Advanced Analysis

Course title - Intitulé du cours	Advanced Analysis
Level / Semester - Niveau /semestre	M1 / Semestre 1
School - Composante	TSE
Teacher - Enseignant responsable	VILLENEUVE_STEPHANE
Other teacher(s) - Autre(s) enseignant(s)	Christine Grün
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Lecture Hours - Volume Horaire CM	30
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 :

stephane.villeneuve@tse-fr.eu MF304
bischristine.gruen@tse-fr.eu
Office hours (We will decide the schedule in september)
Interaction by email

Course's Objectives - Objectifs du cours :

Keep it short, presenting all the fundamental concepts and results in linear functional analysis: Banach spaces, Hilbert spaces and linear operators to develop significant applications to economics

Prerequisites - Pré requis :

Finite-dimensional linear algebra and calculus are needed competences.

Practical information about the sessions - Modalités pratiques de gestion du cours :

laptop accepted.Hope to have deep students' participation

Grading system - Modalités d'évaluation :

Two exams : midterm and final with weights 30%-70%.

Bibliography/references - Bibliographie/références :

Main references-Brezis, Functional Analysis, Sobolev Spaces and Partial Differential Equations, Universitext, Springer-Verlag, New-York, 2011-Rudin, Functional Analysis, McGraw-Hill, 1973-Stokey and Lucas, Recursive Methods in Economic Dynamics

Session planning - Planification des séances :

Lectures on board Lectures notes available along the courses

Topics in food economics CM

Course title - Intitulé du cours	Topics in food economics CM
Level / Semester - Niveau /semestre	M1 / S2
School - Composante	Ecole d'Economie de Toulouse
Teacher - Enseignant responsable	MECHEMACHE - REQUILLART - GOULAO
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Lecture Hours - Volume Horaire CM	15
TA Hours - Volume horaire TD	12
TP Hours - Volume horaire TP	0
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 :

Zohra Bouamra-Mechemache (ZB)

Zohra.Bouamra@TSE-fr.eu

MS107

Catarina Goulão (CG)

Catarina.Goulao@tse-fr.eu

MS109

Vincent Réquillart (VR)

Vincent.Requillart@tse-fr.eu

MS105

For any questions related to the course, students are welcome to contact us by e-mail. Please write the following subject in every e-mail exchange with us: "M1-TOPICS IN FOOD ECONOMICS". Depending on the questions, we will answer by email or propose an appointment. Questions are welcome.

Course's Objectives - Objectifs du cours :

Life cannot subsist without food. Civilization started with the domination over the natural environment and food supply. From local food supply, civilization engaged in trade, and nowadays food can only be thought of in its global and international market.

The food industry has experienced many technological changes in its production, storage and distribution. The food chain encompasses complex relationships between agricultures, food

processors, wholesalers and retailors and regulation occurs in each and very phase of the food chain. All forms of market structure, from monopoly to perfect competition or monopsony can be found in the food chain.

Food markets are perhaps the most regulated markets due to the potential impact food has in human health. There have been widely spread famines and even in 2017, the UN officially declared famine had returned to Africa, with about 20 million people at risk at death from starvation. But also in developed occidental world people are at risk. Avian influenza or the BSE (mad cow disease) are just some examples with substantial health impacts and economic consequences. Also, in the world about 2 billion people are overweight or obese which significantly affect their health in the long term.

Food and agricultural markets thus are an excellent laboratory for the application of microeconomic principles with market failures and government interventions. The course applies microeconomic methodologies to food and nutritional problems. Students will thus gain knowledge and skills in the analysis of food markets specifically. The course examines both the industrial organization of the food chain and the rationale for public intervention in food markets. First, it deals with the vertical organization of the food chain and related issues. Then, it explores different current economic policy issues such as food security, biofuels policy, food safety, the linkages between food and health, the impact of nutritional policies.

The course should appeal to students with an interest in market analysis, public policy analysis, and health and development economics. The application is on food economics but the student will master the major microeconomics tools with application to many economic topics.

This course proposes an introduction to food economics, and it reflects the research interest of the Food Economics group at TSE https://www.tse-fr.eu/groups/food-economics. It covers the basic principles of food economics and discusses problems and how they can be addressed with policies based on those principles.

Students will learn how to use micro-economics tools to address real world problems applied to the food industry. It is assumed that students engage in independent critical reading around the topics listed, and will have to develop their ability to provide written and oral comments on a topic.

Students are not expected to become equally competent in each area. A deeper analysis of topics covered in this course is proposed in the M2 program.

Prerequisites - Pré requis :

Basic game theory and intermediate level in microeconomics. Basic knowledge of industrial organization.

Practical information about the sessions - Modalités pratiques de gestion du cours :

The course includes lectures and ‘classes’. Attendance to ‘classes’ is mandatory and attendance to lectures is highly recommended (experience shows that students who attend only a fraction of the lectures perform badly, as they are not involved in the course). Slides and references will be on the

Moodle platform before the corresponding lectures so that students can browse and read recommended materials.

Grading system - Modalités d'évaluation :

Evaluation is based on continuous assessment. This assessment includes participation during the lectures (15%), and a report on a specific question chosen by the students (85%). The report is due by the end of the semester and it will be presented orally.

o prepare their written report students have to choose a topic of research (related to the topics discussed during the lectures and approved by instructors). During the semester students will gather information, quantitative data when needed, read papers, studies. Based on this work they will have to write a report. To help students to build their report, a preliminary oral presentation of the synthesis is organized. At the end of presentations, the other students are invited to ask questions and discuss the issues raised during the presentation. A priori, this work will be in group of 2 to 3 students (this will depend on the number of students attending the course). More details will be provided during the first lectures.

Bibliography/references - Bibliographie/références :

There is no text covering the whole domain. A reading list will be provided at the beginning of the course and available on Moodle.

Session planning - Planification des séances :

Context and Motivation (VR)

1. Food Markets: an introduction

2. Global food situation

Food security (VR)

3. The future of food security

4. The economics of Biofuels

Food Chain (ZB)

5. Organization of the food chain

6. Horizontal and vertical agreements in the chain

Food and Health (CG)

7. Current situation and long term impacts

8. Economics of Obesity

Nutritional Policies (CG)

9. Nutritional policies (I)

10. Nutritional policies (II)

Food Safety (CG)

11. Issues, policies
12. Trade and food standards

Time series

Course title - Intitulé du cours	Time series
Level / Semester - Niveau /semestre	M1 / S2
School - Composante	Ecole d'Economie de Toulouse
Teacher - Enseignant responsable	STEPHANE GREGOIR
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Lecture Hours - Volume Horaire CM	30
TA Hours - Volume horaire TD	
TP Hours - Volume horaire TP	0
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 :

stephane.gregoir@tse-fr.eu

Office: MA001
Office hours: Monday 5.00-6.00 PM and by appointment
prior appointment

Course's Objectives - Objectifs du cours :

The objectives of this course are to introduce the linear framework to deal with univariate time series from a theoretical and practical point of view and get the students able to carry out simple empirical analyses of univariate time series and to compute forecasts. The course combines lectures and tutorials. Definitions and concepts are introduced and illustrated with examples. Various estimation techniques relying on Least Squares or Maximum Likelihood approaches are explained and analyzed (Yule-Walker, conditional least squares, conditional and unconditional maximum likelihood...). Technical exercises as well as empirical analyses of software outputs should help the students understand the analytical framework and get a practical intuition.

By the end of the course, the students should be able to estimate a simple linear model of a univariate time series (select the best specification and estimate it) and compute forecasts at various horizons.

Prerequisites - Pré requis :

Intermediate econometrics (Least square estimators, maximum likelihood estimator, method of moments, test theory and practice)

Basic complex number calculus (computation of roots of second order equations with real coefficients)

Practical information about the sessions - Modalités pratiques de gestion du cours :

Laptops or tablets are accepted in class.

Grading system - Modalités d'évaluation :

Grading policy: 30% mid-term; 70% final exam

Online MCQs are provided for self assessment and not taken into account in the final grade

Bibliography/references - Bibliographie/références :

P.J. Brockwell and R.A. Davis "Introduction to time series and forecasting", Springer Verlag (chap. 1 to 5, 9)

J. D. Hamilton "Time series analysis ", Princeton university (chap. 1 to 6, 8, 13)

Session planning - Planification des séances :

1. Introduction : examples and motivation ; probabilistic framework of time series
2. Stationarity and sampling scheme.
3. Descriptive statistics for time series: mean, autocovariance function, autocorrelation function, partial autocorrelation,…
4. Spectral density and its interpretation
5. AR(p) and MA(q) models: Definition, properties and characterization
6. ARMA(p,q) models: Definition, properties and characterization
7. Statistical approach: Estimation of AR and MA time series
8. Estimation of ARMA models or introduction to Unit root time series

Public economics (Economie Publique)

Course title - Intitulé du cours	Public economics CM
Level / Semester - Niveau /semestre	M1 / S2
School - Composante	Ecole d'Economie de Toulouse
Teacher - Enseignant responsable	CREMER HELMUTH
Other teacher(s) - Autre(s) enseignant(s)	Yuting Yang
Other teacher(s) - Autre(s) enseignant(s)	Alberto Grillo
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Lecture Hours - Volume Horaire CM	30
TA Hours - Volume horaire TD	10,5
TP Hours - Volume horaire TP	0
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 :

There are QA sessions with the TAs. Please use these first. If you have questions or need to see me, please e-mail to helmuth.cremer@tse-fr.eu

I usually meet students on Friday afternoon (prior appointment taken by e-mail).

Course's Objectives - Objectifs du cours :

Public economics studies the role of government in a market economy. The underlying setting is that of a decentralized economy in which economic decisions are coordinated by prices, which in turn are determined by "free markets". In reality, the public sector typically plays a significant role in these market economies. We examine why the government has to supplement the market mechanism, and how his intervention can be justified by efficiency and equity consideration. More significantly we study how policies should be designed. Which goods should be provided by the public sector? At what levels and at which prices? How should taxes and transfers be designed? Which tax instruments do we need? Do environmental considerations justify public intervention? If yes, under which form? These are some of the questions which will be dealt with.

The course provides an introduction to public economics. It is designed for advanced undergraduate students (with a good background in microeconomic theory).

Prerequisites - Pré requis :

Good background in micro.

Practical information about the sessions - Modalités pratiques de gestion du cours :

Laptops, tablets and any other devise that does not make noise are accepted. Class participation is encouraged but you are adults and have to know what you do. I don't know and don't want to know what you do on your laptop, but I enforce a strict zero tolerance for (non-electronic) chatting with other students. Students are expected to arrive on time.

Grading system - Modalités d'évaluation :

Final exam only.

Bibliography/references - Bibliographie/références :

The course is based on the textbook "Intermediate Public Economics" by Jean Hindricks and Gareth Myles, 2nd edition (MIT Press 2013).

Additional material, including handouts (copies of slides), is available on "Moodle". The slides cover the entire material. They are meant to be annotated in class (you can print them or put them on a tablet...).

Public economics CM

Course title - Intitulé du cours	Public economics CM
Level / Semester - Niveau /semestre	M1 / S2
School - Composante	Ecole d'Economie de Toulouse
Teacher - Enseignant responsable	CREMER HELMUTH
Other teacher(s) - Autre(s) enseignant(s)	Yuting Yang
Other teacher(s) - Autre(s) enseignant(s)	Alberto Grillo
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Lecture Hours - Volume Horaire CM	30
TA Hours - Volume horaire TD	10,5
TP Hours - Volume horaire TP	0
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 :

There are QA sessions with the TAs. Please use these first. If you have questions or need to see me, please e-mail to helmuth.cremer@tse-fr.eu

I usually meet students on Friday afternoon (prior appointment taken by e-mail).

Course's Objectives - Objectifs du cours :

Public economics studies the role of government in a market economy. The underlying setting is that of a decentralized economy in which economic decisions are coordinated by prices, which in turn are determined by "free markets". In reality, the public sector typically plays a significant role in these market economies. We examine why the government has to supplement the market mechanism, and how his intervention can be justified by efficiency and equity consideration. More significantly we study how policies should be designed. Which goods should be provided by the public sector? At what levels and at which prices? How should taxes and transfers be designed? Which tax instruments do we need? Do environmental considerations justify public intervention? If yes, under which form? These are some of the questions which will be dealt with.

The course provides an introduction to public economics. It is designed for advanced undergraduate students (with a good background in microeconomic theory).

Prerequisites - Pré requis :

Good background in micro.

Practical information about the sessions - Modalités pratiques de gestion du cours :

Laptops, tablets and any other devise that does not make noise are accepted. Class participation is encouraged but you are adults and have to know what you do. I don't know and don't want to know what you do on your laptop, but I enforce a strict zero tolerance for (non-electronic) chatting with other students. Students are expected to arrive on time.

Grading system - Modalités d'évaluation :

Final exam only.

Bibliography/references - Bibliographie/références :

The course is based on the textbook "Intermediate Public Economics" by Jean Hindricks and Gareth Myles, 2nd edition (MIT Press 2013).

Additional material, including handouts (copies of slides), is available on "Moodle". The slides cover the entire material. They are meant to be annotated in class (you can print them or put them on a tablet...).

Program Evaluation

Course title - Intitulé du cours	Program Evaluation CM
Level / Semester - Niveau /semestre	M1 / S2
School - Composante	Toulouse School of Economics/ Ecole d'Economie de Toulouse
Teacher - Enseignant responsable	BOBBA - MAGNAC
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Lecture Hours - Volume Horaire CM	30
TA Hours - Volume horaire TD	0
TP Hours - Volume horaire TP	12
Course Language - Langue du cours	English/Anglais
TA and/or TP Language - Langue des TD et/ou TP	English/Anglais

Teaching staff contacts - Coordonnées de l'équipe pédagogique :

Thierry Magnac: prior appointment after the class or by email

thierry.magnac@tse-fr.eu, MF309, Office hours, Mondays 5-6pm

Matteo Bobba: prior appointment after the class or by email

matteo.bobba@tes-fr.eu, MF118

Course's Objectives - Objectifs du cours :

In this course, we shall study the main empirical methods used in program or policy evaluations from the design of samples to the estimation of treatment parameters and the construction of counterfactuals. It aims at evaluating, in a rigorous and comprehensive way, the quantitative impact of a policy by the public sector or a strategy by firms on outcomes and welfare of participants. Important examples in economics are subsidies given to unemployed and their impact on unemployment exits, the incentive effects of taxes and exemptions on households' labor supply and consumption or the impact of a pricing policy by firms on their sales.

Content of the course: Randomized control trials, social and natural experiments, definition of treatment effects, difference-in differences, matching methods, instrumental variables, regression discontinuity designs and structural evaluation

Content of the tutorial sessions: computer classes in which empirical applications are worked out using Stata.

Prerequisites - Pré requis :

Econometrics of the linear model including instrumental variable methods and econometrics of discrete variables.

Grading system - Modalités d'évaluation :

Assessment:

50% for final exam

25% for midterm

25% for homework given in computer classes

Bibliography/references - Bibliographie/références :

Angrist, J.D., and J.S., Pischke, 2009, *Mostly Harmless Econometrics*, Princeton University Press.

Blundell R., and M. Costa-Dias, 2009, "Alternative Approaches to Evaluation in Empirical Microeconomics", *Journal of Human Resources*, 44, 565-640.

Imbens, G. and Wooldridge, J., 2009, "Recent Developments in the Econometrics of Program Evaluation*", Journal of Economic Literature*, 47, 5-86

Khandker, S. R., G.B. Koolwal, H.A. Samad, 2010, *Handbook on Impact Evaluation*, The World Bank.

More advanced:

Abadie A., and M.D. Cattaneo, 2018, "Econometric Methods for Program Evaluation", *Annual Review of Economics*, 10, 465-503.

Imbens, G., & Rubin, D. , 2015, *Causal Inference for Statistics, Social, and Biomedical Sciences: An Introduction.* Cambridge: Cambridge University Press. doi:10.1017/CBO9781139025751

Lee, M. J., 2016, *Matching, regression discontinuity, difference in differences, and beyond*. Oxford University Press.

UE2: Panel Data

Course title - Intitulé du cours	UE2: Panel Data
Level / Semester - Niveau /semestre	M2 / S1
School - Composante	Ecole d'Economie de Toulouse
Teacher - Enseignant responsable	POINAS FRANCOIS
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Lecture Hours - Volume Horaire CM	15
TA Hours - Volume horaire TD	
TP Hours - Volume horaire TP	0
Course Language - Langue du cours	Anglais
TA and/or TP Language - Langue des TD et/ou TP	

Teaching staff contacts - Coordonnées de l'équipe pédagogique :

François Poinas, MF 426, francois.poinas@tse-fr.eu, office hours by appointment

Course's Objectives - Objectifs du cours :

This course studies econometric methods to be applied when using panel data. It builds on Intermediate Econometrics and Applied Econometrics classes (M1). It presents standard panel data models and econometric methods to estimate parameters of those models, studies the main properties of the estimators and provides examples of application of those methods in economics.

The models covered in the course are fixed and random effects models, dynamic panel data models and nonlinear models involving panel data. At the end of the course, students should be able to apply the suitable methods depending on the context, should know their main properties and should know how to interpret the results in practice.

Prerequisites - Pré requis :

Prerequisites are Intermediate Econometrics (M1) and Applied Econometrics (M1). The students should be familiar with the following estimation methods: Ordinary (OLS) and Generalized Least Squares (GLS), Instrumental Variables (IV) Methods and Generalized Method of Moments (GMM), Maximum Likelihood Estimation (MLE). They should know in which context the methods should be used, the properties of the methods, how to interpret the results obtained and how to do hypothesis testing.

Practical information about the sessions - Modalités pratiques de gestion du cours :

Attendance to lectures and lab sessions is essential. Material for the course will be posted on Moodle. Students are expected to check it regularly for updates and information. Usage of laptops and tablets

during classes is allowed, provided they are used for the class only. Plagiarism and academic integrity: when writing homeworks and projects, students have to be very careful about citing the source of all ideas that are not their own ones. Anything without citation is understood as being created by the students who wrote the piece. Failing to cite the source of an idea expressed by someone else is a case of plagiarism. Plagiarism will be penalized by a grade of 0 for the corresponding exercise and the case will be sent to the disciplinary council of the University that may take disciplinary sanctions, like university exclusion.

Grading system - Modalités d'évaluation :

Homeworks/projects (40%) A final exam (60%). More details will be given in class. Exact copies or late submissions will not be considered for grading.

Bibliography/references - Bibliographie/références :

Lecture slides will be used and available to the students all along the class. No textbook is officially required. The following references may be useful to complement the content of the lecture slides:

Arellano, M., 2003, "Panel Data Econometrics", Advanced Texts in Econometrics, Oxford University Press.

Baltagi, B., 2013, "Econometric Analysis of Panel Data", 5th edition, Wiley.

Cameron, A., Trivedi, P., 2005, "Microeconometrics: Methods and Applications", Cambridge University Press.

Greene, W., 2011, "Econometric Analysis", 7th edition, Pearson Education.

Hsiao, C., 2014, "Analysis of Panel Data", 3rd edition, Econometric Society Monographs, Cambridge University Press.

Wooldridge, J., 2015, "Introductory Econometrics: A Modern Approach", 6th edition, Cengage Learning Custom Publishing.

Session planning - Planification des séances :

Chapter 0: Introduction

Chapter 1: Fixed Effects Model

Chapter 2: Random Effects Model

Chapter 3: Dynamic Linear Panel Data Models

Chapter 4: Nonlinear Panel Data Models

Optimization for big Data CM

Course title - Intitulé du cours	Optimization for big Data CM
Level / Semester - Niveau /semestre	M1 / S2
School - Composante	Ecole d'Economie de Toulouse
Teacher - Enseignant responsable	GADAT SEBASTIEN
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Lecture Hours - Volume Horaire CM	15
TA Hours - Volume horaire TD	12
TP Hours - Volume horaire TP	0
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 :

sebastien.gadat@math.univ-toulouse.fr

Office: MF 208

Office hours: monday afternoon - Send an email first for an eventual appointment!

Course's Objectives - Objectifs du cours :

Objectives:

The "Optimisation for big data" lecture is an introductory course that describes some modern algorithms useful in statistics and optimisation. These algorithms will pay specific attention to the high dimensional framework involved by big data and the associated computation time.

In the nowadays big data era, old fashioned statistical or econometrics methods become useless for possibly different reasons: high dimensional settings, on-line learning or difficult non euclidean structure. It induces serious troubles with simple regression methods (among other linear model and logistic regression) and to bypass these difficulties, some efforts are needed both on the algorithmic side and on the statistical side.

1) Deterministic optimization

1-a) Remainders on convexity

1-b) Strong convexity algorithms (beyond MSE)

1-c) Duality (beyond classification)

1-d) Non smooth optimisation (beyond linear model)

1-e) What goes wrong with old stats/ecox methods? Do old pipes give the sweetest smoke everytime? Beyond old fashioned methods... Lasso and SVM

2) On-line optimization

2-a) Stochastic optimization (Sequential approaches)

2-b) Optimization under uncertainty (Bandit problems)

3) Optimisation with structural data: Graphs

Prerequisites - Pré requis :

Requirements:

Mathematical statistics (1&2)

Convex analysis

Practical information about the sessions - Modalités pratiques de gestion du cours :

Laptops are accepted

Students are expected to ask questions during the lecture and the practical sessions!

Several homeworks in groups of 2 or 3 students

Grading system - Modalités d'évaluation :

final mark: aggregation of several homeworks.

Bibliography/references - Bibliographie/références :

References:

S. Bubeck, 2015, Convex Optimization: Algorithms and Complexity, Foundations and Trends in Machine Learning, Vol. 8, No. 3-4 (2015) 231–357

Y. Nesterov. Introductory lectures on convex optimization: A basic course. Kluwer Academic Publishers, 2004a.

R. Rockafellar. Convex Analysis. Princeton University Press, 1970.

Lecture notes available on moodle

Practical sessions available on moodle

North South economic relations

Course title - Intitulé du cours	Industrial organization CM
Level / Semester - Niveau /semestre	M1 / S2
School - Composante	Ecole d'Economie de Toulouse
Teacher - Enseignant responsable	AZAM JEAN-PAUL
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Lecture Hours - Volume Horaire CM	30
TA Hours - Volume horaire TD	
TP Hours - Volume horaire TP	0
Course Language - Langue du cours	Anglais
TA and/or TP Language - Langue des TD et/ou TP	

Teaching staff contacts - Coordonnées de l'équipe pédagogique :

My office number is MF120. If you can't find my e-mail address, please go back to high school. You can meet me either at the end of the course or by sending me an e-mail to fix an appointment.

Course's Objectives - Objectifs du cours :

The course combines economic theory and historical narratives to bring out the main issues involved in North-South Economic Relations. The contents are organized in two parts as follows:

Part 1: History of International Trade and its Distortions.

Chapter 1: Merchants and Gunships after Columbus

Chapter 2: Interest Groups and the Curse of Protectionism

Chapter 3: The Protectionnist Road to Disaster

Part 2: The Oil Market.

Chapter 4: The Economic Impacts of Oil Shocks in the North and in the South

Chapter 5: What Determines the Price of Oil

Chapter 6: History of the Oil Market and Petrodollars

The aim is to provide a political economy framework to understand why detrimental policies regarding international trade as well as monetary and fiscal policies are implemented in the real world and what can be done about it.

All the lectures are based on PowerPoint slides, which are posted on Moodle in advance.

Prerequisites - Pré requis :

The course mainly uses workhorse models from international trade and development theory, derived from basic ECON 101 microeconomics. The emphasis is put on how to use them to shed light on real-world problems, mostly taken from economic history. Some familiarity with the concept of Rational Expectations Equilibrium would not do any harm, but every tool used in the course is developed from scratch. You don't need to know a lot of fancy stuff to understand the course, you just need to master the fundamental intuitions acquired by good students in first-year undergraduate microeconomic courses, including some familiarity with derivatives and the graphical analysis of simple equilibrium models.

Practical information about the sessions - Modalités pratiques de gestion du cours :

Come as you are, you can bring laptops either to take notes or read the slides on the screen if you don't like the big screen on which the slide show is projected. You can bring sandwiches and cans of drink if you feel like it. Please do not bring bottles of red wine...

Grading system - Modalités d'évaluation :

The exam is a final oral exam where you have 18 minutes to prepare and give your oral presentation to answer a question picked at random in a bag. The exam takes place in my office.

Bibliography/references - Bibliographie/références :

Various books are mentioned during the course, some of them very long. You are not expected to read them all, so don't try to pretend you have...

I am looking forward to see you depsite the late hour of the course. Cheers, Jean-Paul

Mathematical statistics 2

Course title - Intitulé du cours	Mathematical statistics 2
Level / Semester - Niveau /semestre	M1 / S2
School - Composante	Ecole d'Economie de Toulouse
Teacher - Enseignant responsable	Christine THOMAS
Other teacher(s) - Autre(s) enseignant(s)	Abdelaati Daouia
Other teacher(s) - Autre(s) enseignant(s)	Aude Illig
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Lecture Hours - Volume Horaire CM	30
TA Hours - Volume horaire TD	15
TP Hours - Volume horaire TP	0
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 :

Christine Thomas-Agnan Office number: MF 215 E-mail:i christine.thomas@tse-fr.eul Teaching Hours CM: 15 Teaching Hours TD: 7.5 Preferred means of interaction: at the end of class, by appointment

Abdelaati Daouia Office number: MF 305 E-mail:i Abdelaati.daouia@tse-fr.eul : E-mail : 1 Teaching Hours CM: 15 Teaching Hours TD: 7.5 Preferred means of interaction: at the end of class, by appointment

Aude Illig (MC002, aude.illig@ut-capitole.fr, preferred means of interaction : email)

Course's Objectives - Objectifs du cours :

The first part of the course is dedicated to the theory of point estimation of a parameter in a parametric statistical model with an introduction to the Fisher information theory. The second part of the course is about the theory of interval estimation and testing theory. The aim of the course is to give the student theoretical tools to compare estimators and tests and have arguments to defend his choices. As in Mathematical Statistics 1, a project is proposed to introduce complementary notions (depending upon year) and to confront theory to practice. The course outline is the following: Elements of information theory. Point estimation (maximum likelihood, method of moments, asymptotic behavior, optimality, efficiency). Interval estimation. Testing theory: rejection region, first and second kind risk, level, power, empirical significance level. Classical tests (about means, variances, proportions, independence) Neyman theory: uniformly mots powerful tests for a simple hypotheses. Likelihood ratio tests, tests of a one sided hypotheses in a monotone likelihood ratio model, Wald test, score test.

Prerequisites - Pré requis :

Mathematical Statistics 1

Practical information about the sessions - Modalités pratiques de gestion du cours :

Laptops and tablets accepted

Grading system - Modalités d'évaluation :

One midterm exams (40%), one project (20%) , one final exam (40%)

Bibliography/references - Bibliographie/références :

Mathematical Statistics, Jun Shao, Springer texts in Statistics, 1999. Theory of Statistics, Mark Schervish, Springer series in Statistics,1995. A course in mathematical statistics, G. Roussas, Academic Press, second edition, 1997. Initiation à la statistique avec R, Bertrand et Maumy-Bertrand, Dunod, 2010.

Martingales theory and applications CM

Course title - Intitulé du cours	Martingales theory and applications CM
Level / Semester - Niveau /semestre	M1 / S2
School - Composante	Ecole d'Economie de Toulouse
Teacher - Enseignant responsable	FAUGERAS OLIVIER
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Lecture Hours - Volume Horaire CM	15
TA Hours - Volume horaire TD	12
TP Hours - Volume horaire TP	0
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 :

See website/moodle

Course's Objectives - Objectifs du cours :

OBJECTIVES This course is an introduction to a large class of stochastic processes called martingales, which originated from gambling ideas. Such processes are fundamental in probability theory and are useful in modeling, e.g. the price of a stock on a financial market or the surplus process for insurance companies. The aim of this course is to give an indepth introduction to such a vast topic, as well as present some applications s.t. optimal gambling theory, mathematical methods in insurance, stochastic optimization, modeling Ponzi schemes and viral marketing in economics, etc...

Prerequisites - Pré requis :

Prerequisite: good background on Measure theory, Lebesgue's integration and measure-theoretic probability covered in any decent probability theory book such as Resnick's A probability path, chapters 1-5 or Barbe & Ledoux Probabilité chap 1-4. Having followed the course Markov chains in Semester 1 is not mandatory but recommended.

Grading system - Modalités d'évaluation :

Final exam: 100%.

Bibliography/references - Bibliographie/références :

Some notes and references will be provided. Other relevant books are: Williams. Probability with martingales. Resnick, A probability path. Baldi, Mazliak, Priouret, Martingales et chaînes de Markov.

Session planning - Planification des séances :

COURSE OUTLINE

1. Complements of Probability Theory: understanding what is a stochastic process Sigma-algebras and filtrations as modeling of “information”. (Conditional) quantile transform and canonical construction of a stochastic process with given law.

2. Conditional expectations w.r.t. a sigma algebra Conditional expectation w.r.t. a sigma field, w.r.t. a random variable, Jensen inequality. Conditional expectation as orthogonal projection, linear conditional expectation. Conditional expectation of Gaussian Vectors. Application 1: conditional expectation and regression model in econometrics. What does the epsilon really stand for?

3. Martingales in discrete time: basic properties and examples Gambling games, sub-, super-martingales, examples, transformations, properties Doob’s decomposition, Stopping times, Optional stopping theorems

4- The 3 pillars of martingale theory - Doob's Optionnal stopping theorems - Doob's maximal inequalities - (sub/super) Martingale convergence theorems (in L2, a.s.) Application 2: The Gambler's ruin Application 3: Optimal play in repeated Gambles (Kelly’s criterion): how to become rich. Epistemological consequence: the mathematical and historical origins of the utility function and why it is a flawed concept. Application 4: Branching processes and the modeling of population dynamics/ Ponzi schemes in Economics Application 5: Polya's urns and the modeling of reinforcement learning in economics (Viral marketing)

Market finance

Course title - Intitulé du cours	Market finance
Level / Semester - Niveau /semestre	M2 / S2
School - Composante	Ecole d'Economie de Toulouse
Teacher - Enseignant responsable	Andries Marianne
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Lecture Hours - Volume Horaire CM	
TA Hours - Volume horaire TD	
TP Hours - Volume horaire TP	0
Course Language - Langue du cours	Anglais
TA and/or TP Language - Langue des TD et/ou TP	

Teaching staff contacts - Coordonnées de l'équipe pédagogique :

marianne.andries@tse-fr.eu MF318 Students can make appointments by email, my preferred mean of interaction (also, see me after class)

Course's Objectives - Objectifs du cours :

This course provides an introduction to Market Finance, with both an empirical and theoretical content. Observed features in market movements are described and the theoretical approach to explain them is discussed. Tools for pricing assets in the market are provided.

Prerequisites - Pré requis :

Good knowledge of intermediate microeconomics, standard econometric, methods and basic mathematics for economists.

Practical information about the sessions - Modalités pratiques de gestion du cours :

Laptops and tablets are accepted in class

As long as they do not disturb the class, students can do as they wish (arrive late, leave early...)

Grading system - Modalités d'évaluation :

Two problem sets (15% of the final grade), final exam (85% of the final grade).

The exams include knowledge and understanding questions and a problem.

The problem sets can be discussed in teams, but each student must give their own homework.

Late homework will not be graded

Bibliography/references - Bibliographie/références :

Lecture notes and papers will be posted online.

Session planning - Planification des séances :

COURSE OUTLINE:

- Empirical description of asset markets and risks
- Introduction to asset pricing theory
- Bonds, equity and option pricing

Introduction to Big Data

Course title - Intitulé du cours	Introduction to Big Data
Level / Semester - Niveau /semestre	M1 / S2
School - Composante	Ecole d'Economie de Toulouse
Teacher - Enseignant responsable	RUIZ-GAZEN Anne
Other teacher(s) - Autre(s) enseignant(s)	VIALANEIX Nathalie
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Lecture Hours - Volume Horaire CM	12
TA Hours - Volume horaire TD	18
TP Hours - Volume horaire TP	0
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 :

The course is made of two parts. The first part is taught by Anne Ruiz-Gazen (professor), office MF206, contact by email (anne.ruiz-gazen@tse-fr.eu) for appointment. The second part is taught by Nathalie Vialaneix (researcher at INRA), contact by email (nathalie.vialaneix@inra.fr).

Modes d'interactions privilégiés : email et / ou demande de rendez-vous.

Course's Objectives - Objectifs du cours :

This course is particularly relevant for students who are interested in pursuing his/her studies and career as a data scientist. It does not contain advanced theory but all methods and algorithms are described and implemented using *tableau* or *R* and results are analyzed in detail. The course is not difficult but requires a lot of work all along the semester.

The course is divided in two parts.

The first part presents some descriptive tools using the tableau software and some classical unsupervised multivariate statistical techniques such as Principal Components Analysis, Correspondence Analysis and Clustering using R. It also introduces the Classification and Regression Tree procedure for supervised problems.

The second part of the class describes methods to deal with big data for supervised classification problems. The course includes description of the bootstrap and bagging approaches, introduction to parallel computing and an overall description of various strategies (subsampling, divide and conquer, online) to deal with big data. The students are expected to develop skills in computational statistics and to be able to combine efficient programming with relevant statistical methods. The class will therefore include a large amount of practical applications

Prerequisites - Pré requis :

Proficient R programming, knowledge of descriptive statistics and of basics of principal components analysis, correspondence analysis and clustering.

Practical information about the sessions - Modalités pratiques de gestion du cours :

For each of the two parts, there are 5 weekly sessions of 3 hours. The slides are made available to students but it is highly recommended not to miss any session in order to be able to implement the statistical methods and interpret the results.

Personal laptops are accepted at your own risk. Students are expected to actively participate to the class (that is mostly based on what students are able to program). Late arrivals or missing students will be reported and can result in a grade penalty.

Grading system - Modalités d'évaluation :

Each part corresponds to 50% of the final grade.

The first part is evaluated through some Multiple Choice Questionnaires (30%) and a project (70%) which will take place on **Saturday February 16 (during the whole day for all students)**.

For the second part, a main exam and a group homework. The final grade will mainly consist into the grade of the main exam which is planned on March 27 in a computer room, plus a bonus or malus depending on the homework quality. Late homeworks are not accepted.

Bibliography/references - Bibliographie/références :

For the first part:

- An introduction to Applied Multivariate Analysis with R by B. Everitt and T.Hothorn, UseR!, Springer.
- Data Mining with Rattle and R by G. Williams, Use R!, Springer.
- Exploratory multivariate analysis by example using R, by F. Husson, S. Lê, J.Pagès, Chapman & Hall/CRC Computer Science & Data Analysis.

For the second part, references are listed on the: http://www.nathalievialaneix.eu/teaching/m1se/

Session planning - Planification des séances :

The first part of the course is organized into 5 sessions of 3 hours from January 9 to February 6. The last 3 sessions take place in a computer room.

The second part of the course is organized into 5 main sessions of 3 hours in a computer room from February 13 to March 20, each one covering a specific topic and including a practical application and a group homework.

Industrial organization CM

Course title - Intitulé du cours	Industrial organization CM
Level / Semester - Niveau /semestre	M1 / S2
School - Composante	Ecole d'Economie de Toulouse
Teacher - Enseignant responsable	DE CORNIERE - RHODES
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Lecture Hours - Volume Horaire CM	30
TA Hours - Volume horaire TD	10,5
TP Hours - Volume horaire TP	0
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 :

alexandre.de-corniere@tse-fr.eu Office MF418

andrew.rhodes@tse-fr.eu Office MF 406

There will be regular office hours with the teaching assistants. Meetings with professors will be by prior appointment only.

Course's Objectives - Objectifs du cours :

We will study the causes and consequences of firms' strategic behavior in situations in which the assumptions behind perfect

competition do not hold. Our main analytical tools will be microeconomic theory and game theory. The topics we will cover

include: product differentiation, advertising, innovation, collusion and mergers. Within each topic, we will consider the impact of firms' actions on welfare. We will also consider the motivation for and impact of competition law on these settings.

Our main objective is to develop your ability to use economic models to understand a broad range of IO problems. These models, when constructed well, can be both simple and powerful. When appropriate, specific real?life examples and case studies will be discussed.

Prerequisites - Pré requis :

Students are expected to have basic knowledge of game theory tools and standard imperfect competition models.

Grading system - Modalités d'évaluation :

Final exam.

Bibliography/references - Bibliographie/références :

Belleflamme, P. and M. Peitz, 2010, Industrial Organization : Markets and Strategies, Cambridge University Press.

Motta, M, 2004, Competition Policy : Theory and Practice, Cambridge University Press.

Tirole, J., 1988, The Theory of Industrial Organization, MIT Press

Games and Equilibria

Course title - Intitulé du cours	Games and Equilibria
Level / Semester - Niveau /semestre	M1 / S2
School - Composante	Ecole d'Economie de Toulouse
Teacher - Enseignant responsable	GENSBITTEL FABIEN
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Lecture Hours - Volume Horaire CM	30
TA Hours - Volume horaire TD	
TP Hours - Volume horaire TP	0
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 :

Fabien Gensbittel (Office MF213, e-mail: fabien.gensbittel@ut-capitole.fr).

Please address your questions by email or at the end of the class, and if necessary by appointment

Course's Objectives - Objectifs du cours :

The course will first introduce the general model of static non-zero sum games and the classical notions of solutions (Dominated strategies, Nash equilibrium and some refinements). In this first part, we will present major mathematical results such as fixed points theorems (Brouwer, Kakutani) leading to existence theorems for Nash equilibria, and also practical methods of computations for Nash equilibria in finite and infinite games through several examples.

In a second part, we will introduce the model of extensive form games and the notions of: behavioral strategies, games with perfect information and backward induction, subgame perfection, perfect bayesian equilibrium, sequential equilibrium. In the third part of the course, we introduce the notion of correlated equilibrium. At the end of the course, a precise and rigorous knowledge of the fundamental mathematical methods for the study of interaction models (non-zero sum games) is expected; in particular computing all types of equilibria in finite or infinite (e.g. auctions models) games and applying theoretical methods (fixed points, finite dimensional analysis) to prove qualitative results (existence of refinements, uniqueness, relations between different notions of solutions, etc..).

Prerequisites - Pré requis :

Undergraduate courses in Probability theory and Analysis. Courses Strategic Optimization and Advanced Analysis during the first semester.

Practical information about the sessions - Modalités pratiques de gestion du cours :

Lecture notes and corrected exercises will be posted on moodle.

Grading system - Modalités d'évaluation :

Midterm(40%) and final exam (60%).

Bibliography/references - Bibliographie/références :

Gonzalez-Diaz J., Garcia-Jurado I. and M. Fiestras-Janeiro, An Introductory Course on Mathematical Game Theory, Graduate Studies American Mathematical Society 2010.

Maschler M., Solan E. and S. Zamir, Game Theory. Cambridge UP 2013.

Myerson R., Game Theory: Analysis of Conflict., Harvard University Press, 1991.

Laraki R., Renault J. and S. Sorin, Bases mathématiques de la théorie des jeux (in French), Editions de l'Ecole Polytechnique 2013.

Evaluation des politiques publiques (Program Evaluation)

Course title - Intitulé du cours	Evaluation des politiques publiques - Program Evaluation CM
Level / Semester - Niveau /semestre	M1 / S2
School - Composante	Toulouse School of Economics/ Ecole d'Economie de Toulouse
Teacher - Enseignant responsable	ISIS DURRMEYER
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Lecture Hours - Volume Horaire CM	30
TA Hours - Volume horaire TD	0
TP Hours - Volume horaire TP	12
Course Language - Langue du cours	Français
TA and/or TP Language - Langue des TD et/ou TP	English/Anglais

Teaching staff contacts - Coordonnées de l'équipe pédagogique :

Isis Durrmeyer: prior appointment after the class or by email

Isis.durrmeyer@tse-fr.eu, MF423, Office hours, Mondays 5-6pm

Course's Objectives - Objectifs du cours :

In this course, we shall study the main empirical methods used in program or policy evaluations from the design of samples to the estimation of treatment parameters and the construction of counterfactuals. It aims at evaluating, in a rigorous and comprehensive way, the quantitative impact of a policy by the public sector or a strategy by firms on outcomes and welfare of participants. Important examples in economics are subsidies given to unemployed and their impact on unemployment exits, the incentive effects of taxes and exemptions on households' labor supply and consumption or the impact of a pricing policy by firms on their sales.

Content of the course: Randomized control trials, social and natural experiments, definition of treatment effects, difference-in differences, matching methods, instrumental variables, regression discontinuity designs and structural evaluation

Content of the tutorial sessions: computer classes in which empirical applications are worked out using Stata.

Prerequisites - Pré requis :

Econometrics of the linear model including instrumental variable methods and econometrics of discrete variables.

Grading system - Modalités d'évaluation :

Assessment:

50% for final exam,

25% for midterm

25% for homework given in computer classes

Bibliography/references - Bibliographie/références :

Angrist, J.D., and J.S., Pischke, 2009, *Mostly Harmless Econometrics*, Princeton University Press.

Blundell R., and M. Costa-Dias, 2009, "Alternative Approaches to Evaluation in Empirical Microeconomics", *Journal of Human Resources*, 44, 565-640.

Imbens, G. and Wooldridge, J., 2009, "Recent Developments in the Econometrics of Program Evaluation*", Journal of Economic Literature*, 47, 5-86

Khandker, S. R., G.B. Koolwal, H.A. Samad, 2010, *Handbook on Impact Evaluation*, The World Bank.

More advanced:

Abadie A., and M.D. Cattaneo, 2018, "Econometric Methods for Program Evaluation", *Annual Review of Economics*, 10, 465-503.

Imbens, G., & Rubin, D. , 2015, *Causal Inference for Statistics, Social, and Biomedical Sciences: An Introduction.* Cambridge: Cambridge University Press. doi:10.1017/CBO9781139025751

Lee, M. J., 2016, *Matching, regression discontinuity, difference in differences, and beyond*. Oxford University Press.

Environmentals & Resource Economics

Course title - Intitulé du cours	Environmentals & Resource Economics
Level / Semester - Niveau /semestre	M1 / S2
School - Composante	Ecole d'Economie de Toulouse
Teacher - Enseignant responsable	ANDERSSON - HAMMIT - LAMP
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Lecture Hours - Volume Horaire CM	30
TA Hours - Volume horaire TD	0
TP Hours - Volume horaire TP	0
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 :

Henrik Andersson Email: henrik.andersson@tse-fr.eu
Office: MS210 Office hours: Mondays, 8:30-10:00, by prior appointment by email only.

James K. Hammitt Email: james.hammitt@tse-fr.eu
Office: Not decided Meeting after prior appointment by email.

Stefan Lamp Email: stefan.lamp@tse-fr.eu
Office: MS102 Meeting after prior appointment by email.

Course's Objectives - Objectifs du cours :

This course is divided into three parts which will be taught by three different professors.

The first part of the course will focus on economic policies related to environmental problems. It is well known that free markets will fail to provide the optimal provision of environmental goods and services (including mitigating negative effects of environmental pollution). Two examples of such market failures are externalities and the fact that many environmental goods are public goods that will not be provided in a free market. This part of the course will provide an introduction to different economics policies and instruments such as benefit cost analysis, pricing of externalites, etc.

The second part of the course will give an introduction to the field of energy economics. After defining key concepts in energy markets, the course will focus on the understanding of energy demand and analysis at the disaggregated level. We will further discuss the main economics of depletable resources (Hotelling) and look at the interconnection of energy economics and the environment, in particular climate change.

In the last part of the course, we will explore two questions that are important when evaluating environmental policies: valuation of mortality risk and of future consequences. The first concerns how much it is worth spending to reduce toxic pollution and the second concerns how much it is worth

spending now to reduce future harms. For example, the social cost of carbon is the present value of the monetarized damages caused by one more ton of CO2 emitted today. This analysis is at the frontier between environmental economics, social choice theory and the theory of finance.

COURSE OUTLINE

1) An Introduction to Environmental Policies (H. Andersson), 15 hours
a) The rationale for intervention
b) Benefit cost analysis
c) Pigouvian taxes
d) Valuation of non-marketed goods

2) An introduction to Energy Economics and (S. Lamp), 7.5 hours
a) Introduction
b) The economics of energy supply
c) Understanding energy demand

3) Discounting, uncertainty, and health risks (J.K. Hammitt), 7.5 hours
a) Discounting the future, the Ramsey rule
b) Effects of uncertainty
c) Valuing mortality risk and the future – Special focus on US policies and developing countries

Prerequisites - Pré requis :

Good understanding of intermediate microeconomics.

Grading system - Modalités d'évaluation :

Written exam. Attendance in the lectures is mandatory.

Bibliography/references - Bibliographie/références :

Students will be informed about the required reading at the start of the course and will in addition to any textbook consist of published scientific articles. Lecture notes, required readings, except textbooks, and any exercises will be made available through the Moodle course page.

Dynamic Optimization CM

Course title - Intitulé du cours	Dynamic Optimization CM
Level / Semester - Niveau /semestre	M1 / S2
School - Composante	Ecole d'Economie de Toulouse
Teacher - Enseignant responsable	ALZIARY-CHASSAT BENEDICTE
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Lecture Hours - Volume Horaire CM	15
TA Hours - Volume horaire TD	12
TP Hours - Volume horaire TP	0
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 :

alziary@ut-capitole.fr MC 104

Course's Objectives - Objectifs du cours :

The objective is to develop the basic tools of recursive analysis in a rigorous way. The course focuses on useful tools for economics areas.

Course description:

Mathematical Preliminaries

-Banach space

-The contraction mapping theorem

-Theorem of maximum

Dynamic Programming

-The principle of optimality

-Optimal plan

-Bounded returns

-Existence of solution for the functional equation

-Properties and regularity of the solution

-Constant returns to scale

-Unbounded returns

Prerequisites - Pré requis :

Basic notions on convergence of real sequences and series. Optimization of one variable functions.

Practical information about the sessions - Modalités pratiques de gestion du cours :

Many documents will be available on the course Moodle platform.

Grading system - Modalités d'évaluation :

Final Exam

Bibliography/references - Bibliographie/références :

Recursive Methods in Economic Dynamics, Nancy L. Stokey and Robert E. Lucas, Jr., With Edward C. Prescott Harvard Press University.

Data Bases

Course title - Intitulé du cours	Data Bases
Level / Semester - Niveau /semestre	M1 / S2
School - Composante	Ecole d'Economie de Toulouse
Teacher - Enseignant responsable	TOURNIER RONAN
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Lecture Hours - Volume Horaire CM	15
TA Hours - Volume horaire TD	12
TP Hours - Volume horaire TP	0
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 :

Mail: Ronan.Tournier@ut-capitole.fr; Office: MQ201 – AR367; Office days when students may drop by: undefined at this state of the year. However, online communication should be preferred (either the Moodle discussion forum or the mail).

Course's Objectives - Objectifs du cours :

The objective of this course is to earn a basic knowledge on Decision Support Systems (data analysis) using database systems. In more details, the course presents an overview of the possible computer software architectures (interconnection of different software and data sources) that can be used for data analysis, focussing on querying data sources and designing multidimensional databases to be used with On-Line Analytical Processing tools (called OLAP tools).

Methods taught will concern analysing and interpreting analysis requirements by elaborating a multidimensional database and relevant presentations of data.

Skills developed will be: expressing data requirements in terms of data query language (using the database query language SQL); expressing analysis requirements in terms of multidimensional database schemas; and designing relevant data presentation reports (using SAP Business Objects).

Prerequisites - Pré requis :

Knowledge of how to use a computer and managing computer files.

Knowledge in using a spreadsheet tool may help (such as Open Office/Libre Office Calc or Microsoft Excel).

Practical information about the sessions - Modalités pratiques de gestion du cours :

Laptops may be used in class with Microsoft Office Access (2010 or later). Note that Office 2016 is available for students for free (see the procedure on the University's Website). However, laptops will

only be usable for half of the course as SAP Business Objects is only available on the university computers and there is no student licence.

Students will have a project that will require, among other things, using SAP Business Objects.

Grading system - Modalités d'évaluation :

- A project done in pairs (40%) that will be handed in at the end of the semester.

- A final exam (60%).

Bibliography/references - Bibliographie/références :

Kimball, Ralph; Margy Ross (2013). The Data Warehouse Toolkit: The Definitive Guide to Dimensional Modeling (3rd ed.). Wiley. Note that the French version of this book that dates from 2007 is not recommended as its content is outdated (it corresponds to the 1st edition of the book).

Session planning - Planification des séances :

- Introduction to decision support and decision support systems (as well as a word on pivot tables and Excel—the most used tool);

- Query languages for databases (SQL). Starting with simple queries to the more complex analytical queries (application with Microsoft Access);

- OLAP analytical tools, design of multidimensional databases and analytical reports (application with SAP Business Objects).

Other – Autre :

Multidimensional modelling (the last part of the course) will be done using prototype tool called **GraphicOLAP**. As this tool is still in development, feedback will be welcome.

Corporate Finance

Course title - Intitulé du cours	Corporate Finance
Level / Semester - Niveau /semestre	M1 / S2
School - Composante	Ecole d'Economie de Toulouse
Teacher - Enseignant responsable	ALEXANDER GUEMBEL
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Lecture Hours - Volume Horaire CM	30
TA Hours - Volume horaire TD	
TP Hours - Volume horaire TP	0
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 :

e-mail: alexander.guembel@tse-fr.eu

office MF 312

I do not hold office hours as such, but am in my office most days. The best way to discuss any questions you may have, is after class. Otherwise, you can also send me an e-mail and I will either try to answer your question directly, or propose to meet. Before you ask to meet to discuss a question regarding the course material, please make sure you have done the relevant reading. It is also often helpful to discuss the issue with classmates (they may learn something from your question as well) before seeking help from me.

Course's Objectives - Objectifs du cours :

This course aims to familiarize students with the foundations of corporate finance. Corporate finance deals with two broad sets of questions. First, how should a firm evaluate investment opportunities? Second, how should it finance the investments it wishes to undertake? The course will explore these questions with a view to (i) providing a solid basis for students to build on when taking more advanced courses (be it in the "professional" M2 programme in Finance, or the research track), and (ii) to allow students to apply basic finance tools in their future professional work. At the end of this course, students should be able to (a) apply discounted cash flow techniques to evaluate investment opportunities, (b) assess the usefulness of a variety of investment criteria, (c) explain the different sources of financing available to a firm, (d) identify factors that affect the optimal financing mix for a corporation, (e) calculate the appropriate cost of capital for a project, taking into account the tax shield of debt financing, (f) evaluate critically how financing choices affect a firm's cost of capital.

Prerequisites - Pré requis :

No specific prerequisites

Practical information about the sessions - Modalités pratiques de gestion du cours :

Lecture handouts will be made available via moodle. I strongly recommend that you print them out before coming to class. This will allow you to take notes more effectively and concentrate on following the class discussion. While much of the class will take the style of a lecture, I will enourage interactions by having open discussions from time to time. I do not allow laptops or tablets during class. The class will start on time and I expect all students to respect a punctual beginning by not showing up late to class.

Grading system - Modalités d'évaluation :

The final grade will be based on a 1h30 examination at the end of the course. This is a closed-book exam. Simple pocket calculators are allowed.

Bibliography/references - Bibliographie/références :

We will use one main textbook to accompany the course:

Berk and DeMarzo, Corporate Finance, 2007 or later edition.

Session planning - Planification des séances :

Week 1

The objective of a firm, Fisher separation theorem, the net present value rule
Reading: ch. 1, 3, 5.1, 5.2, 8

Week 2

Useful discounting formulae, application to share valuation, alternative investment criteria
Reading: ch. 4, 6, 9.1, 9.2

Week 3

Financial statements, capital budgeting
Reading: ch. 2, 7

Week 4

Valuing risky investments, risk premium, CAPM and the cost of capital
Reading: ch. 10, 11, 12

Week 5

Capital structure, Modigliani-Miller theorem, weighted average cost of capital
Reading: ch. 14

Week 6

Tax shield of debt, tax adjusted WACC, Adjusted present value method
Reading: ch. 15, 18

Week 7

Costly bankruptcy, trade-off theory of capital structure
Reading: ch. 16.1 – 16.4

Week 8

Agency problems and capital structure: debt overhang, risk shifting
Reading: ch. 16.5 – 16.7
Further reading: Tirole, The Theory of Corporate Finance, ch. 3.1 – 3.4

Week 9

Asymmetric information, pecking order
Reading: ch. 16.8
Further reading: Tirole, The Theory of Corporate Finance, ch. 6.1, 6.2

Week 10

Revision & exam practice

Behavioral and Experimental Economics

Course title - Intitulé du cours	Behavioral and Experimental Economics
Level / Semester - Niveau /semestre	M1 / S2
School - Composante	Ecole d'Economie de Toulouse
Teacher - Enseignant responsable	Astrid Hopfensitz
Lecture Hours - Volume Horaire CM	15
TA Hours - Volume horaire TD	12
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 :

Astrid Hopfensitz (astrid.hopfensitz@tse-fr.eu). Meetings upon appointment.

Course's Objectives - Objectifs du cours :

This course is an introduction to experimental economics and behavioral economics and its applications to Microeconomics. You will learn how experiments are conducted in economics and what we can learn from them. We will discuss and analyze experimental results in different domains. You will run your own experiment and participate in experiments by others.

By the end of the course you should have a good understanding of the topics, methods and approaches of behavioral and experimental economics. You should be able to critically analyze experimental results and be able to implement own experimental projects.

Prerequisites - Pré requis :

The course will be held in english. No specific requirements.

Practical information about the sessions - Modalités pratiques de gestion du cours :

You are asked to be present for all sessions. Part of the course requirement is a course project which will consist in an experiment run during class time. You are required to participate also in your fellow students experiments.

Grading system - Modalités d'évaluation :

Your final grade will be combined from the following two course requirements:

1. You will be asked to form groups of approx. 5 students (subject to participants in class). Your group will be required to work together during the whole semester. You will have to:

A. Prepare a small experiment together that you will run with other students as participants. This will consist of:

i) an idea for an experiment
ii) a question you want to answer with it
iii) written instructions that you will give to participants
iv) the preparation of the necessary tools for the experiment (e.g. envelops, dice, questionnaires, etc.)

You will have to make an appointment with me at least one week before you are planning to run your experiment, to briefly discuss what you are planning to do and to present how you are going to implement it.

B. Summarize your results in a two page report that you will hand in to me. - i.e. present idea behind experiment - literature

- predictions
- show results graphically
- explain how results could be analyzed statistically (given more observations)

Note: you will receive a group grade - this grade might be adjusted individually in case of especially good or poor performance during experiment and/or presentation.

2. Final exam. The written exam will consist of open questions that can be either about:

• content of lecture
• experiments run in class
• papers on reading list

Bibliography/references - Bibliographie/références :

No book is required for this course. However you might find the following books useful:

- "The Handbook of Experimental Economics" by John H. Kagel and Alvin E. Roth
- "Markets, Games, & Strategic Behavior" by Charles A. Holt
- "Explaining social behavior: more nuts and bolts for the social sciences" by Jon Elster
- "Thinking, Fast and Slow", by Daniel Kahneman

Lots of useful resources can be also found on the internet, e.g.:

- Al Roth's game theory, experimental economics, and market design page: http://kuznets.fas.harvard.edu/~aroth/alroth.html
- Charles Holt webpage on experimental economics: http://people.virginia.edu/~cah2k/teaching.html
- Website by Dan Ariely: http://danariely.com/the-research/

Session planning - Planification des séances :

preliminary planning:

Week	Topic
1	Introduction
2	Methodology
3	Non-parametric statistics and game theory
4	Individual decision making
5	Markets
6	Auctions
7	Biases
8	Mechanism design and public goods
9	Public and common goods
10	Altruism and cooperation

Advanced microeconomics

Course title - Intitulé du cours	Advanced microeconomics
Level / Semester - Niveau /semestre	M1 / S2
School - Composante	Ecole d'Economie de Toulouse
Teacher - Enseignant responsable	YAMASHITA TAKURO
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Lecture Hours - Volume Horaire CM	30
TA Hours - Volume horaire TD	
TP Hours - Volume horaire TP	0
Course Language - Langue du cours	Anglais
TA and/or TP Language - Langue des TD et/ou TP	

Teaching staff contacts - Coordonnées de l'équipe pédagogique :

Email address: takuro.yamashita@tse-fr.eu

Office: MF 518

Office hour: By appointment

Preferred means of interaction: After the classes + By email

Course's Objectives - Objectifs du cours :

This course is to introduce some topics in game theory and its applications, especially about a class of games with incomplete information, and its application to auction, signalling, etc. The target students are those who are in M1 and want to do research in economic theory and its applications.

The goal is to make students familiar with some topics in games with incomplete information so that they can independently digest/evaluate academic papers in those or relevant topics.

Prerequisites - Pré requis :

Although there is no formal prerequisite, I would assume some basic mathematical knowledge (algebra, analysis, probability, etc). Also, basic knowledge of game/contract/mechanism design theory would be helpful.

Practical information about the sessions - Modalités pratiques de gestion du cours :

Laptops / tablets are accepted if without negative externalities.

Too many late arrivals and nonattendance may affect the grade.

Grading system - Modalités d'évaluation :

Based on a few problem sets and a final exam. At most 30% of the grade is by the problem sets, and the rest is by the final exam. Again, too many late arrivals and nonattendance may affect the grade.

Bibliography/references - Bibliographie/références :

Fudenberg and Tirole (1991), Game Theory, MIT Press.

Tadelis (2013), Game Theory: An Introduction, Princeton University Press

Session planning - Planification des séances :

(1) (Static) games with incomplete information, Bayesian equilibrium.

(2) Applications: Adverse selection in trading, Auction, Information aggregation in market

(3) Sequential rationality with incomplete information, Perfect Bayesian equilibrium.

(4) Applications: Signaling games, Cheap-talk, Bargaining.

Advanced Macroeconomics

Course title - Intitulé du cours	Advanced Macroeconomics
Level / Semester - Niveau /semestre	M1 / S2
School - Composante	Ecole d'Economie de Toulouse
Teacher - Enseignant responsable	ULBRICHT ROBERT
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Lecture Hours - Volume Horaire CM	30
TA Hours - Volume horaire TD	
TP Hours - Volume horaire TP	0
Course Language - Langue du cours	Anglais
TA and/or TP Language - Langue des TD et/ou TP	

Teaching staff contacts - Coordonnées de l'équipe pédagogique :

Email : robert.ulbricht@tse-fr.eu . Office : MF 507. Preferred means of interaction : After class + via the public forum on the Moodle course site.

Course's Objectives - Objectifs du cours :

The course is an introduction to modern economic growth theory. It aims to provide students with a critical understanding of the workhorse models used to study economic progress post-industrialization, as well as their successes and failures in explaining key empirical regularities. Topics include the Solow growth model with applications to growth accounting, the Neoclassical growth model (with a primer on dynamic optimization in continuous time), and endogenous growth models (growth through expanding varieties, Schumpetarian growth, technology diffusion). Time permitting, we will also briefly talk about economic development, referring to the process of industrialization itself, or the process of less-developed countries catching up with advanced economies.

Prerequisites - Pré requis :

Master course in Macroeconomics (first semester).

Practical information about the sessions - Modalités pratiques de gestion du cours :

Course attendance is highly recommended. Personal laptops / tablets are permitted for taking notes only.

Grading system - Modalités d'évaluation :

Evaluation consists of 4 take home problem sets (20%), a midterm (30%), and a final exam (50%).

Bibliography/references - Bibliographie/références :

Slides will be provided on the Moodle platform. The main reference is :

Acemoglu (2009) : Introduction to Modern Economic Growth, Princeton University Press.

You may also find it useful to consult the following reference, which provides an excellent non-technical introduction to the ideas covered in this course :

Weil (2016) : Economic Growth, 3rd ed., Routledge, 2016.

Session planning - Planification des séances :

1. The Solow growth model + variations
2. Neoclassical growth
3. Endogenous technology change
4. Development (time permitting)

Understanding real world organizations

Course title - Intitulé du cours	Understanding real world organizations
Level / Semester - Niveau /semestre	M1 / S1
School - Composante	Ecole d'Economie de Toulouse
Teacher - Enseignant responsable	SEABRIGHT PAUL
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Lecture Hours - Volume Horaire CM	15
TA Hours - Volume horaire TD	
TP Hours - Volume horaire TP	0
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 :

The course will be taught by Paul Seabright, whose email address is Paul.Seabright@tse-fr.eu

My office is ME 507.3; I do not hold office hours but I can meet students by prior appointment requested by email. If you have questions about your understanding of the class material, please ask them during the class (there will be many opportunities and often your question will be helpful for other students too). For any other questions please see me at the end of the class, if the question is short; otherwise write me an email explaining your question. I will either reply by email or suggest an appointment time.

Course's Objectives - Objectifs du cours :

This course explores the use of simple economic modeling to help understand the way organizations shape economic outcomes. Much of modern life relies on exchange of goods and services, some of which takes place through the institution of markets, some through firms and a great variety of non-market institutions. The course is in three parts. The first (weeks 1-3) introduces Ronald Coase's idea of markets and non-market organizations as alternative ways of organizing exchange, and of understanding the relative advantages of each form in terms of transactions costs. It surveys briefly the historical development of markets and non-market institutions. The second part of the course (weeks 4-8) looks at the specificities of certain types of non-market institutions: first firms and then various other institutions. In particular it introduces the idea of platforms as as way of understanding the function and operation of many types of firms as well as non-firm institutions. The third part of the course (weeks 9 and 10) takes the form of an informal interactive workshop in which students submit suggestions for using simple economic modeling to understand modern economic phenomena. Examples could include: financial crashes, the response to natural disasters, civil wars and guerrilla insurgencies, philanthropic institutions, environmental degradation, the economics of innovation, healthcare, digital platforms, illegal activity including migration, drugs and prostitution; political institutions including elections and referenda. The course is suitable for those wanting a) to understand

how institutions shape economic interactions (why should a given exchange between two individuals yield a different outcome when mediated by markets rather than by non-market institutions?) or b) to learn to use simple microeconomic modeling techniques (basically applied game theory) to understand real world institutions. It is particularly recommended for those wanting to go on to do theoretically informed empirical research in IO, finance, economic development or the economics of organizations.

Prerequisites - Pré requis :

There are no formal requirements for the course. The level of mathematics required is no higher than for the core microeconomics and game theory classes.

Practical information about the sessions - Modalités pratiques de gestion du cours :

Laptops and tablets are accepted in class. Students are expected to participate actively in discussion. This is not a class for passive learners! I understand that occasional late arrival may happen; however, students who persistently arrive late will be asked to leave the course.

Grading system - Modalités d'évaluation :

The course is examined by a 1 hour final written exam. A copy of the previous year's exam will be made available to students, together with an explanation of expected answers and the grading policy. A teaching assistant will lead two sessions during the semester for students with questions about the relation between the course material and the exam. The course will take place on Wednesdays from 14.00 to 15.30 beginning on 5th September, in classroom MC 202. There will be NO class on 24th October; a replacement class will take place on 21st November.

Bibliography/references - Bibliographie/références :

There is no textbook for the course but you will be encouraged to read very widely, in politics, history and current affairs as well as in economics. Here are a few readings to get you started; these are all books that take a "big picture" approach to their respective topics, and contain many other useful references, including specialized ones.

Other readings will be suggested as the course proceeds. Within topic the books are listed in alphabetical order:

1) The development of markets

Kay, John (2004): The Truth About Markets, Penguin.
Kling, Arnold and Nick Shultz (2011): Invisible Wealth: The Hidden Story of How Markets Work, Encounter Books.
McMillan, John (2003): Reinventing the Bazaar: A Natural History of Markets, Norton.
Seabright, Paul (2010): The Company of Strangers: A Natural History of Economic Life, Princeton University Press, 2nd edition.

2) Non-market organizations and organizational design

Brickley, James, Jerrold Zimmerman and Clifford Smith (2008): Managerial Economics and Organizational Architecture, McGraw-Hill.

3) The economic approach to human institutions

Harford, Tim (2006): The Undercover Economist,
Abacus. Harford, Tim (2011): Adapt: Why Success Always Starts with Failure, Little Brown.

9) Institutions and Human Development in Historical Perspective

Acemoglu, Daron and James Robinson (2013): Why Nations Fail: The Origins of Power, Prosperity and Poverty, Crown Business.
Morris, Ian (2010): Why the West Rules – For Now, Farrar, Straus and Giroux.
Harari, Yuval Noah (2014): Sapiens: A Brief History of Humankind, Harvill Secker.

Websites: A post on my website will contain updated copies of this syllabus as well as of the slides of the lectures, as well as any other handouts. The URL is here: http://paulseabright.com/?p=544

News websites: We shall devote a certain amount of time in class to discussing current economic events, so I shall expect you to be up to date. Good websites where you can obtain economic news are: www.economist.com www.ft.com www.guardian.co.uk www.lemonde.fr www.liberation.fr www.nytimes.com www.wsj.com

In addition you can find high quality discussion of economics issues on a number of blogs (alphabetical order by title): Chris Blattman The Conscience of a Liberal (Paul Krugman) Grasping Reality with Both Invisible Hands (Brad DeLong) Greg Mankiw's blog Library of Economics and Liberty (Bryan Caplan, Arnold Kling, David Henderson) Marginal Revolution (Tyler Cowen and Alex Tabarrok) Overcoming Bias (Robin Hanson) Vox (Richard Baldwin/CEPR)

Session planning - Planification des séances :

There will be no prior reading required for the sessions. However, the interactive sessions in weeks 9 and 10 will require students to read and submit suggestions by the Monday before class.

Additional information - Autres infomations :

Economics as we will study it here is more like playing jazz than like playing classical music: it is about improvisation based on an understanding of underlying patterns in nature, not about reproducing existing compositions by others. It is about trying out different ways of understanding our social world in a collaborative team discussion. I find the course a lot of fun to teach and my hope is that most students will also find it fun to attend.

Theory of Incentives

Course title - Intitulé du cours	Theory of Incentives
Level / Semester - Niveau /semestre	M1 / S1
School - Composante	Ecole d'Economie de Toulouse
Teacher - Enseignant responsable	SAND WILFRIED
Other teacher(s) - Autre(s) enseignant(s)	Luis Martins ABREU
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Lecture Hours - Volume Horaire CM	15
TA Hours - Volume horaire TD	6
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 :

Pr. Wilfried Sand-Zantman, wsandz@tse-fr.eu
Office Number: MF 409
Office hours: by appointment (see me an E-mail)

TA Luis Martins Abreu, luiscarlos.mat@gmail.com

Course's Objectives - Objectifs du cours :

This course is an introduction to incentives theory. The students will understand the impact of asymmetric information on markets and trade. The emphasis will be put on contracting solutions both in the case of hidden information and in the case of hidden action. Some applications to Industrial Organization, Finance, and Labour Economics (among other things) will be proposed. At the end of the lecture, the students will know how to derive constrained optimal contracts but more importantly will understand the main trade-offs induced by asymmetric information, rent extraction vs efficiency in the case of hidden information and insurance vs incentives in the case of hidden action.

Prerequisites - Pré requis :

There is no special prerequesite except some normal knowledge of microeconomics and basic mathematical training.

Practical information about the sessions - Modalités pratiques de gestion du cours :

Students are supposed to attend all classes and to participate.

The use of laptops is allowed but phone is not.

Grading system - Modalités d'évaluation :

There is no midterm exam but of course a final exam.

Note that all sessions take place between mid-october and the beginning of december.

Bibliography/references - Bibliographie/références :

"The Theory of Incentives", J.J. Laffont and D. Martimort (first chapters).

"The Economic of Contract: A primer", B. Salanié.

"Microeconomic Theory", A. Mas Colell - M. Whinston - J. Green (chapters 13-14).

Session planning - Planification des séances :

The topics developped in the sessions are the following

1) Markets with Asymmetric Information

2) Principal-Agent Models with Hidden information

- The discrete case

- The continuous case

- Application(s)

3) Principal-Agent Models with Hidden action

- The discrete case

- The continuous case

- Application(s)

Theory of Incentives

Course title - Intitulé du cours	Theory of Incentives
Level / Semester - Niveau /semestre	M1 / S1
School - Composante	Ecole d'Economie de Toulouse
Teacher - Enseignant responsable	SAND-ZANTMAN WILFRIED
Other teacher(s) - Autre(s) enseignant(s)	MARTINS ABREU LUIS
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Lecture Hours - Volume Horaire CM	15h
TA Hours - Volume horaire TD	6h
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 :

E-mail: wsandz@tse-fr.eu

Office Number: MF 409

Office hours: by appointment (see me an E-mail)

Course's Objectives - Objectifs du cours :

This course is an introduction to incentives theory. The students will understand the impact of asymmetric information on markets and trade. The emphasis will be put on contracting solutions both in the case of hidden information and in the case of hidden action. Some applications to Industrial Organization, Finance, and Labour Economics (among other things) will be proposed. At the end of the lecture, the students will know how to derive constrained optimal contracts but more importantly will understand the main trade-offs induced by asymmetric information, rent extraction vs efficiency in the case of hidden information and insurance vs incentives in the case of hidden action.

Prerequisites - Pré requis :

There is no special prerequesite except some normal knowledge of microeconmics and basic mathematical training.

Practical information about the sessions - Modalités pratiques de gestion du cours :

Students are supposed to attend all classes and to participate.

The use of laptops is allowed but phones are not.

Grading system - Modalités d'évaluation :

There is no midterm exam but of course a final exam.

Note that all sessions take place between mid-october and the beginning of december.

Bibliography/references - Bibliographie/références :

"The Theory of Incentives", J.J. Laffont and D. Martimort

"The Economic of Contract: A primer", B. Salanié.

"Microeconomic Theory", A. Mas Colell - M. Whinston - J. Green (chapters 13-14).

Session planning - Planification des séances :

The topics developped in the sessions are the following

1) Markets with Asymmetric Information

2) Principal-Agent Models with Hidden information

- The discrete case

- The continuous case

- Application(s)

3) Principal-Agent Models with Hidden action

- The discrete case

- The continuous case

- Application(s)

4) Multi-agent issues (if time permits)

- Mechanism Design and Implementation

- Examples with many agents (Coase theorem, Auctions, Public good, …).

Strategic Optimization

Course title - Intitulé du cours	Strategic Optimization
Level / Semester - Niveau /semestre	M1 / Semestre 1
School - Composante	TSE
Teacher - Enseignant responsable	RENAULT_JEROME
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Lecture Hours - Volume Horaire CM	30
TA Hours - Volume horaire TD	/
TP Hours - Volume horaire TP	/
Course Language - Langue du cours	Anglais
TA and/or TP Language - Langue des TD et/ou TP	

Teaching staff contacts - Coordonnées de l'équipe pédagogique :

Jérôme Renault (Office MF414, https://sites.google.com/site/jrenaultsite/ , e-mail: jerome.renault@ut-capitole.fr).

Please address your questions during or at the end of the class, or by appointment and if necessary by email.

Course's Objectives - Objectifs du cours :

This course is an introduction to strategic optimization, the mathematical aspects of game theory. It first focuses on zero-sum games, which are essential to the understanding of : worst-case analysis in one person decision making, games of total conflict and general-sum games (where cooperation can be sustained via zero-sum games strategies). Then some aspects of data sciences, such as Approachability, No-Regret Learning and Calibration, are presented.

Prerequisites - Pré requis :

Analysis (compact metric spaces, continuous functions,...), elementary Probability Theory and interest in mathematics and strategic thinking.

Grading system - Modalités d'évaluation :

a mid-term exam (40 %) and a final exam (60%)

Bibliography/references - Bibliographie/références :

Lecture notes will be given to the students, see https://sites.google.com/site/jrenaultsite/lecturenotes

- An Introductory Course on Mathematical Game Theory. Gonzalez-Diaz, Garcia-Jurado, Fiestras-Janeiro, Graduate Studies AMS 2010.
- A first course on zero-sum repeated games. Sorin, SMAI 2002.
- Game Theory. Maschler, Solan and Zamir, Cambridge UP 2013.
- Bases mathématiques de la théorie des jeux (in French). Renault, Sorin and Laraki, Editions de l'Ecole Polytechnique 2013.

Session planning - Planification des séances :
Tuesday and Wednesday, from 2 to 3.30 pm in MD005

Static optimization refresher

Course title - Intitulé du cours	Static optimization refresher
Level / Semester - Niveau /semestre	M1 / Semestre 1
School - Composante	TSE
Teacher - Enseignant responsable	SILVA_FRANCESCO
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Lecture Hours - Volume Horaire CM	15
TA Hours - Volume horaire TD	
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 :

francisco.silva@unilim.fr MF 010 Après les cours. Sortie de cours, par mail et sur rendez vous.

Course's Objectives - Objectifs du cours :

- It is a basic course oriented to operational methods which is meant for (static) optimization users. - We shall insist a lot on intuition and on the geometry of optimization problems which is not generally well understood. - Some classical exercises will illustrate the standard methods of optimization (e.g. using second order conditions, solving simple equality/inequality constrained maximization, graphical solutions for linear programs, etc). - Students willing to deepen the subject may use the bibliographical references provided at the end of the syllabus. - Students already familiar with optimization but who need to refresh their memory might also find this course profitable.

Prerequisites - Pré requis :

- Basic Calculus. - Elementary notions of linear algebra. - Elementary differential calculus. - Basic notions in real analysis : supremum/infimum, limits, continuity of functions, closed/open sets, compact sets.

Grading system - Modalités d'évaluation :

Pas d'évaluation.

Bibliography/references - Bibliographie/références :

Elementary references: - Optimization in Economic Theory, A.K. Dixit, 1990. - Mathematic Optimization and Economic Theory, M. Intriligator, SIAM, 2002. Some accessible references: - Chong E.K.P., Zak S.H., "An introduction to optimization" (Second Edition), Wiley Inter-Science in Discrete Mathematics an Optimization, 2001. - Luenberger, D. G. Optimization by vector space methods". John Wiley & Sons, Inc., New York-London-Sydney 1969 xvii+326 pp. - Sundaram, R.K. "A first course in optimization theory". Cambridge University Press, Cambridge, 1996. xviii+357 pp. More involved

material: - Bonnans F., “Optimisation continue”, Dunod, 2006. - Boyd S. and Vandenberghe L., “Convex Optimization”, Cambridge University Press, 2004. Available online, MOOC available after registration. - Borwein, J., Lewis, A.S., “Convex Analysis and Nonlinear Optimization”, Springer-Verlag 2000. - Ruszczynski, A., “Nonlinear Optimization”, Princeton University Press, 2006.

Project management

Course title - Intitulé du cours	Project management
Level / Semester - Niveau /semestre	M1 / S1
School - Composante	Ecole d'Economie de Toulouse
Teacher - Enseignant responsable	VERON Jean-Francois
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Lecture Hours - Volume Horaire CM	15h
TA Hours - Volume horaire TD	
TP Hours - Volume horaire TP	0
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 :

Jean-Francois VERON

jean-francois.veron@enac.fr 05-62-17-43-64 chaque jeudi de 12h30 à 14h interactions privilégiées : sortie de cours, mail

Course's Objectives - Objectifs du cours :

This course focuses on project management methodology that will increase each participant's ability to initiate and manage projects in the most effective way.

They will learn about key project management phases and will have the opportunity to apply this to a case study, which will be used as a connected thread during all the modules.

Beside the methodological approach, participants will be able to identify the necessary skills and behavior a project manager needs to succeed.

Upon completion of the course, the learners should be able to:

- Master Project management concepts & definitions
- Identify each phase of a project lifecycle.
- Set up tools for monitoring and controlling a project
- Produce a project proposal

Prerequisites - Pré requis :

As this course is focused on Project Management fundamentals, there are not any specific skills required.

Practical information about the sessions - Modalités pratiques de gestion du cours :

Attendance:

All students must be active participants in class activities.

An active presence may be shown through participation in, and contributions to discussions.

Regular attendance and assignment submissions are essential for success.

Regular “check-ins” are required and counted toward the course grade.

Late Work:

Projects and assignments must be completed and submitted by the designated due dates. Full credit cannot be earned by late or incomplete assignments.

Assignments may lose up to 10% of their possible value if submitted after the posted due date/time.

Further, late project submissions may be rejected at the instructor’s discretion.

Honesty Policy:

Project Management Basics course does not tolerate plagiarism.

All works submitted for credit must be original works created by the scholar uniquely for the class.

Consequences of academic dishonesty may range from reduced credit on the plagiarized assignment to petition for removal from the academic program or institution, depending on the circumstances and extent of the violation.

Web resources for additional reference regarding what constitutes plagiarism and how to avoid it: http://www.plagiarism.org/

Grading system - Modalités d’évaluation :

It is required to participate in discussion in class and provide the project deliverables specified at the beginning of the training.

It is also required to submit a paper in the form of an executive project management “high level” report (project plan).

The goal is to produce a report addressing project management activities and tasks that will be handled by the team that participants will lead.

In this paper, they will apply a range of project management principles and methodologies presented throughout the course.

It is required to provide an intermediate delivery of the project plan at course 5

Final project (project plan and project deliverables) – 75%

Attendance and participation: 25%

In each module participants will have the opportunity participate in class discussions.

These discussions provide an opportunity to interact with classmates.

During this aspect of the course, participants respond to problematic that assist in developing ideas, share those ideas with classmates.

Discussion interactions promote development of a community of learners, critical thinking, and exploratory learning.

Bibliography/references - Bibliographie/références :

PMI, a Guide to the Project Management Body of Knowledge PMBok, 6th edition

Other references provided during the course

Session planning - Planification des séances :

- Course 1 (generalities) :
    - o Understand what a project, a program, an operation is.
    - oKnow what project management and associated phases mean
    - o Understand the project's paradox
    - o Identify the characteristics of a project life cycle
    - o Read and understand main features of project's case study
- Course 2 (starting a project) :
    - o Know how to start a project
    - o Identify when preliminaries studies are necessary
    - o Perform a SWOT analysis of your university on the project's case study
    - o Identify the different items of a project charter
    - o Know how to formulate SMART objectives with key success indicators
    - o Understand how to identify and communicate with stakeholders
    - o Know how to organize the first project's meeting
    - o Build the project charter of the case study
- Course 3 (planning a project part 1) :
    - o Know how to plan a project
    - o Identify the different items of a project plan
    - o Know how to deal with user requirements
    - o Understand the differences between milestones and deliverables
    - o Identify limits, requirements, milestones and deliverables on the case study
- Course 4 (planning a project part 2) :
    - o Understand how to elaborate a work breakdown structure of your project
    - o Know how to perform activities identification, characterization and dependencies
    - o Know how to build a Gantt chart
    - o Build the schedule of the case study
- Course 5 (using a project management tool) :
    - o Use of "project libre" to make a Gantt chart
- Course 6 (managing risks)
    - o Know how to identify risks in a project
    - o Know how to analyze risks
    - o Know how to reduce risks

    - Apply this knowledge on the case study
- Course 7 (managing the team)
    - Know what are the qualities of a project manager
    - Understand the different kinds of personalities in a team
    - Know how to conduct a feedback
    - Apply knowledge in an “escape game”
- Course 8 (executing, monitoring and controlling the project)
    - Know how to pilot the execution
    - Know how to manage communication with stakeholders
    - Know how to manage project procurement
    - Apply this knowledge on the case study by identifying and subcontracting part of the project’s work to other teams
- Course 9 (preparing the final presentation)
    - Assembly the different parts of the mockup, review the project’s presentation
- Course 10 (presenting the project to the classroom)
    - Distribute the enquiry
    - Split the speaking time between teams
    - Collect the results
    - Make a return on experience

Professional Development

Course title - Intitulé du cours	Professional Development
Level / Semester - Niveau /semestre	M1 / S1
School - Composante	Ecole d'Economie de Toulouse
Teacher - Enseignant responsable	BRIOT
Other teacher(s) - Autre(s) enseignant(s)	Sarah Haté
Other teacher(s) - Autre(s) enseignant(s)	Clare Boland
Other teacher(s) - Autre(s) enseignant(s)	Barbara Moore
Other teacher(s) - Autre(s) enseignant(s)	Delphine Bentolila
Other teacher(s) - Autre(s) enseignant(s)	Alexandra Artero
Lecture Hours - Volume Horaire CM	12
TA Hours - Volume horaire TD	0
TP Hours - Volume horaire TP	0
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 :

lorna.briot@ut-capitole.fr - MA006

sarah.hate@ut-capitole.fr

clare.boland@ut-capitole.fr

barbara.moore@ut-capitole.fr

alexandra.artero@ut-capitole.fr

delphinebentolila@ut-capitole.fr

Please send an email directly to your teacher if you have any questions.

Course's Objectives - Objectifs du cours :

Building your LinkedIn profile ,assessing your personality type, your strengths and weaknesses and learning how to talk about your studies and experience is an immense challenge. The Professional development module offered to first and second year master students (in English or in French) consists of 8 sessions. The facilitator provides input, encourages oral interaction, and practical exercises to practice the skills involved to motivate and empower participants to confront the job market successfully and to find the perfect internship. The following will be covered in the module.

- Linkedin Workshop
- Self-Discovery
- Internship Strategy
- Writing a CV
- Covering letters
- Interviews
- Networking
- Career Guidance

Prerequisites - Pré requis :

All students must consult the Professional Development Moodle page before attending and bring a cv to the second class on 14th September.

Practical information about the sessions - Modalités pratiques de gestion du cours :

Laptops and tablets may be used during some of the sessions, students will be informed when to bring them to class.

Participation is extremely important and will be taken into consideration for the final grade.

If students arrive late they will not be accepted and will be counted as absent.

Grading system - Modalités d'évaluation :

Professional Development is graded by a final evaluation.

Grading

- 50% - Easyrecrue Evaluation
- 25% - Professional Attitude / Participation and absences/ cv and cover letter
- 25% - Internship Strategy and Business Networking Preparation

Bibliography/references - Bibliographie/références :

All the following resources can be found on the Professional Development Moodle page :

- Cover letters
- Cv's
- E-reputation
- Linkedin
- Internship Strategy
- Interviews
- Work Environment
- Networking
- Self perception
- Skills and career opportunities
- Testimonies

Session planning - Planification des séances :

Session 1 : Linkedin and E-reputation workshop

Sessions 2 and 3: Introduction and Module Presentation / Easyrecrue / Describing oneself and one's skills / First draft of the cv / Communication Skills

Sessions 4 and 5: Debrief Easyrecrue / Professional Attitude / Expectations in the workplace / Internship Strategy/ Networking tips / Cover Letter

Session 6 and 7: Public Speaking Skills / Elevator Speech / Interview Skills / Evaluation Easyrecrue

Sessions 8 and 9: Business Networking Day Preparation / Final draft cv and cover letter/ Internship Strategy Feedback

Probability refresher

Course title - Intitulé du cours	Probability refresher
Level / Semester - Niveau /semestre	M1 / Semestre 1
School - Composante	TSE
Teacher - Enseignant responsable	VOLTCHKOVA_EKATERINA
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Lecture Hours - Volume Horaire CM	15
TA Hours - Volume horaire TD	/
TP Hours - Volume horaire TP	/
Course Language - Langue du cours	Anglais
TA and/or TP Language - Langue des TD et/ou TP	

Teaching staff contacts - Coordonnées de l'équipe pédagogique :
ekaterina.voltchkova@tse-fr.eu office MF305

Course's Objectives - Objectifs du cours :
The purpose of this refresher course is to recall the basic notions and results of the probability theory used in probability, statistics, and econometrics courses of the M1 program.
Course content
1. Basic notions of probability: sample space, events, probability measure.
2. Examples of probability spaces, discrete probability space, combinatorial problems, counting rules.
3. Independence and conditional probability, theorem of the total probability, Bayes' theorem.
4. Random variables. Definitions and examples of discrete and absolutely continuous distributions such as Bernoulli, binomial, Poisson, uniform, exponential, normal.
5. Expectation, general moments, characteristic function.
6. Random vectors. Joint distribution, moments. Gaussian vectors.
7. Conditional distribution and expectation.

Prerequisites - Pré requis :
Basic mathematical calculus, including derivatives and integration.

Grading system - Modalités d'évaluation :
There is no grading for this refresher course.

Bibliography/references - Bibliographie/références :
Konrad Menzel: Introduction to statistical methods in economics(MIT Open Course Ware: https://ocw.mit.edu/courses/economics/14-30-introduction-to-statistical-methods-in-economics-spring-2009/),Robert B. Ash: Basic probability theory,or any other textbook on basic probability theory at your disposal.

Probability Modeling

Course title - Intitulé du cours	Probability Modeling
Level / Semester - Niveau /semestre	M1 / S1
School - Composante	Ecole d'Economie de Toulouse
Teacher - Enseignant responsable	VOLTCHKOVA EKATERINA
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Lecture Hours - Volume Horaire CM	15
TA Hours - Volume horaire TD	0
TP Hours - Volume horaire TP	0
Course Language - Langue du cours	Anglais
TA and/or TP Language - Langue des TD et/ou TP	

Teaching staff contacts - Coordonnées de l'équipe pédagogique :

Ekaterina Voltchkova

Ekaterina.voltchkova@tse-fr.eu

MF305

office hours on appointment.

Course's Objectives - Objectifs du cours :

The objective of this course is to recall main notions of probability theory and deepen some important topics such as conditional probability and expectation, in order to prepare the ground for advanced courses in mathematical finance, statistics, and econometrics. In particular, this course prepares students for studying stochastic processes.

At the end of this course, students must :

- Understand the notion of probability measure.
- Use and understand Bayes' formula.
- Understand the notion of conditional expectation with explicit computation in the discrete, continuous and Gaussian variables cases.
- Handle discrete sequences of independent random variables.
- Model simple economic situations using probability tools.

Prerequisites - Pré requis :

Basic notions of the probability theory should be known. A probability refresher course is provided prior to the beginning of the semester and is highly recommended.

Practical information about the sessions - Modalités pratiques de gestion du cours :

Teaching is mainly based on solving exercises and examples in order to illustrate application of probability theory in concrete situations. It is recommended to work on exercise sheets before the in-class session. Oral participation is highly valued.

Grading system - Modalités d'évaluation :

The evaluation consists of a mid-term homework and a final written exam.

Bibliography/references - Bibliographie/références :

Problem sets used in class are derived from various sources.
Lecture notes and other materials of the probability refresher course are at your disposal.
You can also use any textbook on basic notions of probability theory. Here are two examples:

Robert B. Ash: Basic probability theory.

Konrad Menzel: Introduction to statistical methods in economics
(MIT Open Course Ware: https://ocw.mit.edu/courses/economics/14-30-introduction-to-statistical-methods-in-economics-spring-2009/).

UE7 Optimization

Course title - Intitulé du cours	UE7 Optimization
Level / Semester - Niveau /semestre	M1 / S1
School - Composante	Ecole d'Economie de Toulouse
Teacher - Enseignant responsable	BLANCHET ADRIEN
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Lecture Hours - Volume Horaire CM	15
TA Hours - Volume horaire TD	
TP Hours - Volume horaire TP	0
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 :

email: Adrien.Blanchet@ut-capitole.fr

office: MF313

office hours: on Tuesday 2PM-3:30

Course's Objectives - Objectifs du cours :

The course will be an introduction to the theory of optimal transport with applications to economics.

Chapter 1: introduction to optimal transport

1. Monge and Kantorovich's problems.

Kantorovich's relxation problem

Kantorovich's duality

existence of solution to Kantorovich's problem

2. solution to Monge's problem

facts about convex analysis (convexity, subdifferentiability, conjugate function, lsc)

optimal transport for quadratic costs, Brenier's theorem

case of the real line

3. Geodesics

definition

geodesically convexity

convexity inequality

application to the uniqueness of ground states

application to functional inequalities

application to pdes (the minimising scheme)

Chapter 2: application to potential games

Beckmann's urban equilibrium model

existence and uniqueness of solutions

Prerequisites - Pré requis :

measure theory

Practical information about the sessions - Modalités pratiques de gestion du cours :

No tablet, no laptop

Students are expected to be on time

Grading system - Modalités d'évaluation :

A midterm and a final exam.

Final grade 1/4*m+3/4*e

Bibliography/references - Bibliographie/références :

Villani, C. (2003). Topics in optimal transportation (No. 58). American Mathematical Soc..

Ambrosio, L., Gigli, N., & Savaré, G. (2008). Gradient flows: in metric spaces and in the space of probability measures. Springer Science & Business Media.

Santambrogio, F. (2015). Optimal transport for applied mathematicians. Birkäuser, NY.

Mathematical statistics 1 CM

Course title - Intitulé du cours	Mathematical statistics 1 CM
Level / Semester - Niveau /semestre	M1 / S1
School - Composante	Ecole d'Economie de Toulouse
Teacher - Enseignant responsable	THOMAS - IBRAHIM
Other teacher(s) - Autre(s) enseignant(s)	Aude Illig for tutorials
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Lecture Hours - Volume Horaire CM	30
TA Hours - Volume horaire TD	15
TP Hours - Volume horaire TP	0
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 :

Christine Thomas - christine.thomas@tse-fr.eu - office MF215

Appointments upon request by email on Wednesdays and Fridays

Jean-Paul Ibrahim - jean-paul.ibrahim@ut-capitole.fr - office MC002

Preferred means of interaction: at the end of class, by appointment, by e-mail

For tutorials:

Aude - Illig aude.illig@ut-capitole.fr - office MC002

Course's Objectives - Objectifs du cours :

The first part of the course is dedicated to review and complements of probability tools that will be used in the second part. The second part of the course is about sampling theory in a statistical model and statistical decision theory. The course highlights the general principles used to support the choice of an optimal statistical technique for a given problem. It is meant to provide a general framework for statistical decision theory.

The probability review part involves the following topics: cumulative distribution function for continuous and discrete probability laws, quantiles. Classical laws. Random vectors (joint, marginal and conditional distribution). Bivariate and multivariate Gaussian distribution. Conditional expectation. Asymptotic behavior (law of large numbers, central limit theorem, Cramer's theorem or delta method, asymptotic distribution of empirical moments and quantiles).

In the statistical part, we will answer the question: what is mathematical statistics about ? We introduce a general framework for statistical models, in particular exponential models, and sampling theory. We then discuss the principles of statistical decision theory. The student is supposed to acquire the ability to advocate for his choices between several models and/or techniques in a statistical problem.

A project is also proposed to cover more material and to learn how to present and defend an empirical analysis.

Skills that will be developed during the course: Compute the expectation and the variance of a discrete or an absolutely continuous random variable. Find the distribution of a transformed random variable. Compute joint and marginal distributions (discrete, continuous and mixed cases). Compute a conditional density and a conditional expectation. Deal with Gaussian vectors (joint density, affine transformaiton and conditional expectation). Show the convergence in distribution and the convergence in probability. Apply the central limit theorem and the Delta-method. Write a statistical model corresponding to a given experiment. Use quantiles for descriptive or modeling purposes. Compare two estimators in terms of risk. Construct new estimators using the bayesian principle.

Prerequisites - Pré requis :

A probability course introducing the tools to study the distribution of random vectors, and an introduction to statistical estimation theory.

Set theory, series and integrals calculus

Practical information about the sessions - Modalités pratiques de gestion du cours :

Personal computers allowed.

Grading system - Modalités d'évaluation :

The grade will be a weighted average of the midterm exams (40%), the final exam (40%) and a project (20%). The projects are done in teams of 4 and the project grade is based on a set of slides and R code. The project files ahev to be turned in on the Moodle platform before the oral defense (last course week of the semester).

Bibliography/references - Bibliographie/références :

Mathematical Statistics, Jun Shao, Springer texts in Statistics, 1999.

Theory of Statistics, Mark Schervish, Springer series in Statistics,1995.

A course in mathematical statistics, G. Roussas, Academic Press, second edition, 1997(available on internet)

Initiation à la statistique avec R, Bertrand et Maumy-Bertrand, Dunod, 2010.

Basic Probability Theory, Robert Ash, Dover Publications, 2008 (available on internet).

Probabilités, Philippes Barbe et Michel Ledoux, EDP Sciences, 2007.

Lecture Notes for Introductory Probability, Janko Gravner, 2014 (available on internet).

Session planning - Planification des séances :

September to December.

Markov Chains and applications

Course title - Intitulé du cours	Markov Chains and applications
Level / Semester - Niveau /semestre	M1 / Semestre 1
School - Composante	TSE
Teacher - Enseignant responsable	FAUGERAS_OLIVIER
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Lecture Hours - Volume Horaire CM	15
TA Hours - Volume horaire TD	/
TP Hours - Volume horaire TP	/
Course Language - Langue du cours	Anglais
TA and/or TP Language - Langue des TD et/ou TP	

Teaching staff contacts - Coordonnées de l'équipe pédagogique :
olivier.Faugeras@ut-capitole.fr MF217

Course's Objectives - Objectifs du cours :
Observed data are often modelled as correlated random variables evolving along time. Markov chains in discrete time are one of the main fundamental kind of stochastic processes, where the future state of the system depends (randomly) only on the "proximate past" states. They are useful in modelling various dynamical systems, e.g. the price of a stock on a financial market or the surplus process for insurance companies. The aim of this course is to give an introduction to Markov chains in discrete time on a countable state space, their basic properties and some of their applications (Gambler's ruin, Life insurance, etc..), depending on time constraints/interests of the audience.In order to account for the heterogeneity of the background of the students, the course will be structured into two parts/levels: the first part, aimed at being accessible for a wide audience, will present the basic properties and calculations, together with some concrete exemple (Games, Insurance). The second level, aimed more specifically for students with a good mathematical background, will be more demanding and will delve deeper into the proofs of the main theorems of Markov chains, so that students can have a better understanding of the key concepts and their subtleties.

Prerequisites - Pré requis :
As all courses made by a member of the mathematics departement, a decent level in Mathematics is expected, especially for the more demanding second part of the course. (A first course in probability and Linear algebra up to Diagonalization are a prerequisite). However, in discrete time and on a countable state space, Markov chains can be studied with elementary (conditional) probability (without the complications arising from Measure theory) and Linear Algebra (including Matrix calculus).

Grading system - Modalités d'évaluation :
Final Exam.Mostly on the first level of the course (the less mathematically demanding)

Bibliography/references - Bibliographie/références :
Most probability books have chapters on Markov chains.We suggest:Resnick, A probability path. Norris, Markov chains. Brémaud, Markov Chains. Gibbs Fields, Monte Carlo Simulation, and Queues.Baldi, Mazliak, Priouret, Martingales et chaînes de Markov.

Session planning - Planification des séances :
TBA

Macroeconomics CM

Course title - Intitulé du cours	Macroeconomics CM
Level / Semester - Niveau /semestre	M1 / S1
School - Composante	Ecole d'Economie de Toulouse
Teacher - Enseignant responsable	FEVE PATRICK
Other teacher(s) - Autre(s) enseignant(s)	Tiziana Assenza
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Lecture Hours - Volume Horaire CM	30
TA Hours - Volume horaire TD	10,5
TP Hours - Volume horaire TP	0
Course Language - Langue du cours	Anglais et Français
TA and/or TP Language - Langue des TD et/ou TP	Anglais

Teaching staff contacts - Coordonnées de l'équipe pédagogique :

Patrick Fève (MF508, patrick.feve@tse-fr.eu) and Tiziana Assenza (MF 510, tiziana.assenza@unicatt.it).

Office hours: Tuesday 6.00-7.00 pm. Means of interaction: end of the class, email or appointment.

Course's Objectives - Objectifs du cours :

The objectives of the course and educational goals: This course makes sure that students become fluent in dynamic macroeconomic modeling. This includes macroeconomic theory, dynamic optimization, time series analysis, economic policy analysis. This course is an introduction to dynamic macroeconomic theory with applications to consumption/saving behavior, capital/investment decision, labor demand and supply, asset prices and public policy.

Prerequisites - Pré requis :

No specific requirement.

Practical information about the sessions - Modalités pratiques de gestion du cours :

No specific rule concerning attendance in class. Attendance in TD is compulsory.

Grading system - Modalités d'évaluation :

40% for the tutorials: mid-term exam 60% for the final exam.

Bibliography/references - Bibliographie/références :

David Romer "Advanced Macroeconomics" 4th Edition, McGraw Hill, 2012 (see chapters 5, 7, 8 ,9, 12).

Session planning - Planification des séances :

Chapter 1 - Two-period Equilibrium Models 1-1 An exchange economy 1-2 A production economy

Chapter 2 - Models and Methods in Macroeconomic Dynamics 2- 1 The permanent income model, 2-2 The dynamic labor demand model

Chapter 3 - Business Cycle Models, 3-1 Two simple business cycle models, 3-2 RBC models.

Introduction to SAS

Course title - Intitulé du cours	Introduction to SAS
Level / Semester - Niveau /semestre	M1 / S1
School - Composante	Ecole d'Economie de Toulouse
Teacher - Enseignant responsable	ELODIE ALET-DARE
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Lecture Hours - Volume Horaire CM	0
TA Hours - Volume horaire TD	0
TP Hours - Volume horaire TP	4.5
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 :

Elodie Alet-Darre : MA201, elodie.alet@ut-capitole.fr

Office hours by appointment

Course's Objectives - Objectifs du cours :

Allow students to

(i) Learn the basic SAS language
(ii) manipulate databases (select a sample, create a new variable, sort the data…)
(iii) Implement statistical and basic econometric techniques (compute descriptive statistics, estimate a model by OLS…)

No programing is involved in this class

Prerequisites - Pré requis :

Descriptive statistics, linear regression

Practical information about the sessions - Modalités pratiques de gestion du cours :

Optional, 3 sessions of 1h30 each

The course takes place in the university computer rooms during the first weeks of September

A booklet is available on Moodle with 3 chapters. We study one chapter per session. The first chapter introduces the software and its objects. The second chapter describes basic tools to manipulate the data and the third chapter is about SAS procedures involved for descriptive statistical analysis and linear regression technique.

Each session combines lecture and hands-on experience with a sample of the 2011 French database "Enquête Emploi".

Grading system - Modalités d'évaluation :

No grading

Intermediate Econometrics

Course title - Intitulé du cours	Intermediate Econometrics
Level / Semester - Niveau /semestre	M1 / Semestre 1
School - Composante	TSE
Teacher - Enseignant responsable	SINHA SHRUTI - POINAS FRANCOIS
Other teacher(s) - Autre(s) enseignant(s)	Elodie Alet
Other teacher(s) - Autre(s) enseignant(s)	Jad Beyhum
Other teacher(s) - Autre(s) enseignant(s)	Elia Lapenta
Other teacher(s) - Autre(s) enseignant(s)	Kevin Remmy
Other teacher(s) - Autre(s) enseignant(s)	
Lecture Hours - Volume Horaire CM	30
TA Hours - Volume horaire TD	10,5
TP Hours - Volume horaire TP	10,5
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 :

Lecturers: François Poinas, MF 426, francois.poinas@tse-fr.eu, office hours by appointment

Shruti Sinha, MF 503, shruti.sinha@tse-fr.eu, office hours by appointment

Pascal Lavergne, MF 210, pascal.lavergne@ut-capitole.fr, office hours by appointment

Teaching Assistants: Elodie Alet, Elodie.Alet@ut-capitole.fr

Jad Beyhum, jad.beyhum@ut-capitole.fr

Elia Lapenta, elia.lapenta@ut-capitole.fr

Kevin Remmy, kevin.remmy@ut-capitole.fr

Course's Objectives - Objectifs du cours :

This is an intermediate econometrics course, which builds on the introductory econometrics course (L3) and is a prerequisite for applied econometrics and program evaluation courses (M1), as well as the econometrics courses in later years. We will study the main econometric methods used in applied economics. The methods are further studied and illustrated with economic applications in tutorials and hands-on applied exercises in the lab with R.The course reviews Ordinary (OLS) and Generalized Least Squares (GLS), and studies Instrumental Variables (IV) Methods, Nonlinear Least Squares (NLS), Maximum Likelihood Estimation (MLE) and Generalized Method of Moments (GMM), focusing on their proper use and asymptotic properties.At the end of the course, students should be able to use the suitable methods depending on the context, should know their main properties and be able to establish them, and should know how to interpret the results in practice.

Prerequisites - Pré requis :

Prerequisites are Inferential Statistics (L2) and Introductory Econometrics (L3).Here are the main concepts students should be familiar with:Probability: random variables and vectors, probability distribution (joint, marginal, conditional) and density, quantiles, moments (expectation, variance, standard deviation,...), conditional expectation and variance, normal vectors and related distributions (Chi-square, Student, Fisher).Those concepts are presented in Greene (2011), Appendix B.Inferential Statistics: random sampling, empirical moments (mean, variance,…) and quantiles, modes of Convergence (weak, quadratic mean, in law), estimator, unbiasedness, efficiency, law of large numbers, central limit theorem, confidence interval, hypothesis testing.Those concepts are presented in Greene (2011), Appendix C.Econometrics: Simple and multiple linear regressions, least squares (estimation, finite sample properties), confidence intervals, tests, interpretation of parameter estimates (continuous and discrete explanatory variables, models with the dependent and/or explanatory variables in log), heteroskedasticity.Those concepts are covered in Stock, Watson (2014), chapters 4 to 7 or Wooldridge (2015), chapters 1 to 8.

Practical information about the sessions - Modalités pratiques de gestion du cours :

Attendance to lectures and tutorial/lab sessions is essential and participation during class is strongly encouraged. Lecture notes and problem sets will be available on the course webpage on Moodle. Students have to read the lecture notes and work on the problem sets before attending the corresponding lecture/tutorial/lab session. Students are expected to check the course webpage regularly for updates and information.Usage of laptops and tablets during classes is allowed, provided they are used for the class only.

Grading system - Modalités d'évaluation :

Grading policy:- Homework: 20%- Midterm: 30%- Final exam: 50%.The homework is done in pairs and is made of applied econometric exercises using R. We will not tolerate exact copies or late submissions.

Bibliography/references - Bibliographie/références :

Detailed lecture notes will be given all along the class.The following references may be useful to complement the content of the lecture notes:Greene, W., 2011, "Econometric Analysis", 7th edition, Pearson Education.Ruud, P., 2000, "An Introduction to Classical Econometric Theory", Oxford University Press.Stock, J., Watson, M., 2014, "Introduction to Econometrics", 3rd edition, Pearson Education.Wooldridge, J., 2015, "Introductory Econometrics: A Modern Approach", 6th edition, Cengage Learning Custom Publishing.

Planning:

Week	Date	Lecture #	Lectures progression forecast	Tutorials (Regular sessions)	Lab sessions (Regular sessions)	Questions sessions
1	03/09/2018	1 2 3	Chap 1: OLS	-	-	-
2	10/09/2018	4 5 6	Chap 2: Tests	-	1. Introduction R, OLS	-
3	17/09/2018	7 8	Chap 3: IV	1. OLS, Tests	2. OLS, Tests	-
4	24/09/2017	9 10		-	3. IV	-
5	01/10/2018	11 12	Chap 4: GLS / NLS	2. IV	-	Questions
6	08/10/2018	- 13 14	Midterm Chap 4: GLS / NLS	3. GLS, NLS	-	-
7	15/10/2018	15 16	Chap 5: MLE	-	4. White, NLS, Tests	-
8	22/10/2018	17 18		4. MLE	-	-
	29/10/2018	Holidays				
9	05/11/2018	19 20	Chap 6: GMM	-	5. MLE	-
10	12/11/2018	-	-	5. MLE	-	-
11	19/11/2018	-	-	-	6. GMM	Questions (lab)
12	26/11/2018	-	-	-	-	-
13	03/12/2018	-	-	-	-	Questions
14	10/12/2018	-	-	-	-	-
15	17/12/2018	-	-	-	-	-

Game Theory (Tréorie des jeux)

Course title - Intitulé du cours	Game Theory – Théorie des jeux
Level / Semester - Niveau /semestre	M1 / S1
School - Composante	Ecole d'Economie de Toulouse
Teacher - Enseignant responsable	Bertrand GOBILLARD
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Lecture Hours - Volume Horaire CM	30
TA Hours - Volume horaire TD	12
TP Hours - Volume horaire TP	0
Course Language - Langue du cours	English (international track) French (standard track)
TA and/or TP Language - Langue des TD et/ou TP	Anglais

Teaching staff contacts - Coordonnées de l'équipe pédagogique :

Bertrand Gobillard (bertrand.gobillard@tse-fr.eu, office MS 103)

Teaching assistants: Antoine Jacquet, Willy Lefez, Sarah Lemaire, Hung Thuy Nguyen,

Charles Pebereau and Yang Yang.

Course's Objectives - Objectifs du cours :

The game theory class is an introductory course to game theory. The objective is to provide rigorous foundations to the study of games that have become an important part of modern economics. At the end of the class we expect the students to be able to formalise an economic situation as a game and to solve it using the appropriate solution concept(s).

Course outline: The main tools of game theory are studied in turn: from static games under complete information to dynamic games under incomplete information. The course is illustrated with economic examples and applications, such as: Bertrand and Cournot models of competition, dynamic games of competition, bargaining games, signalling games, models of voting, collusion and repeated games, auctions, coordination games, bank runs, investment races; and so on. Students have access to a collection of problem sets with their correction (available on the moodle platform). These problems are studied during the tutorials. Slides containing the theoretical material taught during the lectures is at the disposal of the students on the moodle platform. The summary of their content is the following:

O. Defining and representing games (Normal form games, Mixed extension of a normal form game, Extensive form games, Extensive form and normal form); 3 - 4 lectures
I. Static games of complete information (Games under normal form, The notion of strict

dominance, The best response correspondence and Nash equilibria in pure strategies, The mixed extension of a normal form game, The best response correspondence and Nash equilibria in mixed strategies, Link between Nash equilibria and strict dominance) ; 5 - 6 lectures.
II. Dynamic games of complete information (Games under extensive form, Extensive form and normal form, Nash equilibria and backward induction, Subgame perfect Nash equilibria) ; 5 - 6 lectures
III. Repeated games (Finitely repeated games, Infinitely repeated games), 4 – 5 lectures
IV. Games with incomplete information . 2 – 4 lectures

Prerequisites - Pré requis :

There is no prerequisite, apart from the most basic mathematical tools (derivatives and basic calculus), and a taste for rigorous reasoning.

Practical information about the sessions - Modalités pratiques de gestion du cours :

Lectures: 30 hours, Language: English (1 class) and French (1 class). Tutorials: 12 hours (7 "Standard sessions" and one "Question session"), Language: English. The organisation of the lectures is as follows: three lectures are taught each week during the first 2 weeks (Monday afternoon, Tuesday afternoon and Thursday afternoon), during the remaining 5 weeks there are two lectures taught on Monday and Thursday afternoon.

Grading system - Modalités d'évaluation :

Midterm exam (20%) and final exam (80%).

Bibliography/references - Bibliographie/références :

There is no compulsory textbooks, but we would recommend:
Robert Gibbons, "A primer in Game Theory", Wheatsheaf Books, 1992; this book can also be found under the title "Game Theory for Applied Economists", Princeton University Press.
Steven Tadelis, "Game Theory: An Introduction", Princeton University Press.

More detailed and advanced material can be found in:
Martin Osborne and Ariel Rubinstein, "A course in Game Theory", The MIT Press,
Martin Osborne, "Introduction to Game Theory: International Edition", OUP Oxford,
Drew Fudenberg and Jean Tirole, "Game Theory", The MIT Press.

Experimental economics

Course title - Intitulé du cours	Experimental economics
Level / Semester - Niveau /semestre	M1 / Semestre 1
School - Composante	TSE
Teacher - Enseignant responsable	STIEGLITZ_JONATHAN
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Lecture Hours - Volume Horaire CM	15
TA Hours - Volume horaire TD	/
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 :

e-mail: jonathan.stieglitz@iast.fr
office: ME 603.2
office hours: by appointmentpreferred
means of interaction: e-mail

Course's Objectives - Objectifs du cours :

This course will introduce students to experimental economics, a collection of laboratory methods for empirical research in economics.Learning outcomes:1) Students will be able to describe and provide examples of experimental methods and procedures, and will be able to recognize the research contexts that potentially call for each particular method or procedure.2) Students will be able to describe and provide examples of important trade-offs between different experimental methods and procedures that could be used in a given research context.3) Students will be able to provide examples of methodological controversies in the history of experimental economics, and will be able to describe current professional opinion about such controversies.4) Students will demonstrate effective written and oral communication.

Prerequisites - Pré requis :

NA

Practical information about the sessions - Modalités pratiques de gestion du cours :

Students are expected to attend class and to actively participate in discussion during class.

Grading system - Modalités d'évaluation :

There will be a final exam (50% of grade) and a group assignment (50%)

Environmental economics

Course title - Intitulé du cours	Environmental economics
Level / Semester - Niveau /semestre	M1 / S1
School - Composante	Ecole d'Economie de Toulouse
Teacher - Enseignant responsable	ANDERSSON HENRIK
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Lecture Hours - Volume Horaire CM	15
TA Hours - Volume horaire TD	
TP Hours - Volume horaire TP	0
Course Language - Langue du cours	Anglais
TA and/or TP Language - Langue des TD et/ou TP	

Teaching staff contacts - Coordonnées de l'équipe pédagogique :

Henrik Andersson

Email: henrik.andersson@tse-fr.eu

Office: MS210

Office hours: Mondays, 8:30-10:00, by prior appointment by email only.

Course's Objectives - Objectifs du cours :

This course introduces students to environmental economics. It covers the basic principles of environmental economics and discusses environmental problems and how they can be addressed with policies and decision rules based on those principles. Teaching will be based on the economic theory of environmental economics combined with real life examples of different environmental goods and services.

The course is divided into two parts described below.

COURSE OUTLINE

Part 1: An introduction to Environmental Economics, 9 hours

a) What is environmental economics?

b) Efficiency and market failure

c) Nonrenewable resources

d) Risk and the environment

Part 2: Seminars in Environmental Economics, 6 hours

This part of the course will consist of a series of seminars on recent advances in environmental economics and policy and business relevant issues presented by TSE faculty and invited speakers.

Prerequisites - Pré requis :

Good understanding of intermediate microeconomics.

Grading system - Modalités d'évaluation :

Oral and/or written exam. Credits for attendance in the seminars (Part 2). Attendance in the lecture is mandatory.

Bibliography/references - Bibliographie/références :

The first part of the course follows the text book:

Kolstad, C.D., "Intermediate Environmental Economics", Oxford University Press, International edition, 2nd edition, 2011

Required reading will in addition to the textbooks consists of published scientific articles. Lecture notes, required readings, except textbooks, and any exercises will be made available through the Moodle course page.

Intermediate Econometrics CM

Course title - Intitulé du cours	Intermediate Econometrics CM
Level / Semester - Niveau /semestre	M1 / S1
School - Composante	Ecole d'Economie de Toulouse
Teacher - Enseignant responsable	CAZALS CATHY
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Lecture Hours - Volume Horaire CM	30
TA Hours - Volume horaire TD	10,5
TP Hours - Volume horaire TP	10,5
Course Language - Langue du cours	Français
TA and/or TP Language - Langue des TD et/ou TP	Français

Teaching staff contacts - Coordonnées de l'équipe pédagogique :

catherine.cazals@tse-fr.eu Office : MF425

Modes d'interactions privilégiés : email, RDV

Course's Objectives - Objectifs du cours :

Ce cours propose un approfondissement des principales méthodes utilisées en économétrie appliquée. Plus précisément, un premier chapitre traite de rappels et compléments concernant l'estimation et les tests dans le modèle de régression linéaire. Un deuxième chapitre examine la question de l'endogénéité dans le modèle de régression linéaire, et présente la méthode d'estimation par variables instrumentales. Enfin un troisième chapitre traite de la méthode d'estimation par maximum de vraisemblance avec des applications notamment à des modèles dans lesquels la variable expliquée est qualitative (modèles Logit ou Probit) ou censurée (modèle Tobit, modèle de comptage,…).

Ce cours a une visée « pratique » et a pour objectif de compléter les compétences acquises précédemment en économétrie en enrichissant « la boîte à outils », afin d'être apte à comprendre et traiter de façon rigoureuse une plus grande variété de questions empiriques.

Prerequisites - Pré requis :

modèle de régression linéaire, méthode MCO, tests statistiques usuels

Grading system - Modalités d'évaluation :

contrôle intermédiaire (30%), examen final (70%)

Bibliography/references - Bibliographie/références :

Wooldridge : « Introductory econometrics : a modern approach »

Stock and Watson: “Introduction to econometrics”

Econométrie approfondie

Course title - Intitulé du cours	Econométrie approfondie
Level / Semester - Niveau /semestre	M1 / Semestre 1
School - Composante	TSE
Teacher - Enseignant responsable	LAVERGNE_PASCAL
Other teacher(s) - Autre(s) enseignant(s)	Elodie Alet
Other teacher(s) - Autre(s) enseignant(s)	Jad Beyhum
Other teacher(s) - Autre(s) enseignant(s)	Elia Lapenta
Other teacher(s) - Autre(s) enseignant(s)	Kevin Remmy
Other teacher(s) - Autre(s) enseignant(s)	
Lecture Hours - Volume Horaire CM	30
TA Hours - Volume horaire TD	10,5
TP Hours - Volume horaire TP	10,5
Course Language - Langue du cours	Français
TA and/or TP Language - Langue des TD et/ou TP	Anglais

Teaching staff contacts - Coordonnées de l'équipe pédagogique :

Lecturers:
François Poinas, MF 426, francois.poinas@tse-fr.eu, office hours by appointment
Shruti Sinha, MF 503, shruti.sinha@tse-fr.eu, office hours by appointment
Pascal Lavergne, MF 210, pascal.lavergne@ut-capitole.fr, office hours by appointment
Teaching Assistants:
Elodie Alet, Elodie.Alet@ut-capitole.fr
Jab Beyhum, jad.beyhum@ut-capitole.fr
Elia Lapenta, elia.lapenta@ut-capitole.fr
Kevin Remmy, kevin.remmy@ut-capitole.fr

Course's Objectives - Objectifs du cours :

This is an intermediate econometrics course, which builds on the introductory econometrics course (L3) and is a prerequisite for applied econometrics and program evaluation courses (M1), as well as the econometrics courses in later years. We will study the main econometric methods used in applied economics. The methods are further studied and illustrated with economic applications in tutorials and hands-on applied exercises in the lab with R.The course reviews Ordinary (OLS) and Generalized Least Squares (GLS), and studies Instrumental Variables (IV) Methods, Nonlinear Least Squares (NLS), Maximum Likelihood Estimation (MLE) and Generalized Method of Moments (GMM), focusing on their proper use and asymptotic properties.At the end of the course, students should be able to use the suitable methods depending on the context, should know their main properties and be able to establish them, and should know how to interpret the results in practice.

Prerequisites - Pré requis :

Prerequisites are Inferential Statistics (L2) and Introductory Econometrics (L3).Here are the main concepts students should be familiar with:Probability: random variables and vectors, probability distribution (joint, marginal, conditional) and density, quantiles, moments (expectation, variance, standard deviation,...), conditional expectation and variance, normal vectors and related distributions (Chi-square, Student, Fisher).Those concepts are presented in Greene (2011), Appendix B.Inferential Statistics: random sampling, empirical moments (mean, variance,…) and quantiles, modes of Convergence (weak, quadratic mean, in law), estimator, unbiasedness, efficiency, law of large

numbers, central limit theorem, confidence interval, hypothesis testing.Those concepts are presented in Greene (2011), Appendix C.Econometrics: Simple and multiple linear regressions, least squares (estimation, finite sample properties), confidence intervals, tests, interpretation of parameter estimates (continuous and discrete explanatory variables, models with the dependent and/or explanatory variables in log), heteroskedasticity.Those concepts are covered in Stock, Watson (2014), chapters 4 to 7 or Wooldridge (2015), chapters 1 to 8.

Practical information about the sessions - Modalités pratiques de gestion du cours :

Attendance to lectures and tutorial/lab sessions is essential and participation during class is strongly encouraged. Lecture notes and problem sets will be available on the course webpage on Moodle. Students have to read the lecture notes and work on the problem sets before attending the corresponding lecture/tutorial/lab session. Students are expected to check the course webpage regularly for updates and information.Usage of laptops and tablets during classes is allowed, provided they are used for the class only.

Grading system - Modalités d'évaluation :

Grading policy:- Homework: 20%- Midterm: 30%- Final exam: 50%.The homework is done in pairs and is made of applied econometric exercises using R. We will not tolerate exact copies or late submissions.

Bibliography/references - Bibliographie/références :

Detailed lecture notes will be given all along the class.The following references may be useful to complement the content of the lecture notes:

- Greene, W., 2011, "Econometric Analysis", 7th edition, Pearson Education.
- Ruud, P., 2000, "An Introduction to Classical Econometric Theory", Oxford University Press.
- Stock, J., Watson, M., 2014, "Introduction to Econometrics", 3rd edition, Pearson Education.
- Wooldridge, J., 2015, "Introductory Econometrics: A Modern Approach", 6th edition, Cengage Learning Custom Publishing.

Planning:

Week	Date	Lecture #	Lectures progression forecast	Tutorials (Regular sessions)	Lab sessions (Regular sessions)	Questions sessions
1	03/09/2018	1 2 3	Chap 1: OLS	-	-	-
2	10/09/2018	4 5 6	Chap 2: Tests	-	1. Introduction R, OLS	-
3	17/09/2018	7 8	Chap 3: IV	1. OLS, Tests	2. OLS, Tests	-
4	24/09/2017	9 10		-	3. IV	-
5	01/10/2018	11 12	Chap 4: GLS / NLS	2. IV	-	Questions
6	08/10/2018	- 13 14	Midterm Chap 4: GLS / NLS	3. GLS, NLS	-	-
7	15/10/2018	15 16	Chap 5: MLE	-	4. White, NLS, Tests	-
8	22/10/2018	17 18		4. MLE	-	-
	29/10/2018	Holidays				
9	05/11/2018	19 20	Chap 6: GMM	-	5. MLE	-
10	12/11/2018	-	-	5. MLE	-	-
11	19/11/2018	-	-	-	6. GMM	Questions (lab)
12	26/11/2018	-	-	-	-	-
13	03/12/2018	-	-	-	-	Questions
14	10/12/2018	-	-	-	-	-
15	17/12/2018	-	-	-	-	-

Development economics

Course title - Intitulé du cours	Development economics
Level / Semester - Niveau /semestre	M1 / S1
School - Composante	Ecole d'Economie de Toulouse
Teacher - Enseignant responsable	AZAM JEAN-PAUL
Other teacher(s) - Autre(s) enseignant(s)	None
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Lecture Hours - Volume Horaire CM	15
TA Hours - Volume horaire TD	
TP Hours - Volume horaire TP	0
Course Language - Langue du cours	Anglais
TA and/or TP Language - Langue des TD et/ou TP	

Teaching staff contacts - Coordonnées de l'équipe pédagogique :

I am easily accessible either at my office #MF120 or, the most popular method is to talk to me at the end of the class. If you can't find my e-mail address on the internet, please go back to first-year undergraduate.

Course's Objectives - Objectifs du cours :

The slides of the course is fully accessible on Moodle

Prerequisites - Pré requis :

You need to have completed a good introductory course in microeconomics and to have a basic understanding of quantitative methods (say, regression analysis and t-ratio tests).

Practical information about the sessions - Modalités pratiques de gestion du cours :

You can attend the way you want, laptops, drinks, sandwiches are all allowed, as long that you are not noisy and do not disturb your neighbors. If you bring your laptop, I might ask you to do some research for me on Google.

Grading system - Modalités d'évaluation :

The final exam is an oral one, taking place in my office #MF120. You pick up a question in a bag, and you have 18 minutes to be allocated between preparation and présentation. Clarity and structured presentation are the essence of the exercise.

Bibliography/references - Bibliographie/références :

Chapter 1: Migration Failures and the Mismatch of People and Opportunities.

Nunn, N. (2008): "The Long-Term Effect of Africa's Slave Trade", Quarterly Journal of Economics, 123 (1), 139-176.

Lewis, A.C. (1954): "Economic Development with Unlimited Supplies of Labour", Manchester School, 22, 139-191.

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Chapter 2: Interest Groups and Labor Market Distortions.

Harris, J., and M. Todaro (1970): "Migration, Unemployment and Development: A Two-Sector Analysis", American Economic Review, 60, 126-142.

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Chapter 3: Interest Groups and Distortions on Imports and Exports.

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Chapter 4: Conflict and Redistribution.

Ghazvinian, J. (2007): Untapped: The Scramble for African Oil. Harcourt: New York.

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Azam, J.-P. (2015): "Can Economic Incentives Tame Jihad? Lessons from Sudan and Chad", TSE Working Paper n°15-564, March 2015.

Session planning - Planification des séances :

see above

Applied econometrics

Course title - Intitulé du cours	Applied econometrics
Level / Semester - Niveau /semestre	M1 / Semestre 1
School - Composante	TSE
Teacher - Enseignant responsable	ERSHOV DANIEL - POINAS FRANCOIS
Other teacher(s) - Autre(s) enseignant(s)	Olivier De Groote
Other teacher(s) - Autre(s) enseignant(s)	Daniel Ershov
Other teacher(s) - Autre(s) enseignant(s)	Farid Gasmi
Other teacher(s) - Autre(s) enseignant(s)	Victor Gay
Other teacher(s) - Autre(s) enseignant(s)	Ana Gazmuri
Lecture Hours - Volume Horaire CM	15
TA Hours - Volume horaire TD	/
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 :

Lecturers / advisors:Olivier De Groote, office hours by appointmentDaniel Ershov, MF 420, daniel.ershov@tse-fr.eu, office hours by appointmentFarid Gasmi, MF 123, farid.gasmi@tse-fr.eu, office hours by appointmentVictor Gay, office hours by appointmentAna Gazmuri, MF 403, ana.gazmuri@tse-fr.eu, office hours by appointmentCristina Gualdani, MF 408, cristina.gualdani@tse-fr.eu, office hours by appointmentNicolas Pistolesi, MF 207, nicolas.pistolesi@tse-fr.eu office hours by appointmentFrançois Poinas, MF 426, francois.poinas@tse-fr.eu, office hours by appointmentShruti Sinha, MF 503, shruti.sinha@tse-fr.eu, office hours by appointmentTeaching Assistants:Christophe Bruneel, christophe-alain.bruneel@ut-capitole.frJacint Enrich Moya, jacint.enrich-moya@ut-capitole.frLuise Eisfeld, luise.eisfeld@ut-capitole.frCelia Ruiz Mejia, celia.ruiz-mejia@ut-capitole.fr

Course's Objectives - Objectifs du cours :

The objective of the course is to make students able to undertake empirical work in economics. It builds on the Intermediate Econometrics course (M1) and is a prerequisite for applied courses in later year. At the end of the class, students should be able to:

(i) define a precise economic question and motivate it using stylized facts, arguments taken from economic theory and/or public policy considerations,
(ii) write a synthetic review of the academic literature related to a given question,
(iii) choose, collect and treat a dataset,
(iv) select and apply the appropriate econometric methods to answer an economic question,
(v) interpret the empirical results obtained from an econometric analysis,
(vi) identify the strength and weaknesses of an econometric analysis,
(vii) write a paper that presents an empirical economic analysis,
(viii) present orally an empirical analysis.

The course is articulated around lectures, tutorial sessions and an empirical project.

Lectures (all lectures are taught in the first semester):

The lectures are divided into three sections of three lectures each that cover some applied topics in different areas of research. Details on the content of each section are available on the course webpage.All students also attend two plenary lectures: one that presents the course's content and organization (first lecture) and one that presents the different stages to be followed when carrying out an empirical project (in October).

Tutorial sessions (all tutorial sessions are taught in the second semester):

Tutorial sessions alternate between presentation sessions and lab sessions. During presentation sessions, students present the advancement of their empirical project and receive some feedback from their TA and other students in the class. During computer lab sessions, students analyze data on empirical questions using Stata.Empirical project (the empirical project is carried out from November to March):Students have to conduct an empirical project in small groups. The empirical project consists in defining a precise economic question, motivating it, collecting data and performing an econometric analysis to answer the question. A paper is submitted by early March and an oral presentation is done by the end of March.

Prerequisites - Pré requis :

Econometrics concepts covered in the Intermediate Econometrics course, taught in the first semester of Master 1. Concepts needed to attend the lectures of Applied Econometrics in the first term are covered beforehand in the Intermediate Econometrics course.

Practical information about the sessions - Modalités pratiques de gestion du cours :

Attendance to lectures is essential. Students have to attend the two plenary lectures and the three sections.Attendance to tutorials is mandatory. In particular, all students of a given group have to be present when their group has to present the advancement of the empirical project.Material for the course is displayed on Moodle. Students are expected to check it regularly for updates and information.Instructions and advices for the empirical project are sent regularly via the course webpage. Students have to follow strictly instructions concerning group formation, deadlines and format of the documents to be submitted. Non-compliance with instructions is penalized by deductions of points from the project grade.Students receive guidance from various sources to help them in conducting their empirical project: meetings with their advisor, feedback received from presentations of the advancement of their project in tutorial sessions and office hours dedicated to technical assistance.Plagiarism and academic integrity: in the paper submitted at the end of the term, students have to be very careful about citing the source of all ideas that are not their own ones. Anything without citation is understood as being created by the students who wrote the paper. Failing to cite the source of an idea expressed by someone else is a case of plagiarism. Plagiarism will be penalized by a grade of 0 for the empirical project and the case will be sent to the disciplinary council of the University that may take disciplinary sanctions, like university exclusion.

Grading system - Modalités d'évaluation :

The final grade is made of different components, all related to the empirical project:- Empirical project proposal (submission deadline to be announced on the course webpage)- Presentation of the advancement of the project done during tutorial sessions- Final paper (submitted in early March)- Final oral presentationDetailed information on the weight of each component in the final grade and

the criteria used for grading will be available on the course webpage (moodle) at the beginning of the course.

Bibliography/references - Bibliographie/références :

Some reading material is handed out all along the lectures and tutorial sessions as needed.The lecture that presents the different stages to be followed when carrying out an empirical project is based on the following textbook chapter:Wooldridge, J., 2015, “Introductory Econometrics: A Modern Approach”, 6th edition, Cengage Learning Custom Publishing: Chapter 19.

Session planning - Planification des séances :

The schedule of the lectures (first semester) and the deadlines for the empirical project are available on the course webpage.