McGill University
Department of Economics
Econ 468: Econometrics 1
Fall 2011
Course outline

Professor: Jean-Marie Dufour

September 2011
Version: September 27, 2011

This course covers basic econometric theory for Honours students. The topics covered include: linear regression; generalized least squares; instrumental variables; nonlinear regression; simple time series models; methods for dealing with endogeneity.

In addition to the main recommended textbook, documents and other material relevant to the course will be available from my web page:

`http://www.jeanmariedufour.com`

Lecture hours: Monday 14:35 - 15:55; Wednesday 14:35 - 15:55.
Room: Currie 408/9.
The course involves 26 lectures of 80 minutes.
Beginning: Wednesday September 7, 2011. End: Tuesday, December 6, 2011 (Monday schedule).
The lectures of December 5 and 6 will be rescheduled earlier in the semester (dates to be set at the beginning of the term). As a result the last lecture will be given during the week ending on December 2.
Exam period: Thursday, December 8, to Thursday, December 22, 2011.
Office hours: Monday 16:15 - 17:30 (or by appointment).
Teaching assistants:
Byunguk Kang (byunguk.kang@mail.mcgill.ca),
Mirza Trojic (mirza.trokic@mail.mcgill.ca),
Purevdorj Tuvaandorj (purevdorj.tuvaandorj@mail.mcgill.ca).
TA sessions: Wednesday 11:30 - 13:00, Leacock 520 (Purevdorj Tuvaandorj)
Thursday 15:00 - 16:30, Leacock 212 (Mirza Trojic)
Friday 11:30 - 13:00, Leacock 520 (Byunguk Kang)
e-mail: `jean-marie.dufour@mcgill.ca`

Evaluation will be based on 3 elements:

1. a mid-term exam (October 26, 2011) 14:35 - 15:55: 25%;
   date: Wednesday March 1, 2010;
2. assignments: 25%;
3. a final exam (December 2011): 50%.

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.

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 www.mcgill.ca/students/srr/honest/) for more information).
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 (pour de plus amples renseignements, veuillez consulter le site www.mcgill.ca/students/srr/honest/).

Recommended text

The main reference for this course is the textbook:

DM2004 Davidson, R. et J. G. MacKinnon (2004), *Econometric Theory and Methods* (ETM), Oxford University Press, Oxford.

Other books used

Greene2012 Greene, William H. (2012). Econometric Analysis, Seventh edition. Prentice Hall. Boston, Massachusetts.

Rao1973 Rao, C. R. (1973), Linear Statistical Inference and its Applications, Second Edition, Wiley, New York.

Readings and main references

The symbol * represents required readings. Photocopied lecture notes also constitute required reading.

1. Introduction to econometrics
2. Statistical dependence and regression theory

   DM2004 – Chap. 1

   (a) Multivariate distributions
   (b) Measures of dependence between random variables
   (c) Matrix algebra
   (d) Optimal prediction and statistical regression

3. Linear regression: basic theory

   DM2004 – Chap. 2, 3, 4, 5

   (a) Estimation of linear regression models
   (b) Hypothesis testing in the classical linear regression model
   (c) Confidence intervals
   (d) Prediction from linear regression
   (e) Asymptotic theory
   (f) Coefficients of multiple determination
   (g) Partitioning formulas
   (h) Specification errors
   (i) Monte Carlo tests in linear regressions
   (j) Multicollinearity
   (k) Binary regressors
   (l) Tests for structural change
   (m) Analysis of residuals

4. Nonlinear regression

   DM2004 – Chap. 6

5. Generalized least squares and related topics

   DM2004 – Chap. 7

6. Instrumental variables methods

   DM2004 – Chap. 8

7. Multivariate models

   DM2004 – Chap. 12

8. Maximum likelihood estimation

   DM2004 – Chap. 10

9. Methods of moments

   DM2004 – Chap. 9

10. Introduction to time series models

    DM2004 – Chap. 13, 14

11. Simultaneous equations

    DM2004 – Chap. 12