Econometrics 1

Course title - Intitulé du cours	Econometrics 1
Level / Semester - Niveau /semestre	M2 / S1
School - Composante	Ecole d'Economie de Toulouse
Teacher - Enseignant responsable	E. GAUTIER et J. KIM
Other teacher(s) - Autre(s) enseignant(s)	J. BEYHUM
Other teacher(s) - Autre(s) enseignant(s)	
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Other teacher(s) - Autre(s) enseignant(s)	
Lecture Hours - Volume Horaire CM	36
TA Hours - Volume horaire TD	15
TP Hours - Volume horaire TP	
Course Language - Langue du cours	Anglais
TA and/or TP Language - Langue des TD et/ou TP	Anglais

Teaching staff contacts - Coordonnées de l'équipe pédagogique :

Professor: Eric Gautier, office MF504, eric.gautier@tse-fr.eu, available for questions in the classroom after class.

Professor: Jihyun Kim, office MF427, Jihyun.kim@tse-fr.eu, available for questions in the classroom after class.

TD supervisor: Jad Beyhum, jad.beyhum@gmail.com .

Course's Objectives - Objectifs du cours :

Presentation of the basic concepts and results of the econometrics of independent identically distributed data. The objective of the course is to allow students to understand the theory behind the basic methods that are used in empirical economics and to allow interested student to acquire advanced knowledge in the subsequent courses in Econometrics.

Outline:

1) Econometrics modeling and identification: linear projection, linear regression, conditional expectation, nonlinear models, endogeneity, overidentification, nonseparable models (4.5 hours).

2) Parametric and semiparametric econometrics: elements of asymptotic theory, maximum likelihood and the Cramer-Rao lower bound, limited dependent variables, generalized method of moments, introduction to QMLE, optimality, tests and confidence intervals, weak and many instruments (13.5 hours)

3) Nonparametric estimation (9 hours).

4) Simulation methods and the bootstrap (9 hours).

Prerequisites - Pré requis :

Calculus (topology, differentiation of functions of multiple variables, multiple integrals and change of variables), algebra (matrix computations, trace, determinant), probability (discrete and continuous random variables, limit theorems, continuous mapping and delta method, conditional expectation) and basic statistics (Ordinary Least Squares, Maximum Likelihood).

Bibliography/references - Bibliographie/références :

Bruce Hansen, Econometrics, available on the author's webpage

Chapter 1 of Introduction to Nonparametric Estimation, Alexandre Tsybakov, Springer

Jean-Pierre Florens et al., Econometric Modeling and Inference, Cambridge, and any other graduate econometrics textbook