

1. COURSE LOGISTICS:

Course website: <https://q.utoronto.ca/courses/253430>

Course email: eco372.ward@utoronto.ca

Course schedule: ECO372 has a scheduled meeting time of Fridays 9am-11am, and section meeting times of Wednesdays 10am-12pm (section L0101), Wednesdays 1pm-3pm (section L0201), and Thursdays 10am-12pm (section L0301). We assume students are available each week at the times given for their section on the university timetable, and we expect weekly attendance as the course involves significant participation-based work within our scheduled 4 hours. For a full description of the weekly schedule, please see the section on Course Meetings.

Communication:

Most points of communication for the course (interactive workshops, office hours) take place in our course time slots (held either online or in-person). We coordinate course help and office hours to these times to avoid other scheduling conflicts and to streamline discussions about course content. Please see the section on course communication below for details on how to communicate with me, your fellow students, and the course staff.

Preparation and prerequisites:

ECO372 is a 3rd-year course on **Data Analysis and Applied Econometrics in Practice**, which builds directly on second-year prerequisites, particularly ECO220Y1 (**Introduction to Data Analysis and Applied Econometrics**) or its equivalents ECO227Y1/ (STA237H1, STA238H1)/ (STA247H1, STA248H1)/ (STA257H1, STA261H1). Our starting point will assume mastery of prerequisite material, and we will spend the first weeks of the course bringing your accrued second-year statistical knowledge to the practice of applied econometrics. The rest of the course, then builds on that knowledge with the subsequent, more advanced course topics. It is your responsibility to bring sufficient comprehension of prerequisite material, and it is the responsibility of our course to build on that baseline. We view prerequisites not only as a thing you did that one time, but as necessary preparation for ECO372. The full set of prerequisites for ECO372 are listed and described here: <https://artsci.calendar.utoronto.ca/course/eco372h1>. Note: the department checks whether students have the correct course prerequisites and will automatically remove those who have not fulfilled the requirements.

2. COURSE DESCRIPTION

Overview: ECO372 Data Analysis and Applied Econometrics in Practice is an intermediate level course in econometrics, and its goal is to equip students with a modern approach to data analysis and econometrics, focusing on the use of data to answer causal questions. Students will learn about different empirical techniques that economists use to do so: random assignment, linear regression, difference-in-differences, and regression discontinuity design. Students will learn about applications of these techniques in academic research. Econometric methods will be illustrated

using the application of regressions to a wide variety of economic questions and data sources, including the use of statistical software: Stata.

Textbook and Readings:

The required textbook is *Mastering ‘Metrics* by Angrist & Pischke (Princeton University Press, ISBN:978-0-691-15284-4). It is available at the UofT Bookstore, as well as on many other online platforms. There are copies available at UofT libraries as well. Weekly readings will also be assigned, which supplement the textbook. These will be posted online on our weekly content page.

Software:

Our course will involve data analysis, and you will learn and use a statistical software package. Use of Stata is required, and our workshops (some of which include assessment activities) will use this software package in real-time to analyse data. Stata is available at reduced rates through the gradplan program, which allows U of T members to buy Stata software from StataCorp directly. The 6-month subscription to Stata/BE is sufficient for our needs in this course: <https://oneseach.library.utoronto.ca/ic/stata-gradplan-u-t>. You can also access Stata remotely through the St. George MDL library: <https://mdl.library.utoronto.ca/using-mdl-lab-computers-remote-desktop> or the UTM library: <https://utm.library.utoronto.ca/content/remote-software-access-citrixxenweb>. The library is a fine option (as long you can get remote desktop to work well when in the lecture hall). *Can I use another program?* Not really. There is value in “speaking the same language” in our course activities, whatever that language may be. While it is technically possible to use another software program, you would need to be proficient enough to translate Stata workshop tasks directly into another package all the while staying in time with our workshop activities. You assume your own risk here as we do not vet code in from other programs in real-time (or as submitted). Remember also, that many students in the course will have no background in any statistical package, so by setting out as a beginner Stata user, you are not starting out behind but rather adding another program to the list of software for which you’ve become familiar.

3. WEEKLY SCHEDULE

Adjustment for Delays to In-Person Learning:

Due to the latest public health constraints, in-person course meetings are delayed until at least the end of January, ...but you and I have been at this for a while now, so let’s try to take the best of both worlds here. To do so, we will split our lecture time to deliver lecture videos for the whole term and weekly interactive lecture workshops that suit the online mode when we are online and the in-person mode when we are in-person. We will supplement this by using the balance of our weekly time slot hours to support the lecture content through data workshops and open office hours. Our main goal is consistency throughout the term, and while we don’t want to lose out on the chance for meaningful interaction, lecture videos are also nice to have (so I hear). This structure delivers on both, across all weeks, regardless of meeting mode.

Typical weekly flow:

Following this design then, our course structure in a typical week begins with readings and video course content, and it ends with interactive workshops and assessment activities, which integrate the week’s knowledge and assesses your understanding. Specifically, readings and **Lectures Videos** (required) will be followed by the **Lecture Workshop** (required) + office hours now held in the Friday time slot. Additionally, each week also includes open office hours in the other 2-hour

time slot and, on selected weeks, data workshops to provide support in learning to manipulate and analyse data using Stata. These supplementary workshops and office hours will be held in Wednesday-Thursday time slots.¹

All weekly details will be announced and posted ahead of time on the weekly calendar on our course website. As noted in Section 1, you should expect to be available for all four hours of course time each week (this ensures that you are ready to attend all weekly participation components and guarantees that you have no conflicts in reaching out for help during office hours). Note also that the above provides an example of a *typical week*, which will occur with modification around midterm dates, assessment components, and unforeseen events.

When will we move to in-person learning?

Our course is still designated as an in-person course so we will follow university policy announcements under this designation. This means we will stay online until at least January 31st (or later should this date be extended). Once we are directed to resume in-person meetings, we will begin meeting in-person that week or the week after. For instance, given current policies, our plan now will be to meet in person as early as **February 4th**. Note: these dates may be adjusted depending on university protocols and what fits pedagogically with the course content the week of the switch (e.g., we could adjust our return week depending on whether the week's workshop works better online or in-person for technological or academic integrity reasons).

Can I complete the course entirely online?

No. Why? Since our course is designated as in-person, it means that the midterm, make-up midterm and final will be held in-person. Furthermore, the course involves weekly participation and weekly assessment activities that will switch to in-person delivery when we are directed back to the classroom. Given reasonable expectations on pandemic policy, significant course components are at risk if you are not here to attend in-person. Therefore, if you expect, for any reason, that you will not be able to **attend in-person by February 4th**, you should take the pre-emptive measure now to drop this elective in favour of a course with an “online” designation (these are designated with a “99” course code, e.g., LEC9901).

Keeping up a weekly practice:

Keeping up this weekly practice is particularly important in Econometrics as the content builds on itself, and your mastery of it depends heavily on spaced repetition. To this end, our econometric training schedule will involve a weekly practice of study, application and reflection, which we then use as the basis for the next week's training. There is a cadence here, where each week adds to last week's progress, and we build our understanding by using our weekly training regime: study, apply, reflect. Just as you would not expect to run a successful marathon by leaving all training to the night before the race, you cannot expect success in this course by leaving all course work to the night before due dates. To put an even finer point on it, if you do not prepare yourself with weekly readings and videos, you will be at a significant disadvantage in completing the weekly assessments and participation components.

¹ In the interest of consistency, we will try to maintain this meeting structure for the whole term, but we may swap the Lecture Workshop meeting times to the Wednesday-Thursday time slots when we are back in-person, depending on room constraints and evolving events.

4. CHECKLIST OF REQUIREMENTS FOR COURSE DELIVERY

Start-up tasks:

- **Check** you have course prerequisites: <https://artsci.calendar.utoronto.ca/course/eco372h1>
- **Review** your methods prerequisites by digging up your textbook/course notes and jogging your memory of the main topics covered therein. The methods prerequisite is ECO220Y1 (Introduction to Data Analysis and Applied Econometrics) or its equivalents ECO227Y1/ (STA237H1, STA238H1)/ (STA247H1, STA248H1)/ (STA257H1, STA261H1).

For online and in-person course components and meetings, you will need:

- **Paper and a pencil** (and probably an eraser, unless you're the kind of person that never makes mistakes)
- Access to a **reliable laptop** with wifi capabilities and ability to access a web browser and our Quercus materials. You will need to bring this Laptop to all workshop time slots (be they in-person or online).
- An **installation of Stata** on your laptop, which can be accessed during workshop time slots (be they in-person or online). See Course Description section for details.
- The **course textbook**. See Course Description section for details.
- A current **installation of Office 365**, available at no cost to current U of T students, via the page Office 365 ProPlus: <https://oneseach.library.utoronto.ca/ic-faq-categories/microsoft-365-proplus>
- Your **TCard** (your U of T Student ID card) ready
- If you have an accessibility concern, reach out to ATS for accommodation as soon as possible so that we can get to work on things right away. To do this visit <http://www.studentlife.utoronto.ca/as> and register with Accommodated Testing Services (ATS): <https://www.ace.utoronto.ca/ats/>

For online course components and meetings, you will need:

- Regular access to a **reliable laptop** with a working microphone and webcam
- A **Zoom account under your U of T credentials** (personal Zoom accounts are blocked from accessing U of T zoom sessions).
- Regular access to **reliable high-speed internet** and **reliable electricity**
- The **hardware, software, and knowledge to scan your work to be uploaded**. Most phones can scan (a separate scanner is unnecessary) to create PDF, JPG, or PNG files.

Best practices:

- Regularly follow our **Quercus site for detailed guidance**, updated as our situation evolves.
- Be **proactive to avoid technical and other difficulties**, which includes submitting well before deadlines, maintaining your devices, keeping software up to date, minimizing the strains on your internet bandwidth, learning how to scan efficiently, carefully reading all

assessment instructions, and contacting your instructor/TAs immediately with any problems

5. COURSE COVERAGE

Topic*		Reference
Intro:	Introduction to the Practice of Econometrics	Intro Chapter; notes; videos
Bridging:	Bridging from 2nd Year	2yr Pre-req Chapter Review**
Topic 1:	Causality & Statistics	Chapter 1; notes; videos
Topic 2:	Random Assignment	Chapter 1; notes; videos
Topic 3:	Regression	Chapter 2; notes; videos
Topic 4:	Difference-in-differences	Chapter 5; notes; videos
Topic 5	Regression Discontinuity Design (RDD)	Chapter 4; notes; videos
Topic 6:	Instrumental Variables (if time allows)	Chapter 3; notes; videos
Recap:	Conclude and Recap	

*Note: topics may be covered in less than or more than a week depending on our pace as we move through the course, and/or reordered depending on when we move to from the online mode to the in-person mode

** Review your methods prerequisites: ECO220Y1 or its equivalents ECO227Y1/ (STA237H1, STA238H1)/ (STA247H1, STA248H1)/ (STA257H1, STA261H1). You can do this by reviewing your prior textbook and course notes to jog your memory of the main topics covered therein.

6. EVALUATION

The overall course grade in ECO372 will be determined as follows:

Assessment	Weight	Due Date	Collaboration
Participation	8	First 5 weeks of the course	N/A
Participation + Weekly Assessments*	16	Last 7 weeks of the course	Limited**
Midterm	30	March 4th	None
Final Exam	46	TBA	None

* Weekly Assessments integrate with the weekly posted material. They will not occur every week.

** Limited discussion/interaction regarding assessments allowed (within the narrow parameters described below).

6.1. PARTICIPATION AND WEEKLY ASSESSMENT

Participation: Participation is multidimensional and reflects an overall assessment of your productive engagement in all aspects of our course. Your regular workshop participation on Friday is a significant component, i.e., asking or answering questions during workshop time (either verbally or through the backchannel), answering polls, and/or via other activities. Other opportunities may also count for participation, such as surveys, lecture activities, and/or other activities announced on Quercus. Attendance to the Wednesday-Thursday data workshops is not

required for participation, but if you stand out by asking good questions and/or posting good answers we will take this positive information under advisement in assigning your participation mark. Any negative participation may result in an overall mark of zero for participation. This would include, but is not limited to, any behaviors that run contrary to the expectations of this syllabus (e.g., seeming to engage in unreasonable collaboration, skipping work, etc.), failing to follow instructions, and any disruptive behaviors affecting your peers, TAs, and/or me. Participation is not intended as easy marks. You should not expect a participation mark of 80 or higher unless your participation is consistently excellent throughout our course. For reference, participation grades in the F and D range usually occur when there is no/little measurable indication of your presence in the course. You will only learn your participation mark after the course is complete and your official course grade is on ACORN.

Weekly Assessments: Completion of the weekly assessments will start midway through the course, and they are based on the weekly course content (readings, postings and lecture recordings), with work and submission taking place during the course Lecture Workshop. Attendance and participation are a necessary (but not sufficient) component of the grade (much like attendance and participation to an exam is a necessary but not sufficient component to your exam grade). Here, preparation based on weekly course content is paramount to doing well, and your submitted work will be graded for correctness.

6.2. COLLABORATION

Tests: This may seem obvious, but warrants saying anyway: there is absolutely no collaboration allowed on tests. Your submissions must be entirely your own work, and any collaboration (with ANYONE) for any portion is a serious infraction. Note that this means you may not post any material directly related to the tests, discuss any of the test content, or share any files related to the tests **before or during the test window**. After the testing date, discussion of test materials within the context of the course is permissible (and welcome, even), but note that test materials are protected by copyright and cannot be shared or posted outside the context of our course environment (i.e., our course environment is the Quercus page, course meetings, and office hours). To be clear, this means you DO NOT have permission to share these materials outside the course environment. Because copyright infringement has been an issue in the past, do not expect detailed test questions and solutions to be posted after the fact in an easily sharable form. Instead, expect a mapping of test questions to course concepts, and actual test questions to be discussed as a group in class time (the latter of which you can relate back to personalized feedback on your test paper itself).

Weekly Assessments: Weekly assessments vary in structure according to the week's topic. Some, like tests, do not allow collaboration, which will be noted prior to the assessment/activity. Others, intentionally engage reasonable collaboration for aspects of the activity, which will also be noted prior to the assessment/activity. In this case, this collaboration should take place through course infrastructure: e.g., in the classroom (should we be in-person), or through break out rooms (should we be on Zoom). Other collaboration outside the course (such as sharing files, copying text or code, submitting text or code that is not your own) is prohibited. Note: submission of your assignments within Quercus, will engage the University's plagiarism detection tool. Normally, students will be required to submit their course essays to the University's plagiarism detection tool for a review of textual similarity and detection of possible plagiarism. In doing so, students will

allow their essays to be included as source documents in the tool's reference database, where they will be used solely for the purpose of detecting plagiarism. The terms that apply to the University's use of this tool are described on the Centre for Teaching Support & Innovation web site (<https://uoft.me/pdt-faq>).

6.3. MISSED WORK AND REMARK REQUESTS

Remark Requests: Remark requests must: (1) be submitted to Remark Request, which is an MS Form, (2) explain WHY more points are justified, (3) be submitted within TWO WEEKS of the work's return to the class. The entire submission may be remarked: your mark can go up, down, or remain unchanged. ALL submitted requests are reviewed together after the two-week deadline, not immediately. We will not consider any remark requests after the deadline.

Accommodations for missed Midterm and Weekly Assessments: There is a strict policy concerning missed tests or assessments, and any missed work earns an automatic mark of zero. For any issues that extend beyond our course, or last more than a week, you MUST contact your College Registrar immediately. Unless we hear directly from your College Registrar, we unfailingly apply the rules laid out in this syllabus, and we do so consistently across all students. We do this because ad hoc adjustment is entirely unfair to students who may be in similar circumstances, but who do not ask for accommodation beyond what is already offered. In terms of accommodations, we set the following to account for special circumstances, e.g., illness, injury, personal/family problems, enrolling after the course has begun, religious reasons, extracurricular conflicts, technology problems, internet or power outages, quarantine issues, accessibility concerns, and/or other challenging situations.

Missed workshop with graded activities: Our expectation is for students to attend all Lecture Workshops and certainly all *grade-required* Lecture Workshops. However, to accommodate students who cannot complete up to one required workshop with graded activities, we drop the worst week in computing your mark. This also accommodates students who attend under difficult circumstances and/or miss part of a workshop due to technology, travel and/or other issues. Should there be a mark tie across weeks, we will drop the first week chronologically. This means that if you completely miss a required workshop week, we will forgive the first such case with no questions asked. The intention in offering the accommodation is not that it be used strategically to drop the week with the largest course weight (i.e., we assume you will attend all workshops and try your best each time), but rather to accommodate unexpected and unforeseen challenges in attending the workshop. Again, if you have unexpected and unforeseen challenges extending beyond our course, or lasting more than a week, you **MUST** contact your College Registrar immediately before any further accommodation plan can be made.

Missed Midterm: a missed midterm will receive a grade of a zero. In exceptional circumstances, we may grant an exemption. In this case, we determine whether an exemption will be granted; you need to complete ALL of the following steps to be considered.

1. Complete "Missed Test," which is an MS Form. It must be submitted BEFORE THE START TIME for the missed test. For example, if the start time is 9 am on Friday, the LATEST you can request an accommodation is the morning of that same Friday: 9 am. It is unacceptable to fail to show up for an important engagement without advance notice. We do NOT wish to see

any document completed by a doctor or other professional. All questions in the MS form are required.

2. Check your U of T e-mail. If an immediate resolution is possible, we may e-mail you quickly. Otherwise, within one week of the missed work you should receive an e-mail from us. Follow any instructions in it. Not seeing an e-mail from us is not an acceptable excuse for your failure to follow any time-sensitive or other instructions.
3. Complete all other course assessments including the final exam. A cumulative make-up test will be scheduled by us. The style and timing of the make-up is at our discretion, e.g., it may be an individual oral test scheduled one-on-one with me or course staff, a written test scheduled in a joint session with other students, or a combination of both. Note that these will be held in-person unless policy dictates otherwise. Your performance on both the make-up and other graded course work, the final, as well your MS Form submission and correspondence, will be taken under advisement in determining your final course grade. We do not report marks for make-ups. However, after all regular course work is complete and returned, we will report the mark assigned for the original missed assessment.

Failing to complete all three steps above, regardless of the reason, results in a mark of zero on the original missed test. We do not accept late submissions and there are no make-ups for the make-up and no extensions for any reason. Accommodations for missing more work than addressed above are extremely limited: (1) an ongoing and substantial injury, illness, or personal/family problem seriously affecting the student's ability to complete term work across all courses over an extended period of time where the student's College Registrar writes to me after meeting with the student and formally requests an accommodation on the student's behalf or (2) more than one conflict not related to injury, illness or personal/family problems where I am contacted by the student very far in advance. In these limited situations, I will consider whether accommodations can still meet all course requirements or whether the student must be advised to drop the course and retake it when able to complete the required work. Any such extraordinary accommodations are at my discretion and may involve completing work at an alternate time, an oral and/or other assessment, re-weighting, and/or may be contingent on performance on other work.

7. COURSE COMMUNICATION

This is a challenging course, and you will likely have many questions throughout. We have designed our course with communication in mind, and to facilitate our collective discourse, we have organized interactive workshops where we welcome your questions. Additionally, we supplement the workshop time with daily office hours spanning Wednesday, Thursday, and Friday of each week.

Maybe you want to try to by-pass the course infrastructure altogether and email us. Please note, however, that asking questions via e-mail is almost never the best way to get an answer. It leaves others out of valuable discussions and, more generally, requires a lot of repetitive effort for us; effort better put towards course improvement (pareto improvement, even). Instead, consider the avenues of communication listed below, and choose one that best fits your inquiry. If you somehow missed this section of the syllabus the first time around and email about something of general interest to others or something that has a structured process already attached to it, please do not take offence if you receive a canned reply directing you to come to our course meetings.

1. Questions on course content (including the material covered in course assessments):
 - The primary way to address questions on course content is to bring them to our course meetings. There are course meetings every Wednesday (4 hours), Thursday (2 hours) and Friday (2 hours). Roughly the first hour of each meeting is structured group work, with remaining time scheduled as open office hours. These meetings are designed to be interactive, and we welcome questions here! You are also welcome to attend outside your section time slot and multiple times a week.
2. Questions about Stata specifically:
 - Some questions about Stata may not be sufficiently addressed in the Lecture Workshop. In this case, attend the Wednesday-Thursday time slots, and ask your question there. Remember, we also have structured data workshops scheduled throughout the semester to walk you through the basic mechanics of Stata.
3. Technological issues:
 - If you are having an issue with your technology, come to class and discuss with one of the course staff. Remember from Section 4 above; you should be proactive about avoiding technical and other difficulties, which includes learning to use the technology laid out in Section 4 ahead of “crunch” time.
4. For remark requests on course assessments OR inquiries regarding a missed term test:
 - Please use the MS forms links on Quercus.

Most questions can be handled through points 1-4 above, but for those of a private nature, please reach out to me directly through email (e.g. for concerns about accessibility accommodations, TA issues, typos or broken links on the website). If you need to send an email, please adhere to the following:

- Send your email to the course email: eco372.ward@utoronto.ca. Do not use any other email address to get in contact with us (it will be missed or ignored). For example, DO NOT try to email us through Quercus or at any other address the instructor/TA may hold.
- Send the email from your UofT email address (it will be ignored as spam otherwise).
- Include your student number in your signature.
- Please include the nature of your inquiry

The TAs and I usually craft all e-mail replies in blocks, once a week. If you don't receive a reply, please check the syllabus, review Quercus announcements, see your TA during office hours, or see me during office hours. My open office hours are in the last half of our Friday time slot, and by appointment afterwards for all issues of a sensitive nature.

Lastly, please note that we will make important announcements through Quercus, which means you need to check in here regularly. You may also wish to customize your Quercus notification preferences to receive immediate notification of course messages.

8. ACADEMIC INTEGRITY

Please read/refamiliarize yourself with the Faculty Arts & Science's Statement on Academic Integrity at the start of our course: <https://www.artsci.utoronto.ca/current/academic-advising-and-support/student-academic-integrity>. As part of an academic community it is your responsibility to

be aware of appropriate conduct. Any academic offence will be reported and acted upon immediately.

9. STUDENT ACCESSIBILITY

For accessibility concerns *immediately* visit <http://www.studentlife.utoronto.ca/as> and also register with Accommodated Testing Services (ATS): <https://www.ace.utoronto.ca/ats/>. We can only provide accommodations for assessments as directed by ATS. If you have trouble, seek help right away from us, your College Registrar, and/or the Academic Success Centre. For any issues that extend beyond our course, or last more than a week, contact your College Registrar immediately.

10. PRIVACY

We are all expected to respect university privacy and copyright restrictions in this course.

Synchronous Events: The relevant policy states “Students may not create recordings of weekly synchronous events with the exception of those students requiring an accommodation for a disability, who should speak to the instructor prior to beginning to record these events.”

Course Recordings: The relevant policy states “Download and re-use is prohibited. 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. Non-compliance with these terms violates an instructor’s intellectual property rights and the Canadian Copyright Act. Students violating this agreement will be subject to disciplinary actions under the Code of Student Conduct.”

Course Materials (lecture slides, tests and assignment questions and other course content): The relevant policy states: “Do not download, copy, or share any course or student materials or videos without the explicit permission of the instructor. Non-compliance with these terms violates an instructor’s intellectual property rights and the Canadian Copyright Act. Students violating this agreement will be subject to disciplinary actions under the Code of Student Conduct.”