ECO220Y1Y
Introduction to Data Analysis and Applied Econometrics
Fall 2024 - Winter 2025 Syllabus

1 Key Information

Instructor: Dr. Kathleen Dobson
Section: L0501
Scheduled In-Person Course Times:
  Thursdays: 11:00 AM – 1:00 PM, location: SS 2012
  Fridays: 11:00 AM – 1:00 PM, location: SS 2118
Course Email: eco220y1y.b@course.utoronto.ca
Prerequisites: The course prerequisites are listed at: ECO220Y1 | Academic Calendar. An administrator will remove any-one missing prerequisites. I cannot waive the prerequisites.
Office Hours and Location: By appointment and virtual. To schedule, please e-mail: eco220y1y.b@course.utoronto.ca

2 Welcome to ECO220Y1Y

Welcome to ECO220Y1Y! This course provides you the opportunity to develop essential statistical analysis and interpreta-tion skills—think of it as an introduction to what many economists really do. ECO220Y1Y centres around how to "think" like an economist: asking research questions, analyzing data, presenting findings, and interpreting results correctly. Doing so requires students to hone their reading, writing, and quantitative analysis skills.

ECO220Y1Y is coordinated across the seven lecture sections. All seven sections write a common final exam and do the Data Analysis Course Module (DACM) – spaced over both terms – where you dive into real data and research and replicate key findings.

3 Course Learning Outcomes

1) Translate between plain English and statistical terms and concepts: identify key information regardless of wording and distinguish incorrect statements from correct ones.
2) Select and apply a suitable quantitative approach to a new situation while making your reasoning clear. This may re-quire sentences, hypotheses, equations, calculations, fully labeled graphs, and/or diagrams.
3) Proficiently read output from various statistical software packages, including Excel, R, and STATA.
4) Use Excel to analyze data and replicate published results.
5) Correctly interpret quantitative results for a non-technical or technical audience.
6) Draw valid statistical conclusions and steer clear of common pitfalls.
7) Explain what would change if a researcher made different choices, or the data changed.
8) Identify the underlying assumptions in quantitative analyses and determine how violations affect conclusions and interpretations.
9) Read and critically evaluate analyses without being dazzled by data, methods, or jargon.
10) Effectively apply course concepts to a wide range of contexts, from popular press articles to papers in peer-reviewed academic journals.
11) Assess available data or propose a data collection plan to address a research question.

4 Course Materials

4.1 Required Textbook

Working with a good textbook is one of the keys to learning introductory statistics. Therefore, the course textbook is mandatory. Our course uses the ***2020 Business Statistics, Fourth Canadian Edition*** textbook by Sharpe, De Veaux, Velleman, and Wright. Places you may purchase the textbook include:

- The bound hardcover textbook at the UofT Bookstore ($190 CAD)
- The eText directly from Pearson ($67.99 CAD)
- A used version of the Fourth Canadian Edition. Older editions or the US / international editions are not good substitutes: they are missing topics and do not match the numbering in our book.

Our required textbook highlights important points with boxes (sometimes in the margins): take the boxes seriously, including "Just Checking". Also, chapter openers and closers such as "What Can Go Wrong" are always part of the required reading. Note that MyLab Statistics is neither required nor recommended: we do not use it.

4.2 Required Lectures

Multiple sections of ECO220 (including sections taught by Professors Ugarte-Bravo, Murdock, and Dobson) share prerecorded lecture videos. These videos are shared course material and are considered a required part of the course. For each unit, the required videos are slides are on the Quercus. Complete the course readings and lecture videos *before* class time for each unit.

4.3 Optional (But Highly Recommended): Course Study Guide

ECO220Y1Y is a full-year course. It covers a large amount of material and has a cumulative final exam. To help prepare students, Dr. Dobson has prepared a study guide corresponding to each lecture topic. The Study Guide may be found on the Quercus website. The study guide includes three types of questions: fundamental questions, textbook question recommendations, and applied questions. At the end of each week, only answers to the applied questions will be made available to students. It is highly recommended to complete the fundamental questions before the weekly in-person workshop.

4.4 Thursdays: In-Person Workshops

Workshops with the professor will take place on Thursday from 11 AM - 1 PM for section L0501, starting the week of September 3rd. Expect to actively solve questions, write, and interact with your classmates. You must attend with your ACORN section. Do not schedule any conflicts during your two-hour ACORN lecture time slot.

Your preparation and regular and active participation count towards your participation mark (see Section 7.1). The quality of participation matters. The workshops are an opportunity to participate and receive feedback on your attempts at test-like questions.

You will only learn your participation mark indirectly after your course grade is on ACORN and the final exams are returned. Given your other known marks, you can deduce your participation mark, which cannot be appealed. Course grades reflect a fair assessment of submitted work and are not subject to negotiation. For a missed workshop, see Section 7.5.

4.5 Fridays: DACM practicums or Term Test

Fridays are reserved for either DACM practicums or term tests. One of these two activities happens most Fridays. Do not schedule any conflicts on Fridays from 11 AM - 1 PM.

4.6 DACM Practicums

Ten Fridays have required DACM practicums. You learn data analysis skills, reinforce your understanding of core course curriculum, and practice effective writing skills. Bring your laptop with an up-to-date installation of [Microsoft 365 ProPlus](). Also, bring pencils, erasers, your TCard, and the course aid sheets. Be prepared to actively work with others, do analyses, and write. Complete the assigned readings in the DACM Handbook ahead of time. **You must attend with your ACORN section.** Join the DACM Quercus site: https://q.utoronto.ca/courses/371119: you will receive your invitation to the site on September 13.

The skills and understanding you build via your preparation for and participation in the ten DACM practicums are *critical* to your success in writing the final exam.

4.7 Term Tests and Final Exam

The format for each term test will be announced on Quercus in advance. The aid sheets - formulas and statistical tables - for the entire course are on Quercus and we give these to students during tests and exams.

The final exam is cumulative: all material from September to April is tested.

Topics addressed in the lecture videos, workshops, homework, required readings, and DACM are testable. If a concept appears in multiple venues, that signals high importance. Construct full replies for homework and other suggested practice materials in test-like conditions. If you cannot solve a question after a sustained effort, turn to your notes, book, and homework. Only as a last resort, ask a person or look at the solutions. Browsing solutions (or peeking) undermines your study. Use solutions to grade your own answers.

5 Ungraded Homework

The study guide acts as ungraded homework for each unit. Textbook exercise answers may be found on Quercus. Dr. Dobson will post answers to the applied questions of the study guide only. The fundamental questions act as a personal study guide.

6 Communication with your Professor & TAs

Our regular class meetings on Thursdays are our main forum for communication. Instructor hours (by appointment) focus on course curriculum and skills, personal matters, and other topics of interest. Note that Dr. Dobson holds student hours on Zoom. Surrounding term tests and finals, the instructional team will hold additional office hours; these may be held online or in person.

6.1 E-mail

Use e-mail for urgent communication, setting up a time to speak with Dr. Dobson, or if you have a question about the topics covered in ECO220. We try our best to respond to e-mails promptly. Please do not e-mail regarding concerns with grades, questions about content on upcoming tests/exams, or excuses for missing work. These e-mails will not be answered as this information is either in the syllabus or will be stated on Quercus.

Only e-mail the course inbox for communication regarding ECO220. Please do not e-mail one of Dr. Dobson's other e-mail addresses. It will not be answered. This is for your benefit. Dr. Dobson receives 50+ emails per day on her other e-mail addresses. In the course inbox, your e-mail will not get lost and it will be responded to.

6.3 Respectful Communication

Students in ECO220Y1Y are expected to communicate respectfully and professionally when engaging with Dr. Dobson and the course TAs. Disrespectful communication during in-person class or over e-mail will not be tolerated.

6.4 Availability

Dr. Dobson is only available during working hours (9 AM - 5 PM). Do not expect immediate responses to e-mails, or responses to questions on weekends, holidays, or the night before a test.

7 Course Marking Scheme & Assessment Policies

7.1 Marking Scheme

Assessment	Percent	Details	Date
Term Test 1	15%	11:10 AM - 1:00 PM	2024-10-18 (Friday October 18th)
Term Test 2	15%	11:10 AM - 1:00 PM	2024-11-29 (Friday November 29th)
Term Test 3	15%	11:10 AM - 1:00 PM	2024-02-07 (Friday February 7th)
Term Test 4	15%	11:10 AM - 1:00 PM	2025-03-28 (Friday March 28th)
Participation	10%	In workshops & surveys led by Dr. Dobson. The quality of your participation matters. *You must attend your workshop with your ACORN section.*	
DACM Practicums	5%	**2024 Dates:** Sept 20, Oct 4, Oct 11, Nov 15, Nov 22 **2025 Dates:** Jan 17, Jan 31, Feb 28, March 7, March 21 *You must attend with your ACORN section. Your clearly demonstrated effort from the start through the end matters.*	
Final Exam	25%	A three hour cumulative exam, which also examines your knowledge & skills from DACM. Date TBA by A&S: Final Exam Period April 9 to 30th	

Note that for workshops and DACM practicums, mere attendance does not earn marks. The quality of your participation matters. Arrive on time, well prepared, and actively engage throughout. We return work via Crowdmark: check your UofT e-mail. Given the frequency of these, our TA team cannot write comments back on your work.

7.2 Term Tests and Final Exam

Regarding coverage and format, two weeks before each test and before the final exam we will post announcements on Quercus. We give you the aid sheets at each test/exam. For a missed test, see Section 8.2, *Missing a Term Test*. **The final exam is cumulative, and some questions will assess your skills and understanding from DACM.** (Why does ECO220Y1Y have a cumulative final exam? Pedagogically, revisiting earlier material aids learning and long-term retention of skills. Practically, it allows the final to have a higher weight and be an opportunity to rebound.)

7.3 Grading of Term Tests and the Final Exam

Marks reflect any adjustments to raw scores such as adding points or not counting an unduly difficult/confusing question. The term tests and final exam will include applied questions -- for partial credit on answers to these questions, part of your answer must be correct, directly relevant to the question, and not contradicted elsewhere in your answer.

7.4 Remark Requests for Term Tests

For a remark request, you must:

- (1) submit a Remark Test MS form. This link will be available on Quercus once initial test grades are provided to students.
- (2) Explain **why** more points are justified.
- (3) Be submitted within **two weeks** of the work's return to students.

After a remark request, your mark may remain **unchanged, go up, or go down.** Remark requests are given a fair look: TAs are not seeking to penalize those with genuine marking concerns. Requests are reviewed after the two-week deadline, not immediately. We will not consider any remark request after the deadline.

7.5 Automatic Accommodations for Workshops and DACM Practicums

To accommodate people who miss, arrive late, or have any problems for a workshop for reasons beyond their control, we automatically drop the lowest three workshops. For DACM practicums, we automatically drop the lowest two. Save these for an illness or other emergencies entirely outside your control. These automatic accommodations are for situations *entirely outside your control:* do not miss for any potentially avoidable reasons. There are *no* further accommodations possible.

These adjustments are automatic: please do not contact us about missing a workshop or DACM practicum.

7.6 Automatic Adjusted Weights for Relatively Poor Test Performance

Automatically adjusted weights may help if your performance is relatively poor for one test because of any kind of problem or challenge. If you write all four term tests, and if it helps your course grade, we automatically lower the weight on your lowest test by 9 percentage points and increase the weight of the final exam by 9 percentage points. Any questions about your academic integrity for *any* work in ECO220 disqualify you from automatically adjusted weights.

7.7 Academic Integrity

Please do not create a horrible situation for yourself, your classmates, our TAs, and Dr. Dobson. Even if you are suffering stress, feel under extreme pressure, are far behind, or facing a failing grade in ECO220Y1Y, cheating is not worth it. Infractions can take many, many agonizing months to resolve and sanctions can be severe. We must all work together to support the integrity of our course and UofT. Read this link and sub-links for further information: https://www.artsci.utoronto.ca/current/academic-advising-and-support/student-academic-integrity.

7.8 Marking Scheme Policy

Outside of what is described in the syllabus, we cannot offer individual opportunities to rebound. This means we cannot change the marking scheme or offer bonus assignments upon request. While some may see this as "strict", our goal is to be fair and kind. It is not fair to make exceptions only for those who contact us: many are not comfortable asking. Further, in many cases where extraordinary accommodations would be needed, the ultimate outcome is failing or dropping the course. It is not kind to carry on without a realistic chance of an acceptable outcome.

8 Missed Work and Accommodations

Complete work as scheduled in the Section Above. Any missed work earns a mark of zero. This section explains special accommodations for illness, injury, personal/family problems, joining the course late, religious reasons, extracurricular conflicts, travel issues, accessibility concerns, and/or any challenging situations beyond your control. **For significant challenges, work with your College Registrar immediately.**

8.1 Accessibility, Absences, and Help

If you have an acute or ongoing disability issue or accommodation need, you should register with Accessibility Services (AS: https://studentlife.utoronto.ca/department/accessibility-services/) and Accommodated Testing Services (ATS: Accommodated Testing Services, University of Toronto (utoronto.ca)). Everyone can benefit from the Academic Success Centre. Contact the Information Commons Help Desk with any technical issues around Quercus, your devices, software, or technology. If you find yourself in a particularly challenging situation, you will need to work with your College Registrar. They can provide comprehensive guidance, and when appropriate, contact your professors for you while maintaining your privacy. This requires working closely with your College Registrar, and not merely having them restate your requests to your professors. For significant challenges lasting more than a week, work with your College Registrar Immediately. Please note that there are limits to the situations that we can accommodate. In some instances, the only option is to drop the course.

8.2 Missing a Term Test

For a missed term test, complete BOTH steps. (If you are just late, show up late to the test).

Step 1: Complete the Missed Term Test MS Form (Available on Quercus).

Submit this form as soon as you know that you will miss a test. The **absolute minimum is 12 hours in advance.** (In other words, a form completed Friday morning at 6 AM will not be considered). We do NOT wish to see documents from doctors or others. All questions in the MS form are required, including a copy of your Absence Declaration (https://registrar.utoronto.ca/policies-and-guidelines/absence-declaration/). Note, that the Absence Declaration form can only be used once per academic term (e.g., once per the fall term, not per course).

Step 2 (if missed Term Test #1, 2, or 3): Write all other tests as scheduled. You will write a cumulative make-up test. Within three business days after the date of the missed test, we write to your UofT e-mail. Subsequent e-mails may clarify the date, time, and location of the make-up test. Students are expected to be available both during the term and during the exam periods and to be ready to write the make-up test. We do not accommodate a missed make-up test, nor do we schedule individual writing times given travel plans, work schedules, or other issues. (Also, note that make-up tests are restricted, which means that you will not see it in Crowdmark. If you wish to practice and get feedback, see the posted regular test and mark yourself against the posted solutions).

Step 2 (if missed Term Test #4): Write the final exam. The weight of Term Test #4 shifts to the final exam and the weights of Term Tests 1, 2, and 3 are as stated in the syllabus.

8.2.1 Missing more than one term test:
We do not accommodate more than one missed test in a term. If your situation is such that you are unable to complete more than one test, you should consult your College Registrar for advice on dropping the course and retaking it when you are in a better position to complete the required work.

9 Additional Policies

9.1 Mental Health and Well-Being

Your mental health is important. Throughout university life, there are many experiences that can impact your mental health and well-being. As a University of Toronto student, you can access free mental health and wellbeing services at Health & Wellness (https://studentlife.utoronto.ca/department/health-wellness/) such as same day counselling, brief counselling, medical care, skill-building workshops, and drop-in peer support. You can also meet with a Wellness Navigation Advisor who can connect you with other campus and community services and support. Call the mental health clinic at 416-978-8030 ext. 5 to book an appointment or visit **https://uoft.me/mentalhealthcare** to learn about the services available to you. You can also visit your College Registrar to learn about the resources and supports available. If you are in distress, you can access immediate support: https://uoft.me/feelingdistressed

9.2 Course Materials

Course materials are provided for the exclusive use of enrolled students. These materials should not be reposted, shared, put in the public domain, or otherwise distributed without the explicit permission of the instructor. These materials belong to your instructor, the University, and/or other sources depending on the specific facts of each situation and are protected by copyright. Students violating these policies will be subject to disciplinary actions under the Code of Student Conduct.

9.3 Equity, Diversity and Inclusion

The University of Toronto is committed to equity, human rights and respect for diversity. All members of the learning environment in this course should strive to create an atmosphere of mutual respect where all members of our community can express themselves, engage with each other, and respect one another's differences. U of T does not condone discrimination or harassment against any persons or communities.

9.4 Use of Generative AI

The use of Generative AI for any ECO220Y1Y assessment is prohibited and will result in a grade of 0. If you are having challenges learning course concepts, you may be tempted to use Generative AI platforms like ChatGPT to supplement your studying. Do so at your own risk. While AI platforms are improving, many times I have found these platforms to provide incorrect answers or advice.

10 Course Readings

Required readings include our textbook and supplements created for our course (marked in boldface below and available on Quercus). Chapter numbers reference our textbook and any exclusions are noted. We finish through Chapter 11 in the Fall term and the rest in the Winter term.

- **Prerequisite Review for ECO220Y1Y 2024/2025 pages 1 - 42**

- Chapter 1: An Introduction to Statistics

- Chapter 2: Data

- Chapter 3: Surveys and Sampling

- Chapter 4: Displaying & Describing Categorical Data

- Chapter 5: Displaying and Describing Quantitative Data

- **The DACM Handbook for ECO220Y1Y, 2024/25, pages 1 - 182**

- Chapter 6: Scatterplots, Association, and Correlation

- **SW11: Chapter 1, Economic Questions and Data pp. 1 - 13 from Introduction to Econometrics, Third Ed., 2011, by James H. Stock and Mark W. Watson**

- Chapter 7: Introduction to Linear Regression

- **Logarithms in Regression Analysis with Asiaphoria for ECO220Y1Y 2024/25 pages 1 – 27**

- Chapter 8: Randomness and Probability

- Chapter 9: Random Variables and Probability Distributions
  Excluding: Sections 9.7 The Poisson Distribution, 9.12 The Exponential Distribution, and "Normal Probability Plots" pp. 280-2

- **Normal Table: Read it, use it for ECO220Y1Y 2024/2025 pages 1 – 14**

- Chapter 10: Sampling Distributions

- Chapter 11: Confidence Intervals for Proportions

- Chapter 12: Testing Hypotheses About Proportions

- Chapter 13: Confidence Intervals and Hypothesis Tests for Means

- Chapter 14: Comparing Two Means

- Chapter 18: Inference for Regression
  Excluding: "How does the Normal probability plot work?" pp. 607-8

- Chapter 19: Understanding Regression Residuals

- Chapter 20: Multiple Regression

- Chapter 21: Building Multiple Regression Models (Emphasizing Sections 21.1 Indicator (or Dummy) Variables, 21.2 Adjusting for Different Slopes – Interaction Terms, and Quadratics)
  Excluding: "Residuals and Standardized Residuals" and "Influence Measures" pp. 737-9

11 Advice for Success in ECO220Y1Y

- At the beginning of both semesters, make a weekly study plan and stick to it.
- Learning statistics is like learning a language. The more you practice it, the better you will become.
- Take advantage of course supports: our TAs, Dr. Dobson, and Quercus.
- For additional support outside of class time, visit the [Economics Study Centre](#). Also, check out the [Recognized Study Groups](#) to connect with classmates and stay on track with your study plans.
- Be careful with paid services, especially those marketing that prey on your worst fears or promise top marks easily. Outside services have contributed to students being sanctioned for academic infractions. In May 2022, [UofT sued Easy EDU](#). In contrast, services provided by UofT are safe for you to use.

12 Dr. Dobson's perspective on handling mistakes and stress

12.1 Handling Mistakes or Failures

Everyone makes mistakes at some point. No one enjoys making them, but mistakes and failures are normal for learning and growth. Students sometimes tie their identity or self-worth to how well they did on a test or if they made a mistake. Try your best not to do this. If you make a mistake on a test, I encourage you to handle your feelings of discouragement or frustration in a constructive way, reflect on why the mistake came to be, and try your best to correct it in the future.

Let me share a story of a time when I failed at a goal. During my Master's, I decided to apply to PhD Programs at UofT, Harvard and Johns Hopkins University. The applications for the American schools required a certain score on the Graduate Record Exam (GRE, a standardized exam). I spent months studying for the exam on top of my MSc course load, thesis work, and part-time research.

I took the GRE in early August and completely bombed it. My pacing of questions was off, I wasn't thinking clearly, and I had started to panic during the test. I received my score immediately after finishing the exam. I scored below the school's cut-off.

After the test, I felt devastated that I failed what I spent months and hours working towards. I felt like my future was at risk. A few days of crying ensued. However, once I felt okay, I had to make a decision: (1) put in PhD applications with a score that likely would not get me a PhD interview; (2) re-take the GRE and apply to the American schools; or (3) don't re-take the test and don't apply to the American schools. I chose to retake the test in October and changed my study strategies (particularly, I tried to emulate my test-taking environment). The result? I scored where I needed to and got my PhD interviews.

I ultimately made the decision to pursue my doctorate at UofT. As part of the PhD program, we had to write a three-hour comprehensive exam at the end of the first year. Given that I had made it through the experience of performing poorly on the GRE, I was less nervous about this exam – I knew that even if I did poorly, I would be okay in the long run.

What is the point of this story? It's not that everything we fail at will ultimately become a great success story. Sometimes we need to pause, ask for help, and adjust our approach. Or, sometimes, we ultimately will find a measure of success, just not what we initially imagined it to be.

12.2 Handling Stress

University can be stressful for many reasons, such as being in a competitive program, living away from home for the first time, or changes in social support networks. While it is easy to get overwhelmed by stress, I encourage you to take the potential stressors of university and use them to develop your stress management skills.

While you may not think it now, developing these skills will benefit you in your future career. For example, instead of having three exams in one week, once you start working, you may deal with three big client finance portfolios (all who want your work on the same day). Rather than being in a group project where a classmate doesn't participate fairly, once you start working (let's say as an economic consultant), you will work in teams with colleagues with different skills, experience, and personalities.

Lastly, believe in yourself. Have confidence that you can do challenging things.