Econometrics: Part B

Instructor:

Dr Angelos Alexopoulos, email: angelos@aueb.gr

Teaching times:

Thursdays (from Nov 23), 15:00-18:00, room 606, Lefkados building

Office hours: By appointment.

e-Class:

https://eclass.aueb.gr/modules/announcements/?course=MISC331[1]

Course Description: In Part B of the course (last 6 weeks, Nov 23-Jan 11) we start with an introduction to statistical inference based on the likelihood principle. As an application, we will discuss estimation of the linear regression model by using the likelihood theory. Then, we will introduce the generalised linear regression model and discuss methods for statistical inference. Finally, we make an introduction to Bayesian econometrics starting with the Bayes theorem and discussion about the prior and posterior distribution as well as the marginal likelihood. Then, we present Bayesian estimation of the Gaussian model and of the linear regression model. If there is enough time we will discuss Markov chain Monte Carlo methods and in particular the Gibbs algorithm.

Course structure:

- Likelihood theory: estimation and hypothesis testing about the linear regression model
- The Generalised Linear Regression model
- Introduction to Bayesian Econometrics
  - Bayes theorem
  - Prior and Posterior distributions
  - Marginal likelihood
  - Bayesian estimation of the Gaussian model
- Bayesian linear regression
- Markov chain Monte Carlo

Grading: The final mark will be a combination of written exams and homework.

Suggested reading:

- Main textbooks:
  - Provided slides and own notes.
  - Gary Koop (2003), *Bayesian Econometrics*, Wiley
  - Gelman et al. (2013), *Bayesian Data Analysis*, Chapman & Hall/CRC, Available online here: http://www.stat.columbia.edu/~gelman/book/BDA3.pdf
  - Hayashi, F., 2011. *Econometrics*. Princeton University Press.
- Supplementary textbooks:
  - Edward Greenberg (2012), *Introduction to Bayesian Econometrics*, Cambridge University Press.
  - C. P. Robert (2007), *The Bayesian Choice*, Second Edition, Springer texts in Statistics
  - Brooks et al. (2011), *Handbook of Markov chain Monte Carlo*, CRC press

[1] The e-class will contain notes, exercises, further readings and information concerning the lectures, corrections, announcements, etc. The relevant material could be updated during the course. The students must consult the e-class systematically and are strongly encouraged to upload questions, answers, comments, etc.