after at the latest. At this time, the university has temporarily suspended the requirement to provide medical documentation if illness is cited as the reason for a deferred exam request. Fees for deferred exam requests are also temporarily being waived during this examination period.

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### **Supplement:**

The [Supplement to Course Syllabi](#) of UTM's Department of Economics should be understood to be an integral part of this syllabus. It describes

- your responsibility to avoid course conflicts;
- your responsibility to honour the copyright of course materials;
- your right to receive accommodations for religious observances;
- the equity statement for this course;
- your academic rights;
- some resources that are available to you as a student, including [Accessibility Services](#)