

York University
Faculty of Liberal Arts & Professional Studies
Department of Economics
FALL 2024

Course # and Title: AP/ECON 4210.A 3.0 – Econometrics

Course Webpage: <https://eclass.yorku.ca>

Professor: Mir Ahasan Kabir
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Lecture: T, 14:30 to 17:30 (HNE B17)
Virtual office hours: by email appointment only.

Course Description:

This course delves into the derivation of least squares and maximum likelihood estimators, encompassing both classical and generalized frameworks. Emphasis is placed on theorem proving, diagnostic analysis, and meticulous applied econometric work. The course aims to equip students with a comprehensive set of tools essential for conducting and interpreting empirical research in economics. The primary focus is on advanced empirical methods for analyzing cross-sectional and panel data.

At the core of the course lies the linear regression model, encompassing its estimation techniques and inferential properties. We will rigorously explore both least squares and maximum likelihood estimation methodologies. The curriculum also addresses critical econometric challenges such as heteroskedasticity, endogeneity, and the appropriate use of instrumental variables. Further, we will cover advanced topics including simultaneous equations models and difference-in-differences estimation techniques.

In addition to theoretical exercises, students will engage in practical, data-driven assignments requiring the application of econometric techniques using the statistical software package STATA. This hands-on approach will prepare students to tackle real-world econometric problems with confidence and precision.

Prerequisite: AP/ECON 3210 3.00 or AP/ECON 3500 3.00 or equivalent.

Course credit exclusions: GL/ECON 4260 3.00, SC/MATH 3330 3.00.

Learning Outcomes:

By the successful completion of this course, you will be equipped to:

1. Comprehend the concept of causality, its pivotal role in empirical analysis, and distinguish it from mere correlation or association.
2. Accurately interpret and critically evaluate tables of estimated coefficients across a diverse array of econometric models, presented in various formats.
3. Leverage your methodological expertise to rigorously assess the validity and robustness of empirical studies, including the capacity to discern whether a particular method is appropriate within a given research context.
4. Identify and implement the optimal empirical strategy to address causal inquiries using data, encompassing techniques such as random assignment, regression analysis, instrumental variables, difference-in-differences, and panel data methodologies, alongside their respective regression specifications.
5. Articulate with precision the underlying assumptions, typical applications, and inherent limitations of each econometric method, and adeptly interpret their quantitative outcomes.
6. Apply these advanced econometric techniques to real-world datasets using STATA and competently interpret the resulting analytical findings.

Course Textbook/Readings:

Stock and Watson, *Introduction to Econometrics*, 4th Edition. Pearson.

Tentative Topics to be Covered

- The statistical analysis of economic data
- Review of Basic Statistical Concepts
- Review of Simple Liner Regression and Inference
- Multiple Liner Regression, Inference: Additional Topics and Issues
- Non-Liner Regression
- Regression with Panel Data
- Regression with a Binary Dependent Variables
- Instrumental Variables Regression

Note: There may be small changes to the reading list, which will be announced as the course progresses. I may provide additional material during class.

Evaluation:

In-class Quizzes, 16%: There are 5 graded quizzes. 4 of the graded quizzes, each worth 4%, count to the course total worth 16% of your final course grade. There are no make-up quizzes or alternative assignments.

Individual Empirical Assignments, 24%: There are 7/8 graded Empirical assignments to be done using STATA, 6 of the assignments, each worth 4%, count to the course total worth 24% of your final course grade.

If a student identifies an issue with the grading of an assignment, they should promptly bring it to my attention. The deadline to request a re-evaluation is one week from the date the assignment grade is posted on e-Class, regardless of when the student actually reviews their grade.

Assignment due dates and instructions are provided well in advance, and it is your responsibility to allocate sufficient time to complete your work and address any potential issues, including technical difficulties. Failure to submit an assignment by the deadline will result in a grade of zero. Assignments are considered submitted only when all required files have been successfully uploaded to e-Class using turnitin in the correct format, as per the assignment instructions. Late submissions are not accepted under any circumstances. Ensure that you allow ample time to complete the submission before the deadline. Excuses such as, "the website was slow," "I submitted just one minute late," "I had a stomach bug the day before the deadline," or "I forgot to upload one of the files," will not be considered valid. These rules are in place to prevent unwarranted individual requests that could detract from time better spent enhancing the course content.

Empirical assignments will consist of comprehensive empirical questions that must be completed in STAT and submitted all the necessary documents. These assignments may require tasks such as downloading and loading data, installing and managing packages, writing code, creating (well-presented) tables and figures, and interpreting and communicating statistical outputs.

The assignment schedule will be available well in advance, providing you with at least 7 days to complete each assignment.

Individual Project, 20%: 20% of the course final grade due on the 2nd of the December. The detailed instruction and grading rubric for Project is provided in a separate document.

Final Exam, 40%: 40% of the course final grade (To be scheduled by the Registrar's Office between Dec. 5 - Dec. 20) 120 Minutes, comprehensive, covering all course materials discuss over the semester.

Exam Rules:

- No student will be allowed to write the exam before the scheduled date.
- No student will be allowed to write the exam to improve the letter grade.
- York University is committed to respecting the religious beliefs and practices of all members of the community. In case, any of the exam dates clash with the day of your religious observance, you are responsible for contacting me at least two weeks in advance. To arrange for an alternative date, you must complete a Religious Accommodation Form (see Important Academic Forms section).
- Cheating and plagiarism are considered to be serious offenses by York University. Please visit the Academic Integrity website <http://www.yorku.ca/acadinte/students/index.htm> to read the Senate Policy on Academic Honesty.
- Cell phones, electronic translators, iPods, MP3 players, and other electronic devices are not permitted into exams. Other permissible items to carry in exams are pens, pencils, student IDs, coats, and purses.

Grading:

The grading scheme for the course conforms to the 9-point grading system used in undergraduate programs at York (e.g., A+ = 9, A = 8, B+ = 7, C+ = 5, etc.). Assignments and tests will bear either a letter grade designation or a corresponding number grade (e.g. A+ = 90 to 100, A = 80 to 90, B+ = 75 to 79, etc.)

E-mail Policy:

Email is an effective way to reach me, and I strive to respond to reasonable inquiries as promptly as possible. To ensure your message is addressed efficiently, please include "Econ 4210" in the subject line. Additionally, be sure to include your full name (as it appears on Moodle) and your student ID in every email if you expect a response. Consider email as a last resort; if the answer to your query is something you can easily find on your own, please do so before reaching out.

For technical issues with STATA, I recommend consulting Google or checking resources stata 14 tutorial before contacting me. If your question relates to administrative matters, please refer to the course schedule, syllabus, or ask a peer before directing your query to me.

Deferred Final Exam Policy:

Students must fill out the Deferred Standing Mach form (the link to the form will be posted to eClass closer to the exam date) within 7 days of the original exam date. For Summer 2024, no supporting documentation is required. Students who do not submit the Deferred Standing Mach form within 7 days of the missed exam, will receive a zero for their final exam score.

There is only one date for the Deferred Final Exam. It will be held in-person in October 2023, with the exact date being announced in September 2024. Deferred Standing for the final exam will be considered only under the following circumstances:

1. MEDICAL CIRCUMSTANCES: Exams missed due to medical circumstances must be supported by a York Attending Physicians Statement filled out completely by a medical doctor or licensed psychologist/counselor, dated within 48 hours of the final exam date. The statement must include:

- Full name, mailing address, telephone number of the physician.
- The nature of the illness and its duration (i.e., specific dates covered)
- An indication of whether the illness and/or medication prescribed would have **SERIOUSLY** affected the student's ability to study and perform over the period in question.

The physician's office may be contacted to verify that the statement was completed by the physician.

2. NON-MEDICAL CIRCUMSTANCES: Exams missed due to non-medical circumstances must be supported by appropriate documentation, i.e., death certificates, obituary notice, automobile accident reports, airline/bus ticket receipt for emergency travel (with the date of booking on the ticket), etc. Airline/train/bus ticket/receipts for emergency travel must indicate destination, departure, and return dates. Having to work at the time of the

exam or non-emergency travel are not valid excuses for missing an exam.

Important Dates

	FALL Term 2024
Last date to add a course without permission of instructor (also see Financial Deadlines)	Sept. 18
Last date to add a course with permission of instructor (also see Financial Deadlines)	Oct. 2
Last date to drop a course without receiving a grade (also see Financial Deadlines)	Nov. 8
Course Withdrawal Period (withdraw from a course and receive a grade of “W” on transcript)	Nov. 9 - Dec. 3

Important Academic Forms:

Religious Accommodation: http://registrar.yorku.ca/sites/registrar/files/pdf/exam_accommodation.pdf

Deferred Standing Form: http://registrar.yorku.ca/pdf/deferred_standing_agreement.pdf

Attending Physician’s Statement Form: [http://registrar.yorku.ca/pdf/attending – physicians – statement.pdf](http://registrar.yorku.ca/pdf/attending_physicians_statement.pdf)

York’s Academic Honesty Policy and Procedures is located on the [York University Senate webpage](#). As per Senate Policy, academic honesty and integrity is defined as conduct that violates the ethical or legal standards of the University community or of one’s program or specialization is subject to severe penalties. Students are responsible for understanding the nature and consequences of these offences, as contained in the Senate Policy on Academic Honesty. More information on academic integrity for students can be found on the following websites:

[York Academic Integrity Website](#)

<https://www.library.yorku.ca/web/research-learn/academic-integrity/> and

[Academic Honesty, Senate Policy](#)

<https://secretariat-policies.info.yorku.ca/policies/academic-honesty-senate-policy-on/>

Important Information for Students: All students are expected to familiarize themselves with the following information, available on the [Senate Committee on Curriculum & Academic Standards webpage](#).

- York’s Academic Honesty Policy and Procedures are located on the [York University Senate webpage](#). As per Senate Policy, academic honesty and integrity are defined as conduct that violates the ethical or legal standards of the University community, or one’s program or specialization is subject to severe penalties. Students are responsible for understanding the nature and consequences of these offenses, as contained in the Senate Policy on Academic Honesty. More information on academic integrity for students can be found on the [York Academic Integrity Website](#).
- Ethics Review Process for research involving human participants located using the [Senate Policy Research Involving Human](#)
- Course requirement accommodation for students with disabilities, including physical, medical, systemic, learning and psychiatric disabilities can be accessed using the [Academic Accommodation for Students with Disabilities link](#).
- Information on student conduct standards can be reviewed on the [Code of Student Rights and Responsibilities webpage](#).
- Students requiring religious accommodation should review the Religious Accommodations Guidelines using the [Religious Observance link](#).