ECON 469
Econometrics 2 - Honours

Department of Economics
McGill University
Winter 2021

Instructor: Sílvia Gonçalves

Email: silvia.goncalves@mcgill.ca

Office hours: Wednesdays, 2.30pm-3.30pm, on Zoom (link in myCourses).

Regular classes: Wednesdays and Fridays 1.05pm-2.25pm, live over Zoom (link in my-Courses). The vast majority of classes will have a fixed-time format (any exceptions will be announced later) but will be recorded to allow for subsequent flexible access time.

Course Overview and Learning Outcomes

This class is a continuation of ECON 468. The first part of the class deals with linear regression models for two types of data structures that deviate from the classical cross section regressions (which are the focus of ECON 468): time series regressions and panel regression models. Because we will focus on linear models, the statistical properties of the estimators follow easily from the linear regression model theory seen in ECON 468.

The second part of this course focuses on IV/GMM methods for general nonlinear models. Time permitting, we will also study some applications of maximum likelihood estimators. These include nonlinear regression models and limited dependent variable models such as the logit and probit models.

Course Materials

The lectures will be based on material from the following textbooks. Presentation slides will be made available to students after each topic and I will provide more precise references as we go along.

"Introductory Econometrics: a Modern Approach", by Jeffrey Wooldridge

"Econometric Theory and Methods, by Russell Davidson and James MacKinnon

Course Content

1. Time series regressions

   (a) Static and finite distributed lag models

   (b) Finite sample and asymptotic properties of OLS

   (c) HAC standard errors

   (d) Unit root processes

   (e) Forecasting

2. Panel regressions

   (a) Pooled regressions

   (b) First differences estimator

   (c) Fixed effects estimator

   (d) Random effects estimator

3. Generalized method of moments

   (a) Overidentified linear model

   (b) Asymptotic distribution of GMM in linear model

   (c) GMM: the general case

4. Maximum likelihood estimation (time permitting)

   (a) Basic concepts

   (b) Applications of MLE: nonlinear regression and limited dependent variable models

Evaluation

The final grade for the course will be based on:

1. Two problem sets (25%)

2. Midterm exam (30%) on **February 26, 2021** during regular class time, based upon the material covered until then. This exam is mandatory. It will be a (3 hour, plus 30 minutes for submission) timed exam, administered via myCourses and accessible during a 48 hour window starting at that day's regular class.

3. Final exam (45%), covering all the material. This exam is also mandatory. It will be a (3 hour, plus 30 minutes for submission) timed exam, administered via myCourses and accessible during a 48 hour window starting at the time indicated in the McGill's official final exam schedule for this course.

Notes:

- The weighting cannot be changed on the basis of performance. The weight of the midterm can be moved to the final only via properly justified (e.g. medical note) absences. Absences to the final exam also need to be properly justified, and need to be followed-up by an official request for a deferral on Minerva.

- McGill is currently preparing the implementation of the plagiarism detection tool Urkund under myCourses. It is not certain at this point whether this will be functional during this term. If it will, then I might use it.

McGill Policy Statements

- *Language of Submission:* In accord with McGill University's Charter of Students' Rights, students in this course have the right to submit in English or in French any written work that is to be graded.

  En français: Conformément à la Charte des droits de l'étudiant de l'Université McGill, chaque étudiant a le droit de soumettre en français ou en anglais tout travail écrit devant être noté (sauf dans le cas des cours dont l'un des objets est la maîtrise d'une langue).

- *Academic Integrity:* McGill University values academic integrity. Therefore, all students must understand the meaning and consequences of cheating, plagiarism and other academic offences under the Code of Student Conduct and Disciplinary Procedures (see http://www.mcgill.ca/integrity for more information).

  En français: L'université McGill attache une haute importance à l'honnêteté académique. Il incombe par conséquent à tous les étudiants de comprendre ce que l'on entend par tricherie, plagiat et autres infractions académiques, ainsi que les conséquences que peuvent avoir de telles actions, selon le Code de conduite de l'étudiant et des procédures disciplinaires.

- *Copyright:* Instructor-generated course materials (e.g., handouts, notes, summaries, exam questions, etc.) are protected by law and may not be copied or distributed in any form or in any medium without explicit permission of the instructor. Note that infringements of copyright can be subject to follow up by the University under the Code of Student Conduct and Disciplinary Procedures.

- *Disabilities:* If you have a disability, please contact the instructor to arrange a time to discuss your situation. It would be helpful if you contact the Office for Students with Disabilities at 514-398-6009 before you do this.

- *Plagiarism:* Plagiarism is a serious academic offence. Please consult and read carefully McGill's Academic Integrity website at http://www.mcgill.ca/integrity/studentguide/. If you have any questions or uncertainties about what constitutes plagiarism, there are many resources at the University that can help you, including me.

- *Final Exams:* According to Senate regulations, instructors are not permitted to make special arrangements for final exams. Please consult the Calendar, section 4.7.2.1, General University Information and Regulations at www.mcgill.ca.

- *Other:* Additional policies governing academic issues which affect students can be found in the McGill Charter of Students' Rights (see http://www.mcgill.ca/students/srr/).