

ECON 469

Econometrics 2 - Honours

Department of Economics
McGill University
Winter 2022

Instructor: Julia Koh

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Office hours: Thursdays, 2.30-3.30pm.

Regular classes: Tuesdays and Thursdays, 4.05am-5.25pm, EDUC 211.

Important note: Classes and office hours in January will be held on zoom, synchronously. You can connect directly on Mycourses.

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 GMM and Maximum likelihood estimation methods for general nonlinear models. These include nonlinear regression models and limited dependent variable models such as the logit and probit models. We will derive the asymptotic theory for these estimators and discuss inference procedures.

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.

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

“Introductory Econometrics: a Modern Approach”, by Jeffrey Wooldridge

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
 - (a) Basic concepts
 - (b) Asymptotic properties of ML estimators
 - (c) 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 (only a selected set of questions will be graded) (25%)
2. Midterm exam (30%) on March 10 during regular class time, based upon the material covered until then. This exam is mandatory. (Possibly take-home exam.)

3. Final exam (45%), covering all the material. This exam is also mandatory.

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- *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.
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