

Master in Quantitative Economics

MASTER 2 QUANTITATIVE ECONOMIC ANALYSIS

Compendium of the syllabus Academic Year: 2020-2021

Summary of the Year

Semester 1

	Course load	Field	ECTS
Block I: Quantitative methods, 12 ECTS (to choose within the chosen field)			
Advanced Microeconometrics	27	THEO, SPP	6
Advanced Macroeconometrics	27	THEO, MF	6
Contract, Mechanisms and Auctions	27	THEO, SPP, MF	6
Introduction to Machine Learning (**)	36	THEO, SPP, MF	3
Modelling in Decision Aiding and Operational Research (*)	15	THEO, SPP	3
Preference Modelling and Multiple Criteria Decision Making (*)	15	THEO, SPP	3
Bayesian techniques in Macroeconomics	15	MF	3
Stochastic calculus	24	THEO, MF	3

(*) Mandatory up-grade course (Early september)

Block II : Specialization courses, 18 ECTS (to choose within the chosen field):			
Behavioral economics and bounded rationality	27	THEO	6
Empirical Industrial Organization	27	THEO, SPP	6
Advanced Game Theory	27	THEO	6
Health Economics	27	SPP	6
Development microeconomics	21	SPP	6
Economics of Education	27	SPP	6
The Economics of Energy and the Environment	27	SPP	6
Topics in Labor markets	27	SPP, MF	6
International Macroeconomics & Trade	27	MF	6
Business Cycles and Stabilization policies	27	MF	6
Asset pricing	27	MF	6

Legend of the fields: THEO: Theory; SPP: Social and public policies; MF: Macroeconomics & Finance

Semester 2

	Course load	Field	ECTS
Specialization courses, 9 ECTS, 3 courses to choose (min 2 within the field):			
Market design & Information design	18	THEO, SPP	3
Transport and variational problems in economics	15	THEO	3
Individual and collective decisions	18	THEO	3
Advanced Health economics	18	SPP	3
Empirical methods for valuation in cost benefit analysis	18	SPP	3
Policies in developing countries	21	SPP	3
Research Methods in Monetary Economics	18	MF	3
Advanced Macroeconomics: Frictions & Policies	18	MF	3
Banking economics	18	MF	3
Behavioral Finance	18	MF, THEO	3
Research seminar, 3 ECTS (within the field)			
Research seminar: International trade and development	18	SPP	3
Topics in Labor & Education	18	SPP	3
Topics in Health and Ageing	18	SPP	3
Research Seminar: Market regulation	18	THEO, MF	3
Topics In Macroeconomics & Finance	18	MF	3
Master Thesis, 18 ECTS			

Semester 1

Block I: Quantitative methods

Advanced Macroeconometrics

Professor: Sylvain BENOIT (Université Paris Dauphine, LEDa & PSL Research University)

Course load: 27 hours, 9 sessions of 3 hours

ECTS : 6

Field: Macroeconomics & Finance, Theory

Overview:

This course provides advanced econometrics tools for applied macroeconomics. Emphasis is on hands-on implementation of the methods covered in the course. Topics include macroeconomic data, linear and nonlinear time series models, practical issues with likelihood-based inference for these models, computational approaches to hypothesis testing and model comparison, forecast evaluation, and structural identification.

Prerequisites

Econometrics 1 and Bayesian technique in macroeconomics

Course Objectives:

The course provides a deep knowledge of the advanced time series techniques and their application to macroeconomics. A technical presentation of these models will be given, before studying applications of these models to macroeconomics.

The course will equip students with the necessary knowledge to be able to undertake econometric analysis of the type commonly associated with modern macroeconomic research. Substantial emphasis will be placed on the development of programming skills in MATLAB.

Advanced Microeconometrics

Professor: Eric Bonsang (Université Paris-Dauphine, LEDa & PSL Research University)

Course load: 27h, 9 sessions (3 hours per session)

ECTS: 6

Field: Social and Public policies, Theory

Overview:

This course explores different topics in applied microeconometrics. It focuses on causal inference and how econometrics can help identify causality in a credible way. It discusses the advantages and limitations of particular types of approaches/tools that are used in econometrics. It covers the following topics: Causal inference and identification, Randomized experiment, Regression and causality, Instrumental variables approach, Difference-in-differences estimation and Regression discontinuity designs. The course will review the theory underlying those different techniques and will discuss the recent studies that have applied those different methods to make causal inference.

Prerequisites

M1 Courses: Microeconometrics 2

Course Objectives:

The objective of the course is to provide students the econometric methods aiming at identifying causal relationships. These methods are widely applied in economics to assess the effects of policy interventions and other treatment on interest. After attending the classes, the students will be able to have a deep understanding and a critical view on studies aiming at identifying causal effects and to apply those methods for their own research.

Contract, Mechanisms and Auctions

Professor: David Ettinger (Université Paris-Dauphine, LEDa & PSL)

Course load: 27 hours, 9 sessions of 3 hours

ECTS : 6

Field: Theory, Social and Public policies, Macroeconomics and Finance

Overview:

The course considers the structure of contractual relationships in the presence of asymmetric information and the allocation of scarce resources through specific mechanisms. Applications to regulation and to allocation issues will be considered.

Prerequisites

Standard microeconomic theory. Elements of game theory (Nash perfect, Bayesian perfect, reputation). All is taught in the program.

Course Objectives:

The objective of the course is to provide an introduction to contract theory and allocation issues which have proved to be useful tools for the analysis of many theoretical and applied economics issues.

Economics is about gains from trade. Contracts are essential to realizing these gains. The general equilibrium framework ignores many elements of real-world contracting. Does non-competitive contracting among small numbers of agents necessarily give rise to inefficiency? As argued by Coase, the answer depends on the existence of *transaction costs*. We will study contracting under *transaction costs*. We will introduce the general principal-agent model and consider informational frictions both about agent's type and agent's action.

Regarding auction, the course starts with Vickrey's 1961 and presents the more recent contribution of game theory with incomplete information applied to auction. We will characterize equilibria of the various auctions and compare their performances in terms of allocation efficiency, expected revenue and robustness.

After attending the classes, the students will master the modeling of informational asymmetries, which are of pervasive importance in various economic issues. They will be able to rely on these models to address a number of questions tied to regulation and allocation issues.

[Introduction to Machine Learning](#)

Teacher: Yann Chevaleyre (Université Paris-Dauphine, LAMSADE, & PSL)

Course Load: 36h

ECTS: 3

Field: Theory, Social and Public policies, Macroeconomics and Finance

Overview

After reviewing the Principal Components Analysis, according to a general presentation using singular decomposition values, the course will present the method of Correspondence Factor Analysis (CFA). Then, we will introduce the classification methods (supervised) and present the case of the Factorial Discriminant Analysis. The course also presents the clustering methods (k-means method and Agglomerative Hierarchical Clustering). Applications to the treatment of surveys using the R software are then provided.

Course Objectives

The objective of the course is to introduce the methods of multidimensional descriptive data analysis for the processing of large datasets. We will notably study the links between the nominal variables in the tables produced by the surveys.

Prerequisites :

Mathematics and optimization, Statistics and probability

Notice that an up-grade course in Early September is mandatory.

[Preference Modelling and Multiple Criteria Decision Making](#)

Teacher: Brice Mayag (Université Paris-Dauphine, LAMSADE & PSL)

Course Load: 15h

ECTS: 3

Field: Theory, Social and Public policies

Overview

This course is an introduction to the main tools and techniques of preference modelling and multiple criteria decision making. The course will cover the following topics: Introduction to modelling for decision aiding and to Preference modelling; Social choice: introduction to social theory, voting rules and their properties; Multi-attribute Value Theory; ELECTRE methods: introduction to the ELECTRE methods.

Prerequisites

Note that it is mandatory to follow an up-grade **course** delivered in the beginning of September so as to have all the tools needed to follow this course in good conditions.

Objectives:

After attending the classes, the students will have acquired a good knowledge of the concepts of preference modelling and elicitation techniques.

Modelling in Decision Aiding and Operational Research

Teacher: Daniel Vanderpooten (Université Paris-Dauphine, LAMSADE & PSL)

Course Load: 15h

ECTS: 3

Field: Theory, Social and Public policies

Overview

The course will introduce the students to the main models in decision aiding and operational research. After presenting the definition and roles of models in Decision Aiding/Operational Research, we will study the solution and preference models. We will then describe the modelling process and its different phases. The course will then introduce to non-trivial models using various modelling frameworks and the use of binary variables in linear programming. We will finish by studying the modelling and solving tools (modelers and solvers).

Prerequisites

It is mandatory to follow a **preparatory course** delivered in the beginning of September so as to have all the tools needed to follow this course in good conditions.

Course Objectives :

The course aims at presenting the modelling process in Decision Aiding/Operational Research as well as original models for various decision problems.

After attending the classes, the students will have a solid knowledge of some important points and techniques to undertake a decision support study.

Bayesian techniques in Macroeconomics

Professor: Gauthier Vermandel (Université Paris-Dauphine, LEDa & PSL Research University, France Stratégie)

Course load: 15h, 5 sessions with 3 hours per session

ECTS : 3

Field: Macroeconomics & Finance

Overview:

The lectures provide a self-contained introduction to the building, simulation and estimation of the Dynamic Stochastic General Equilibrium models that constitute the main workhouse of today's financial macroeconomics. These models, which incorporate micro-foundations, dynamic relations and rational expectations in a macroeconomic framework, have now become a powerful tool used in central banks for policy projections. The course will present the recent

developments in Bayesian econometrics that are commonly used to estimate these models. After recalling the standard VAR (Vector Autoregressive) model *à la* Sims (1980), the course will present the Bayesian VAR model *à la* Sims & Zha (1998). These class of atheoretical models is then compared to theoretical DSGE models *à la* Smets & Wouters (2003, 2007).

Prerequisites

A solid background in both microeconomics and macroeconomics is a prerequisite. A background in Econometrics (time series + VAR models) and MATLAB programming are a plus but not compulsory.

Course Objectives:

The objective of the course is to equip the students with the more advanced estimation techniques of macroeconomic models. It will provide the most up-to-date tools to allow the students to get a deep knowledge of these models and to be able to read and understand policy and research papers using these approaches.

After having attended the classes, the students will master the up-to-date estimation techniques of the macroeconomic models which are now employed in policy institutions such as the ECB, the Banque de France or the IMF. Using the estimated models, students will be able to perform business cycles analysis (variance decomposition, inspecting propagation mechanisms, variance forecast error decomposition), as well as forecasting exercises using both VAR, B-VAR and DSGE models. These types of skills are typically required in a growing number of policy-making institutions.

Stochastic calculus

Professor: René Aïd (Paris Dauphine University, LEDa & PSL)

Course load: 24 HETD (8 sessions, 3 hours each)

ECTS : 3

Field: Macroeconomics and Finance, Theory

Overview:

Continuous-time modeling has taken a significant place in financial economics both from theoretical analysis of market equilibria and for management sciences. These lectures introduce stochastic calculus for two main applications, namely the pricing of contingent claims and the maximisation of intertemporal utility.

Prerequisites

Background in probability theory, differential calculus, ordinary differential equations, optimization.

Course Objectives:

The objective of the course is to make the students familiar with the fundamental techniques of stochastic calculus. After attending the classes, the students will master the tools of stochastic calculus which are required to address issues in financial economics and management science applications.

Block II: Specialization courses

Advanced Game Theory

Professor: Françoise FORGES, University Paris-Dauphine, LEDa & PSL

Course load: 27h (9 sessions of 3h)

ECTS: 6

Field: Theory

Overview:

The content of the course can be decomposed in two parts.

1) So-called "noncooperative games": Multistage games with incomplete information

- Solution concepts: Nash equilibrium, perfect Bayesian and sequential equilibrium (typically capturing backward induction), stable equilibrium (typically capturing forward induction), communication equilibrium
- Applications: signaling, auctions, cooperation, negotiation, reputation

2) So-called "cooperative games": Nontransferable and transferable utility games in characteristic function form

- Solution concepts: Nash and other bargaining solution, core, Shapley value
- Applications: negotiation, market games, voting games

Prerequisites :

Master 1 Courses : Mathematics and optimization, Game theory

Course Objectives:

The objective of the course is to give a deep background in interactive decision-making and its applications.

After having attended the classes, the students will be able to read recent academic papers applying game theory to various area of economics and to make use of game theory in their future research work.

Empirical Industrial Organization

Professor: Andras Niedermayer (University Paris-Dauphine, LEDa & PSL) and Daniel Herrera (University Paris-Dauphine, LEDa & PSL)

Course load: 18, 6 sessions; 3 hours per session

ECTS: 3

Field: Theory, Social and public policies

Overview:

In this course we will cover mainstream empirical industrial organization methods. The main goal is to provide a set of tools necessary to undertake empirical analyses typically performed in Industrial Organization. Most methods that will be reviewed in this course are not limited to

empirical IO, but can be used in a variety of different fields (such as health, finance, and environmental economics).

The course will consider reduced-form estimation papers, seeking to provide insights from data to understand how markets work. The course will also deal with structural estimation of supply and demand models, search models, and auctions, taking the theoretical models to the data with the objective of generating policy-relevant counterfactuals.

Reduced and structural econometrics methods requires the use of programs such as Python, Stata or Matlab. Practical tutorials will ensure the implementation of the materials provided in the course.

Prerequisites

Industrial Organization; Advanced Industrial Organization; Econometrics

Course Objectives:

The objective of the course is to provide the students with an appropriate understanding of key empirical industrial organization models.

After having attended the classes, the students will:

- have an overview of seminal and recent papers in empirical IO
- understand core empirical methods
- understand the data requirements for each method to be implemented
- have a working knowledge on Stata, Matlab and Python

[Behavioral economics and bounded rationality](#)

Professor: Bertrand Villeneuve (Université Paris-Dauphine, LEDa & PSL)

Course load: 27 hours, 9 sessions of 3 hours

ECTS : 6

Field: Theory

Overview:

The course will study the main features motivating behavioural economics: Nonstandard preferences; nonstandard beliefs; nonstandard decision making. Emphasis will be set on presenting this expanding research field that incorporates elements of bounded rationality and behavioural economics in models that maintain the game theoretic tradition of high logical standards. By choice, the course will not be about experimental protocols, but rather on main ideas and debates.

Prerequisites

Standard microeconomic choice (static and intertemporal). Basic game theory (Nash perfect, Bayesian perfect).

Course Objectives:

The objective of the course is to present the most important themes in behavioral economics. The motivation of this dynamic research program is deeply empirical and sometimes anecdotal. Accordingly, many papers start by pointing at behaviors that standard models relying on the rationality assumption cannot explain. The course itself will focus in the ways the authors have

modelled these puzzling features of human behaviors. We will study how, in turn, these models enable new predictions and fine tuning.

The topic has reached a certain degree of maturity. The course will examine the new standards to see where the research is going to. After studying the classes, the students will be able to read the cutting-edge research on the topic. Given the variety of ways by which standard models can be tweaked, the course is not intended to promote a particular view, but to help aspiring modelers to think about their choices.

[Advanced Health economics](#)

Professor: Florence Jusot, Université Paris Dauphine, LEDa & PSL University

Course load: 27h, 9 sessions of 3 hours per session

ECTS : 3

Field: Social and public policies

Overview:

This course aims at addressing the main issues in health economics in order to develop students' awareness to understand current debates in the organization, the financing and the equity of health systems. We will first present the specificities of the demand for health and for preventive and curative health, the economics determinants of health and in particular the complex relationships existing between income, labor and health, and the determinants of health-related behaviors. Most attention will be paid on the relevance of incentives and on behavioral determinants. The second part of the course will address economics tools for the regulation of health system organization. We will present various concepts and tools used in order to assess equity in health, health care use and health system finance, in order to judge the efficiency of health strategy, and in order to evaluate health policies.

Prerequisites

Courses in Master 1: Microeconomics 1 & 2, Industrial organization, Public policy

Course Objectives:

The objective of the course is to present the state of the art as concerns the treatment of the main current issues in health economics.

After having attended the classes, the students should be able to take up the reading of most research papers in health economics. They will be able to know how to gather sensible literature to write a comprehensive international survey on any policy question in health economics.

[Development Microeconomics](#)

Professor: Philippe De Vreyer (University Paris-Dauphine, LEDa & PSL)

Course load: 21 hours, in 7 sessions of three hours..

ECTS : 3

Field: Social and Public policies

Overview:

Beyond the obvious differences in standard of living, what distinguishes developing countries (DCs) from developed countries is the functioning of markets, which are more frequently failing in developing. Taking this into account is of primary importance to understand the behavior of households in developing countries and to design policies able to successfully fight against poverty. The course studies these issues both theoretically and empirically by addressing several topics in which they are relevant: Agricultural production and rural households; credit and insurance markets; intrahousehold decision making and inequality; fertility, demography and education; migration and transfers.

Teaching will be complemented with the readings of a short selection of research papers on which students may be tested.

Prerequisites

Microeconomics, Microeconometrics

Course Objectives:

After attending the classes, the students will have a solid understanding of the main market failures in developing countries and how they shape the households' behaviors. A careful reading of academic papers on these subjects will give them the most up-to-date research on these issues, and the appropriate tools to understand the policy implications.

Economics of Education

Teacher: Gabrielle Fack (Professor, University of Paris-Dauphine, LEDa & PSL) and Elise Huillery (Professor, University of Paris-Dauphine, LEDa & PSL)

Course load: 27 hours, 18 sessions of 1.5 hours; 2 sessions per week during 9 weeks

ECTS: 6

Field: Social and public policies

Overview:

This course provides an introduction to the economic analysis of the investment in and provision of education. The theoretical background that explains individual and public investment in education is reviewed and linked to empirical evidence.

The first part of the course presents the reasons why public intervention is necessary on the market of education. The second part of the course focuses on the demand for education and policies aimed at increasing it, which include decreasing the cost of education, increasing the perceived returns to education, and providing some information or incentives to overcome behavioral issues. The third part of the course focuses on the supply side, i.e. the production and provision of education. Examples are the role of important inputs such as schools, class size and teachers, as well as the role of student assignment mechanisms. Finally, the last part of the course discusses equity issues, the importance of contextual and peer effects, and the need for affirmative action. These topics will be considered both in developing and developed countries.

Prerequisites

Econometrics, microeconomics, public economics.

Course Objectives:

The first objective of the course is to provide students with a clear understanding of the functioning of the education market and of the rationale for public interventions on this market. At the end of the course, the students will be able to identify the market failures that concern education, and the type of policies that are required to solve these market failures.

The second objective of the course is to review the empirical evidence on the educational policies and to learn how to build rigorous impact evaluations. At the end of this course, the students will have a good understanding of the main quantitative methods used by economists to evaluate the impact of educational policies and contribute to the social debate on education.

This class will be very useful to students who want to do a PhD dissertation on applied microeconomics topics, as well as to students who plan to work in institutions that produce quantitative evidence on microeconomic topics such as OECD, Ministry of Education, the World Bank, UNICEF, ILO, etc.

[The Economics of Energy and the Environment](#)

Professor: Jan Horst Keppler (Université Paris-Dauphine, LEDa & PSL)

Course load: 27h, 7 sessions, 3h per session

ECTS: 3

Field: Social and public policies

Overview:

The course will study the following topics: Externalities, Fixed Costs and Information; The Static Model of Optimal Internalization of Externalities (the Pigouvian approach); The Measurement of Externalities (abatement cost, loss of option value, the Coasean critique); Energy and Sustainable Development; Electricity Markets and the interaction of Carbon and Electricity Markets.

Prerequisites

Microeconomics, Industrial organization

Course Objectives:

The class will provide students with an overview of key concepts in both environmental economics and energy economics with a special focus on the performance of European electricity markets. The class will develop those notions in a framework alternating between private and social utility maximisation.

The class should enable students to apply the most important notions of environmental and energy economics to basic policy analysis.

[Topics in Labour Markets](#)

Professor: Eve Caroli (Université Paris Dauphine, LEDa & PSL Research University)

Course load: 27 hours, i.e. 9 sessions of 3 hours each

ECTS : 6

Field: Social and public policies, Macroeconomics and finance

Overview:

This course will cover a number of topics at the frontier in current research in labour economics: inequality, income redistribution, job search, unions, discrimination, labour contracts, employment protection etc.

Prerequisites

Microeconomics, Econometrics

Course Objectives:

The objective of the course is to provide students with advanced knowledge of a series of topics that are key to public policy in the field of labour. The course will cover both the theoretical and empirical aspects of all topics. It will also systematically discuss the relevant policy implications.

After attending the course, the students will have acquired the tools that are necessary to analyse public policies in the field of labour. They will also have an excellent mastering of the nature of these policies and be equipped to make policy recommendations in the field of labour economics.

Asset pricing

Teacher: Jérôme Dugast (University Paris-Dauphine, DRM-Finance & PSL)

Course load : 27h (9 sessions of 3h)

ECTS: 6

Field: Macroeconomics & Finance

Overview:

The course will cover the following topics: Decision Making under Uncertainty; Mean-Variance Analysis and the CAPM; Arbitrage Pricing Theory and Factor Models; Equilibrium Consumption-based Asset Pricing; Dynamic Equilibrium Asset Pricing Models; Estimation and Evaluation of Asset Pricing Models; Asymmetric Information and Asset Prices; Illiquidity and Asset Prices; Behavioral Asset Pricing; Limits to Arbitrage.

Prerequisites

Mathematics and optimization, stochastic calculus, Microeconomics II

Course Objectives

In this course, we will discuss a wide range of topics ranging from no arbitrage, state prices, consumption-based asset pricing, and factor models to more special topics including asymmetric information and behavioral finance.

After attending the class, the students will be able to address issues related to the behaviors of agents and prices on financial markets on theoretical and empirical grounds.

International Macroeconomics and Trade

Professor: Lise Patureau (University Paris-Dauphine, LEDa & PSL)

Course load: 27, 18 sessions of 1.5 hours each, 2 sessions per week

ECTS : 6

Field: Macroeconomics & Finance

Overview:

The course is a topics course in international macroeconomics, which also uncovers the recent advances in international trade that put emphasis on the role of firm heterogeneity. It will rely on the theoretical modelling of the New Open Economy Macroeconomy framework (Obstfeld & Rogoff, 1995), which embeds explicit microfoundations in a dynamic general equilibrium perspective. A first part of the course focuses on international macroeconomics issues: How can an open economy use her current account to adjust to exogenous shocks? How can we model international risk sharing, how can we understand the current global imbalances? In the second part, we will study the recent advances in international macroeconomics that incorporate elements from the international trade literature, by modeling the role of the extensive margin of trade à la Méltz (2005) in an international macroeconomic setting.

Prerequisites

Master 1 : International Trade, Macroeconomics, macroeconometrics

Master 2 : Advanced macroeconometrics, Bayesian techniques

Course Objectives:

The objective of the course is to introduce some key topics of interest in the field of international macroeconomics, and to provide the students with the modelling framework to address them. In complement with the standard textbook, the students will be trained to read leading research articles on these issues.

After attending the classes, the students will have a decent understanding of the intertemporal approach of the current account, and how to use it to address some key issues in international macroeconomics. They will also master the cutting-edge research at the frontier between international macroeconomics and international trade, and how to think about economic policy in this global framework.

Business Cycles and stabilization policies

Professor: Anne Epaulard (Université Paris-Dauphine, LEDa & PSL, France Stratégie) and Gauthier Vermandel (Université Paris-Dauphine, LEDa & PSL, France Stratégie)

Course load: 27 hours, 9 sessions and of 3 hours per session

ECTS : 6

Field: Macroeconomics and Finance

Overview:

The lectures provide insight into how to craft an optimal policy to stabilize an economy. Policymakers have several sets of policy instruments available to stabilize the business cycles of an economy and thus reduce the welfare cost of business cycles. These instruments are referred to as fiscal policy, monetary policy and macroprudential policies and can be employed to the stabilization of output, inflation and the financial system. The lecture aims at introducing how these instruments can be implemented optimally, and how these policy tools may have spillovers effects on one another.

The lectures offer an introduction to the derivation of a welfare criterion into a linear-quadratic framework to determine the optimal policy. These policy regimes can thus be ranked by comparing the utility level of each policy regime provided. Regarding fiscal policy, the lecture offer a discussion on the fiscal multipliers in DSGE models.

Prerequisites

- Macroeconomics 1 (M1 – S1)
- Econometrics 1 (M1 – S1)
- Macroeconomics 2 (M1 – S2)
- Bayesian techniques in macroeconomics (M2 – S1)

Course Objectives:

The objective of the course is to provide theoretical foundations of the design of optimal policies and discuss the effectiveness of stabilization policies (monetary policies, fiscal policies and macroprudential policies) in up to date New Keynesian Models.

After having attended the classes, the students should be able to technically employ rational expectation model to determine an optimal policy, rank them using a welfare criterion, and discuss what are the determinants that make the policy (in)effective.

Semester 2

Specialization courses

Market Design and Information Design

Professor: Sidartha Gordon (Université Paris-Dauphine, LEDa & PSL)

Course load: 18h, 6 three-hour sessions

ECTS : 3

Field: Theory, Social and public policies

Overview:

This is a topics course in microeconomics. In the first part (5 lectures), it covers recent developments on the allocation of resources on markets not necessarily governed by prices, with an emphasis on the allocation of human organs to patients and the allocation of public-school places to children through centralized mechanisms. In the second part, it introduces a recent literature on the choice of an information structure by a designer (or principal) for an agent or a set of agents who interact strategically in an asymmetric information setting.

Prerequisites

Game Theory, microeconomics.

Course Objectives:

The objective of the course is to present the recent developments in the fields of microeconomics that address the issue of allocating resources under two specific contexts of market failures: how should markets be designed when they are not governed by prices, and how information itself should be designed under informational asymmetries across agents.

After having attended the classes, the students should be able to address theoretical and applied problems in the fields of market design and information design and to come up with their own research questions in these areas.

Individual and collective decisions

Professor : Jean-Philippe Lefort (Université Paris-Dauphine, LEDa & PSL) and Remzi Sanver (University Paris-Dauphine, LAMSADE & PSL)

Course load: 18 hours (6 sessions of 3 hours)

ECTS: 3

Field: Theory

Overview:

The course investigates the process of decision making, both at an individual and collective level. It starts with the analysis of individual decision making. The analysis of collective decision making comes as a natural extension: What if there are several individuals with conflicting preferences who, nevertheless, have to choose an option which will be common to all of them? This raises the problem of aggregating individual preferences into a collective one. This drives us to introduce fundamental concepts and results on preference aggregation, with particular emphasis on the majority rule and Arrow's Impossibility Theorem. We also present an account of voting rules, as an application.

Prerequisites

Microeconomics

Course Objectives:

The objective of the course is to present the fundamentals of decision making both at an individual and collective level. After having attended the classes, the students will know

- standard models of individual decision making;
- how to analyse an individual decision-making problem within a given model;
- standard models of collective decision making;
- axiomatic approach to collective decision making;
- properties of several voting rules.

Transport and variational problems in economics

Teacher: Guillaume Carlier (University Paris-Dauphine, CEREMADE & PSL Research University)

Course Load: 15h

ECTS: 3

Field: Theory

Overview

In this course after introducing tools from convex duality and optimal transport we will see how they can be used in various problems in economics such as matching, congestion games and congested transport, principal-agent problems, urban economics, ...

Objectives of the course

The course is a topics course at the frontier of mathematics and microeconomics. It aims at presenting the basics of the mathematical theory of optimal transportation and how it can be applied in various economic contexts.

After attending the classes, the students will be able to address the mathematical theory of optimal transport and make use of it to have an in-depth analysis of related applied economic issues.

Advanced Health economics

Professor: Brigitte Dormont, Université Paris Dauphine, LEDa & PSL University

Course load: 18h, 6 sessions of 3 hours per session

ECTS : 3

Field: Social and public policies

Overview:

The course addresses the main issues in Health Economics at an advanced level: Design and regulation of health insurance (efficiency and coverage), Managed competition systems; The impact of health insurance on medical prices (coverage of demand, medical networks), Physician agency, Hospital competition under fixed prices and quality of care, Equity in Cost-Benefit Analysis.

These subjects are all linked to current policy questions in most countries: is it important for efficiency to put copayments in place, i.e. to limit coverage for an efficient use of healthcare? Are managed competition systems effective in promoting price competition between insurers, or do they encourage patient selection? Does supplementary health insurance encourage balance billing in France? Do medical networks implemented by some insurers contribute to limit prices? Is there a risk that hospital payment systems that are based on lump-sum payments per stay encourage a decrease in the quality of hospital care? How to introduce equity in cost-benefit Analysis? (Currently medical evaluation to decide on the reimbursements of medical innovations and pharmaceutical products are based on the cost per Qaly, which raises ethical concerns because individual preferences and impacts on redistribution are not taken into account.)

Prerequisites

Course of M2 semester 1: Health economics

Courses in Master 1 : Microeconomics 1 & 2, Industrial organization, advanced industrial organization.

Course Objectives:

The objective of the course is to present the state of the art as concerns the treatment of the main current issues in health economics.

After having attended the classes, the students should be able to take up the reading of most research papers in health economics. They will be able to know how to gather sensible literature to write a comprehensive international survey on any policy question in health economics.

Empirical methods for valuation in cost benefit analysis

Professor: Daniel Herrera (Université Paris-Dauphine, LEDa & PSL)

Course load: 18h, 6 sessions; 3 hours per session

ECTS : 3

Field: Social and public policies

Overview:

Cost benefit analysis is a tool widely used by public and private organizations to inform decision making. The objectives of the course are to provide the students with insights on the main concepts used cost benefit analysis, as well as their application in a case study. The main focus will be on the empirical methods used to assess the benefits of a policy with a lens on environmental valuation. In particular, the valuation of non-monetary impacts (for example, the effects of air pollution on mortality and morbidity) will be addressed.

Prerequisites

Knowledge on standard econometric methods and good knowledge of intermediate microeconomics

Course Objectives:

The objective of the course is to provide a comprehensive view of what a cost benefit analysis (CBA) is, where are the values used for the “B” in CBA derived from, what data is required to derive them, as well as the limits of CBA. The course will focus on empirical methods for deriving environmental valuation.

After having attended the classes, the students will:

- have a decent understanding of the core concepts used in CBA
- have knowledge on preference elicitation techniques
- knowing the data requirements, advantages and limits of the different methods
- knowledge of the main steps to construct a CBA

[Policies in developing countries](#)

Professor: Lisa Chauvet (IRD, Université Paris-Dauphine, LEDa & PSL) and Véronique Gille (IRD, Université Paris-Dauphine, LEDa & PSL)

Course load: 21h, 7 sessions and of 3 hours per session

ECTS : 3

Field: Social and public policies

Overview:

The very large efforts carried out by countries and international organizations to increase income and fight poverty have been unequally successful. While some countries have seen impressive growth in the last 30 years, 736 million people were still leaving in extreme poverty as of 2015. This observation raises questions about policies that we discuss in this course. It is divided in two parts. The first part of the course will primarily examine the main determinants of foreign aid allocation as well as the influence of aid on different components of the economic and political development in poor countries. The second part of the course provides insights into social policies in developing countries, with a focus on the instruments and the political economy of the implementation of policies.

Prerequisites

The class will sometimes get technical regarding the econometric methods adopted in the papers. We will discuss key methods along with the papers applying them. We expect the students to be familiar with panel estimation methods and IV methods, which can be read up in the following references:

- Wooldridge, J. M. (2009). Introductory Econometrics. Mason (Cengage Learning Services).
- Kennedy, P. (2003): A Guide to Econometrics, 5th edition, Malden (Blackwell). [less math]

Course Objectives:

The overall objectives of this course are to provide students with an overview of policies in developing countries, with a focus on their international financing, the different types of instruments and the political economy of policy implementation. It will notably aim at understanding the interlinkages between aid allocation and aid effectiveness, recipient-country characteristics related to economic development and political liberalization, and the difficulties to capture these relationships empirically.

The course is based on contemporary research, that the students will be required to read and that we will discuss in class. After having attended the classes, the students will therefore understand the main challenges related to policies in developing countries and know what the most recent evolutions in this literature are. They will also be able to critically assess research work.

Research Methods in Monetary Economics

Professor: Richard Dutu (Université Paris Dauphine, LEDa & PSL Research University) & Mariana Rojas-Breu (Université Paris Dauphine, LEDa & PSL Research University)

Course load: 18 hours, 6 sessions and 3 hours per session

ECTS : 3

Field: Macroeconomics & Finance

Overview:

The goal of this course is to train students to modern research methods in monetary economics and policy. The course starts with a review of the main macroeconomic models of money (MIU, CIA, NK-DSGE). The rest of the course is then dedicated to a hands-on presentation of the New Monetarist framework where the frictions that give rise to money and credit are explicitly modeled, thereby creating a natural environment to understand the role of money, credit and intermediation. The course presents the main financial and trade frictions (private information, limited commitment, search) that are key to the concepts of money and liquidity. The formal framework is then applied to a range of important topics, such as the relationships among liquidity, asset prices, monetary policy, the dynamics of over-the-counter markets, cryptocurrencies and cashless economies.

Prerequisites

Mathematics and optimization, Macroeconomics 1, Macroeconomics 2

Course Objectives:

The course will allow students to get familiar with state-of-the-art monetary theory and acquire key research tools and models in monetary and financial economics.

After attending the classes, the students will have a solid knowledge of a wide range of classic and timely issues in monetary theory and policy, such as the interplay between money and credit, optimal monetary policies, monetary unions, over-the-counter markets, and cryptocurrencies.

Advanced Macroeconomics: Frictions and policies

Teacher: Lise Patureau (Université Paris-Dauphine, LEDa & PSL) and Gauthier Vermandel (Université Paris-Dauphine, LEDa & PSL, France Stratégie)

Course load: 18 hours, 6 sessions and of 3 hours per session

ECTS : 3

Field: Macroeconomics & Finance

Overview:

The standard real business cycles model features a reduced form for both financial and labor markets. The main of these lectures is to present the recent set of frictions on the labor and financial markets that extend the benchmark RBC model, and thus allowing the latter to reproduce the dynamics of loans, employment rate, asset prices into a rational expectations model.

The lectures are thus split in two parts:

Part I. Topics in Monetary policy: this first part aims at introducing frictions into the monetary system. The starting point of the lecture is cash-in-advance constraints, and then are continued to more elaborate financial frictions models from collateral constraints to the financial accelerator model.

Part II: Macroeconomics of the labour market. In the second part of the course, we will study the recent development in the macroeconomics of the labour market that includes search and matching labour market frictions in a dynamic general equilibrium setting. In complement with the presentation made in the reference textbook, we will study some leading research articles that embed search and matching frictions in the DSGE approach, and how to think about labor market policies in this setting.

Prerequisite

- A solid background in both micro and macro is a pre-requisite.
- The course in Business Cycles Stabilization and Policies (Master 2, Semester 1) is a pre-requisite, as this lecture is a direct extension to macroeconomic stabilization.

Course Objectives:

The objective of the course is to provide a presentation of the role of frictions on financial and labor markets on the cyclical behaviors of the main macroeconomic variables, and the induced consequence for the stabilization policy.

After having attended the classes, students will know how to include financial frictions to determine the dynamics of loans and asset prices of the economy. On both issues, a careful reading of academic papers will give them the most up-to-date research on the topic, and the appropriate tools to understand the relevant policy implications.

Banking Economics

Professor: Mariana Rojas-Breu (Université Paris Dauphine, LEDa & PSL)

Course load: 18 hours, 6 sessions and 3 hours per session
ECTS : 3
Field: Macroeconomics & Finance

Overview:

The course develops the theory of banking and financial intermediation. It starts by reviewing basic concepts in financial and banking economics. What are financial intermediaries and what is their role in the economy? Why are banks special? The course then presents formal frameworks for the analysis of the banking system, financial fragility and the occurrence of financial crises, as well as the policy responses to financial fragility (suspension of convertibility, deposit insurance, narrow banking, bailouts). The course provides the tools to examine important aspects of the design and implementation of banking regulation. Topics that will be reviewed include the role of asymmetric information, the types of banking regulation, the role of deposit insurance and capital requirements, the lender-of-last-resort function of the central bank, the role of market discipline.

Prerequisites

Master 1: Microeconomics 1, Microeconomics 2, Mathematics and optimization

Course Objectives:

The course will allow students to get familiar with formal tools for the analysis of the economics of banking and financial regulation. Students will be confronted with real-world examples of banking regulation and will gain understanding on important issues that have been at the center of the policy debate over the last years, such as the on- and off-balance sheet activities of financial institutions, the separation of banking and other financial industries, and contagion across financial institutions.

Behavioral finance

Professor: Marie-Pierre Dargnies (Université Paris Dauphine, DRM-Finance & PSL)

Course load: 18h, 6 sessions of 3 hours each
ECTS : 3
Field: Macroeconomics & Finance, Theory

Overview:

The course will introduce students to this relatively new sub-discipline of finance which incorporates insights from cognitive and social psychology into finance. In the past 20 years, behavioral finance has emerged as an important stream of thinking in finance. Relaxing the traditional assumptions of finance models has proved a fruitful way of understanding financial decision-making.

The course will address the following topics: The cognitive biases evidenced by cognitive psychologists; financial anomalies and their interpretations through a behavioural finance lens; The implications of behavioural finance for investors and corporate financial policy

Prerequisites

Microeconomics, Mathematics and optimization

Course Objectives:

The objective of the course is to introduce students to behavioral finance which brings together finance, cognitive psychology and social psychology. They will be exposed to the state-of-the-art research on this expanding field in finance.

After having attended the classes, the students will be able to address the key issues in the field of behavioral finance and to come up with their own research questions in this area.

Research seminars

Topics in Health and Ageing

Professor: Eric Bonsang (Université Paris-Dauphine, LEDa & PSL University) and Brigitte Dormont (Université Paris-Dauphine, LEDa & PSL University)

Course load: 18h, 6 sessions and 3 of hours per session

ECTS : 3

Field: Social and public policies

Overview:

This seminar is aimed to provide students with key skills in terms of research paper writing, while at the same time build their knowledge of the most important issues in Health and Ageing. The seminar is divided in 6 three-hour sessions.

During the first session, after a brief presentation of the various themes that will be treated during the seminar, the remaining time will be devoted to an explanation of what is expected from researchers when they conduct empirical research in economics. The following questions will be examined: how to provide credible empirical evidence in economics, write a paper, how to structure a presentation using powerpoint or an equivalent software.

The remaining sessions will be devoted to the critical assessment of articles recently published in top journals in the fields of Health and Ageing economics. Each paper will be presented by one student and up to three students will act as “referees”, who will have to discuss the presentation and the paper itself.

Topics in Labor & Education

Professors: Eve Caroli (Université Paris Dauphine, LEDa & PSL) & Gabrielle Fack (Université Paris Dauphine, LEDa & PSL)

Course load: 18 hours (6 sessions)

ECTS : 3

Field: Social and public policies

Overview

This seminar aims at presenting the recent advances in Labour and Education Economics, and providing students with key skills for conducting research and writing papers. The seminar is divided in 6 three hours sessions.

During the first session, after a brief presentation of the various themes that will be treated during the seminar, the remaining time will be devoted to an explanation of what is expected from researchers when they write a paper and present their work: how to conduct empirical research in economics - how to write a paper - how to structure a presentation using powerpoint or an equivalent software.

The remaining sessions will be devoted to the critical assessment of articles recently published in top journals. Each paper will be presented by one student and up to three students acting as “referees”, who will have to discuss the presentation and the paper itself.

Prerequisites

Microeconomics, Econometrics

Course Objectives

The objective of the course is to start thinking as a researcher: Understand and critically assess economic papers in Labour and Education, in order to be able to start research projects on these themes.

After attending the seminar, the students will have an in-depth knowledge of the state-of-the-art research in the fields of labour and education economics. They will also know how to read efficiently research papers with a critical view, which is key to come up with an original project of their own.

[Research seminar in Market regulation](#)

Professor: Sven Heim (Mines ParisTech, CERNA & PSL) and Bertrand Villeneuve (Université Paris-Dauphine, LEDa & PSL)

Course load: 18 h, 6 sessions of 3 hours each

ECTS : 3

Field: Theory, Social and public policies

Overview:

This research aims at presenting and discussing the state-of-the-art research papers in the different fields of economics that involve thinking about market regulation. The seminar is organized in six sessions.

After an introductory class, sessions will be devoted to the critical assessment of articles recently published in top or top field journals. Each paper will be presented by one student and up to three students acting as “referees”, who will have to discuss the presentation and the paper itself.

Prerequisites

Familiarity with economics models (individual choice, equilibrium). Proficiency in the economics of information (game theory, asymmetric information, contracts).

Course Objectives:

The objective of the course is to get students familiar with the main issues in market regulation, with a particular emphasis on environmental and energy markets regulations, and on competition policy in world of massive data (barriers to entry, collusion, privacy).

Depending on the topic, the course will cover the recent empirical studies that approach these topics by using advanced econometric methods or will show how theoretical models help explain and interpret facts or scenarios.

Work in this seminar is aimed to provide students with key skills in terms of research paper writing, research oral presentation, while at the same time build their knowledge of the most important issues in market regulation.

[Readings on trade and development in an historical perspective](#)

Professor: Guillame Daudin –University Paris-Dauphine, LEDa & PSL Research University and Elise Huillery – University Paris-Dauphine, LEDa & PSL Research University

Course load: 27 hours, 18 sessions, 1.5 hours per session

ECTS: 3

Field: Social and public policies, Macroeconomics & Finance

Overview:

Work in this seminar is aimed to provide students with key skills in terms of research paper reading and referring, while at the same time build their knowledge of the most important issues in long-term economic development. The students will read and comment on papers that investigate the role of international trade, human capital, and institutions in historical economic development. This literature helps understand some important current debates in economics, for instance: can exporting natural resources be a good strategy for a country to develop? Is protectionism detrimental for economic development? What trade strategies have been implemented by fast-growing Asian countries in the late twentieth century?

The seminar is divided in 18 sessions of 1.5 hours each. One research paper will be presented and discussed in each session. The research papers will be chosen by the students themselves at the beginning of the course, based on a list of proposed papers provided by the professors. Students can propose other articles than those proposed by the professors. The papers that are proposed are mostly empirical papers, although some theory is often used to both build the analysis and interpret the results. The proposed papers are mostly recent and published in top journals.

Each paper will be presented by two students: one student presents the context in which the paper was written and its contribution to the literature, hence focusing on the strengths of the paper. The other student presents a critical assessment of the paper, focusing on the weaknesses of the paper.

Each session consists in three steps: first, all students take a quiz on the article meant to test that the main methodological and substantive arguments of the paper are understood. Second, the first presenter presents the context and contributions of the paper. Third, the second presenter makes the critical assessment. All the session is interactive and students are invited to ask questions, make comments, and react to others' questions and comments as much as possible.

Finally, students will choose one article among those that have been discussed in class and write a report on this article summarizing i. its contributions, ii. its weaknesses, and iii. ideas to improve the paper and following research to be undertaken.

Topics in Macroeconomics and Finance

Professor: Anne Epaulard (Université Paris-Dauphine, LEDa & PSL University, France Stratégie) and Richard Dutu (Université Paris-Dauphine, LEDa & PSL University)

Course load: 18h, 6 sessions and 3 of hours per session

ECTS : 3

Field: Macroeconomics & Finance

Overview:

This seminar is aimed to provide students with key skills in terms of research paper writing, while at the same time build their knowledge of the most important issues in Macroeconomics and Finance. The seminar is divided in 6 three-hour sessions.

During the first session, after a brief presentation of the various themes that will be treated during the seminar, the remaining time will be devoted to an explanation of what is expected from researchers when they conduct empirical research in economics. The following questions will be examined: how to provide credible empirical evidence in economics, write a paper, how to structure a presentation using powerpoint or an equivalent software.

The remaining sessions will be devoted to the critical assessment of articles recently published in top journals in the fields of Macroeconomics, Monetary Economics and Macrofinance. Each paper will be presented by one student and up to three students will act as “referees”, who will have to discuss the presentation and the paper itself.

The final list of papers will be finalized a few weeks before the start of the seminar. It could include papers on the following topics: Introduction to macrofinance; financial accelerator; household debt and the business cycle; bank lending channel.

Prerequisites

Advanced macroeconomics, macroeconometrics, monetary economics

Course Objectives:

The objective of the course is to get students familiar with the main issues in macroeconomics, in special connexion with monetary and banking economics, and the financial area. The course will cover the recent empirical studies that approach these topics by using advanced econometric methods.