

## MASTER in QUANTITATIVE ECONOMICS

### Master 2 Track- Quantitative Economic Analysis

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#### Compendium of the syllabus

Academic Year: 2022-2023

#### Summary of the program

<b>Master 2 track <i>Quantitative Economic Analysis</i></b>					
<b>3 specialization fields : Economic Theory (ET) / Social and public policies (SPP) / Macro, Finance &amp; Trade (MFT)</b>					
<b>Master 2, Semester 1</b>					
<b>Course</b>	<b>HCM</b>	<b>coeff</b>	<b>Specialization Field</b>	<b>Nb of ECTS</b>	<b>Teacher</b>
<b><u>Quantitative courses (15 ECTS)</u></b>					
<b><u>Mandatory, 9 ECTS</u></b>					
Python for data science crash course	15	1	All	3	Khalil El Marsi
Introduction to matlab programming (*)	12	0		0	Cédric Crofils & Inès Mourelon
Machine Learning	36	2	All	6	Fabrice Rossi
<b><u>Optional Quantitative courses, 6 ECTS</u></b>					
<b><u>For the field MFT</u></b>					
Advanced Macroeconometrics	30	2	MFT, ET	6	Fabien Tripier & Giovanni Ricco
<b><u>For the field SPP</u></b>					
Methods for public policy evaluation	27	2	SPP, ET	6	Eric Bonsang
<b><u>For the field ET</u></b>					
<b><u>Choose 1 among:</u></b>					
Methods for public policy evaluation	27	2	SPP, ET	6	Eric Bonsang
Advanced Macroeconometrics	30	2	MFT, ET	6	Fabien Tripier & Giovanni Ricco

**Master 2, Semester 1 (continued)**

**Specialization courses, 12 ECTS, Choose 4 courses**

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**For the field MFT**

**Mandatory**

Business Cycles and Stabilization policies	24	2	MFT	3	Anne Epaulard & Fabien Tripier
International trade, international macroeconomics	24	2	MFT	3	Lise Patureau & Gianluca Orefice

**Optional, choose 2 among**

Quantitative International Trade	21	2	MFT	3	Farid Toubal
Asset pricing (**)	27	2	MFT, ET	3	Jérôme Dugast
Behavioral economics and bounded rationality	21	2	ET, MFT, SPP	3	Bertrand Villeneuve

(\*) **Mandatory for direct-M2 entrance students who follow the MFT specialization field and/or the Advanced Macroeconometrics course**

(\*\*) **Finance in continuous Time (free auditor) as pre-requisite**

**For the field ET**

**Mandatory**

Advanced Game Theory	18	2	ET	3	Françoise Forges & Sidartha Gordon
Behavioral economics and bounded rationality	21	2	ET, MFT, SPP	3	Bertrand Villeneuve
Empirical Industrial Organization	21	2	ET, SPP	3	Daniel Herrera

**Optional, choose 1 among**

Asset pricing (**)	27	2	MFT, ET	3	Jérôme Dugast
Inequality and redistribution	18	2	ET, SPP	3	To be defined.
Environment and Sustainability	21	2	ET, SPP	3	Anna Creti

**For the field SPP**

**Mandatory**

Inequality and redistribution	18	2	ET, SPP	3	To be defined.
Health, welfare and health behavior	21	2	SPP	3	Peter Eibich
Labor & Education economics	24	2	SPP	3	Eve Caroli & Gabrielle Fack

**Optional, choose 1 among**

Empirical Industrial Organization	21	2	ET, SPP	3	Daniel Herrera
Behavioral economics and bounded rationality	21	2	ET, MFT, SPP	3	Bertrand Villeneuve
Environment and Sustainability	21	2	ET, SPP	3	Anna Creti

**Master thesis project**

-	-	VAL		3	Lise Patureau
Conference cycles: International Organizations & Job Market Information	-	VAL		0	-

**Semester 2**

<b>Course</b>	<b>HCM</b>	<b>coeff</b>	<b>Field</b>	<b>ECTS</b>	<b>Enseignant</b>
<b>Specialization course, 2 to choose within the chosen field, 6 ECTS</b>					
Individual and collective decisions	15	2	ET	3	Jean-Philippe Lefort & Remzi Sanver
Advanced Health Economics	21	2	SPP	3	Brigitte Dormont
Banking economics	18	2	MFT, ET	3	Sylvain Carré
Policies in developing countries	18	2	SPP	3	Olivia Bertelli
Advanced Environmental Macroeconomics	15	2	MFT	3	Gauthier Vermandel & Garth Heutel
<b>Master Thesis, 18 ECTS</b>					
Master thesis support seminar	27	VAL			Various speakers
Master thesis defense		8	-	18	
<b>PhD proposal / Internship</b>		4		6	Master thesis supervisor (for PhD proposal only)

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**Please pay attention to the specialization fields and their corresponding courses.**

**There are three specialization fields :**

- Economic Theory (THEO)
- Social and Public Policies (SPP)
- Macroeconomics & Finance (MF)

**Except for the mandatory courses, the chosen specialization field conditions the courses to be followed**

## Course schedule

### First semester

Courses' start :  
Monday the 29<sup>th</sup> of August

Courses' end :  
Friday the 16<sup>th</sup> of December

Early courses :

- Python for data science (start on August, 29<sup>th</sup>)
- Introduction to Matlab programming (start on August, 29<sup>th</sup>)

Exams dates :  
Throughout the semester.

For more details, see the excel schedule file. This file is still ongoing and will slightly change before the courses' start.

### Second semester

The precise schedule will be determined at a later date.

Courses' start :  
Monday the 2<sup>nd</sup> of January

Courses' end :  
By mid-March.

Exams dates :  
Throughout the semester.

## Details of the courses

### Semester 1

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#### Advanced Game Theory: Bayesian games and Information Design (THEO)

**Teacher:**

Françoise FORGES, University Paris-Dauphine, LEDa & PSL Research University  
Siddhartha GORDON, University Paris-Dauphine, LEDa & PSL Research University

**Contact Information :**

[francoise.forges@dauphine.psl.eu](mailto:francoise.forges@dauphine.psl.eu)  
[siddhartha.gordon@dauphine.psl.eu](mailto:siddhartha.gordon@dauphine.psl.eu)

**Information on the course**

Semester 1  
Course load: 18 h (6 sessions of 3h)  
ECTS: 3

**Overview:**

The course is divided into two parts.

The first part is devoted to so-called “noncooperative games” and concentrates on multistage games with incomplete information played by Bayesian players. The agents’ rationality is analyzed through various solution concepts, capturing backward and/or forward induction. These solution concepts are applied to strategic information transmission and communication.

In the second part, we will introduce 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 :**

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. We will notably present the recent developments in the field of microeconomics that address the issue of how information should be designed under informational asymmetries across agents.

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.

## Mode of Assessment

Regular home work, final written exam, with the following weights:

- Final exam 90%
- In-class participation 10%.

## Course Schedule

1	Multistage games with incomplete information played by Bayesian players, equilibrium concepts capturing backward induction (variants of sequential equilibrium).
2	Equilibrium concepts capturing forward induction.
3	Correlated equilibrium and communication equilibrium. Strategic information transmission.
4	Information design: The case of one sender and one receiver
5	Information design: Extensions to multiple senders, receivers and dynamic settings
6	Information design: Bayes Correlated Equilibrium

## Readings

### 1. Basic readings

- J. Harrington, “Games, strategies and decision making”, 2d edition, Mc Millan, 2015: Chapters 8, 9, 10, 11, 12.
- Mas-Colell, A., M. Whinston, and J. Green (1995), *Microeconomic Theory*, New York, Oxford University Press: Chapter 9.

### 2. List of selected articles for Sessions 4 to 6

- Bergemann D. and Morris S. (2019), Information Design: a Unified Perspective, *Journal of Economic Literature*.
- Kamenica E. and Gentzkow M. (2011), Bayesian Persuasion, *American Economic Review*.
- Bergemann D. and Morris S. (2016), Bayes Correlated Equilibrium and the Comparison of Information Structures in Games, *Theoretical Economics*.

## Grading

The numerical grade distribution will dictate the final grade, according to the faculty’s recommended grade distribution.

### **Class participation:**

Active class participation – this is what makes classes lively and instructive. Come on time and prepared (homework has to be done).

### **Exam policy:**

In the exam, students will not be allowed to bring any document (except if allowed by the lecturer). Unexcused absences from exams or failure to submit cases will result in zero grades in the calculation of numerical averages. Exams are collected at the end of examination periods.

### **Academic integrity**

Be aware of the rules in Université Paris- Dauphine about plagiarism and cheating during exams. All work turned in for this course must be your own work, or that of your own group. Working as part of a group implies that you are an active participant and fully contributed to the output produced by that group. When you use the web, please state your sources.

## Advanced Macroeconometrics (MF, THEO)

### **Teacher:**

Fabien Tripier (Université Paris-Dauphine, LEDa & PSL Research University)  
Giovanni Ricco (University of Warwick)

### **Contact Information**

Fabien Tripier : [fabien.tripier@univ-evry.fr](mailto:fabien.tripier@univ-evry.fr)  
Giovanni Ricco : [giovanni.ricco@gmail.com](mailto:giovanni.ricco@gmail.com)

### **Information on the course :**

Semester 1  
Course load: 30 hours, 10 sessions, 3 hours per session  
ECTS : 3

### **Prerequisites**

Master 1 courses: Macroeconomics, Macroeconometrics, Statistical & Mathematical tools

### **Overview:**

This course provides advanced econometrics tools for applied macroeconomics. The identification of causal relationships in macroeconomics will be the key theme of the course. Identifying causal relationships is necessary to understand the origin of economic fluctuations and to evaluate the relevance of the mechanisms proposed by the various economic theories. Identifying causality requires isolating an exogenous component in macroeconomic data, called shocks, and then inferring its macroeconomic effects through relevant econometric tools. The course will focus on the following tools: Bayesian estimation of Dynamic, Stochastic, General Equilibrium (DSGE) models, structural vector auto-regressive models, and local projections methods. These methods will be mainly applied to the analysis of monetary and fiscal economic policies and the links between the business cycle and financial markets.

### **Course Objectives:**

The objective of the course is to provide students with the econometric background necessary for an in-depth understanding of the results presented in recent scientific articles and for the realization of a personal economic analysis using the usual macroeconomic tools.



The course provides applications of econometrics tools using STATA routines, the Empirical macro toolbox provided by Canova and Ferroni (2020) and the Dynare software developed by Adjemian et al. (2011) and then requires basic programming skills in Matlab.

### **Targeted competencies**

After having attended the classes, the students will be able to (i) apply time series tools to compose the cycle and trends in time series, (ii) to identify shocks and their economic effects using various techniques, (iii) to interpret the results in light of macroeconomic theory, and (iv) to perform these empirical applications with Stata and Matlab Toolboxes while understanding the underlying analytics of econometric tools.

### **Mode of Assessment**

Project: Mini-project and active participation in class

### **Course Schedule**

Professor Tripier: 1-3; 8-10. Professor Ricco: 4-7.

1	DSGE simulation with Dynare
2	Introduction to Bayesian estimation
3	Bayesian estimation of DSGE model
4	Multivariate Time Series Models, VARs
5	Structural VARs
6	IV methods in Macro
7	Cointegration in VARs
8	Local Projection Methods versus SVAR
9	Non-linearity using Local Projection Methods
10	Applications and replications for the mini-project

### **Readings**

- **Adjemian, S., Bastani, H., Juillard, M., Mihoubi, F., Perendia, G., Ratto, M., & Villemot, S. (2011). Dynare: Reference manual, version 4.**
- **Canova, F. (2011). Methods for applied macroeconomic research. Princeton university press.**

- Canova, F., Ferroni, F. (2020). A hitchhiker guide to empirical macro models, documentation for the empirical macro toolbox <https://sites.google.com/view/fabio-canova-homepage/home/empirical-macro-toolbox>
- Cochrane, J. H. (2005). Time series for macroeconomics and finance. Manuscript, University of Chicago, 1-136.
- Hamilton, J.D. (2020). Time Series Analysis. Princeton University Press.
- Herbst, E. P., & Schorfheide, F. (2015). Bayesian estimation of DSGE models. In Bayesian Estimation of DSGE Models. Princeton University Press. Asset pricing (MF)

## Asset Pricing (MF, THEO)

### **Teacher:**

Jérôme Dugast (Université Paris-Dauphine, DRM-Finance & PSL)

### **Contact information**

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### **Information on the course :**

Semester 1

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

ECTS: 3

### **Overview:**

In this course, we will discuss a wide range of topics ranging from optimal portfolio, the CAPM, factor models, consumption-based asset pricing, and arbitrage pricing to more special ones including asymmetric information and limits to arbitrage.

### **Prerequisites**

Master 1 courses: Mathematics and optimization, Microeconomics 2

Master 2: Finance in continuous time,

### **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.

### **Mode of assessment**

Assignment & final exam.

### **Course schedule**

- **Traditional Asset Pricing Theory:**

1. Optimal Portfolio Theory and the CAPM
  2. Factor Models
- **Modern Asset Pricing Theory:**
    1. Decision Making under Uncertainty
    2. Consumption-based Asset Pricing
    3. Arbitrage Pricing
    4. Dynamic Asset Pricing
    5. Asymmetric Information and Asset Prices
    6. Limits to Arbitrage

### **Textbooks**

- Back, Kerry E., *Asset Pricing and Portfolio Choice Theory*, Oxford University Press, revised edition, 2017.
- Cochrane, John H., *Asset Pricing*, Princeton University Press, revised ed., 2005.

### **Readings**

#### **1. Optimal Portfolio Theory and the CAPM:**

- Cochrane, chapters 5 and 9. Back, chapters 5 and 6.
- Markowitz, Harry (1952), *Portfolio Selection*, *Journal of Finance* 7, 77-91.
- Lintner, John (1965), *The Valuation of Risky Asset and the Selection of Risky Investments in Stock Portfolios and Capital Budgets*, *Review of Economics and Statistics* 47, 1337.
- Sharpe, William (1964), *Capital Asset Prices: A Theory of Market Equilibrium under Conditions of Risk*, *Journal of Finance* 19, 425-442.
- Black, Fisher (1972), *Capital Market Equilibrium with Restricted Borrowing*, *Journal of Business* 45, 444-454.

#### **2. Factor Models:**

- Cochrane, chapters 6, 9, and 12. Back, chapter 6.
- Ross, Stephen A. (1976), *The Arbitrage Theory of Capital Asset Pricing*, *Journal of Economic Theory* 13, 341-360.
- Fama, Eugene F. and Kenneth R. French (1993), *Common Risk Factors in the Returns on Stocks and Bonds*, *Journal of Financial Economics* 33, 3-56.
- Fama, Eugene F. and Kenneth R. French (1996), *Multifactor Explanations of Asset Pricing Anomalies*, *Journal of Finance* 51, 55-84.

#### **3. Decision Making under Uncertainty:**

- Back, chapter 1.
- Morgenstern, Oskar and John von Neumann (1944), *Theory of Games and Economic Behavior*, Princeton University Press.
- Pratt, John W. (1964), *Risk Aversion in the Small and in the Large*, *Econometrica*, 32, 122-136.
- Rothschild, Michael and Joseph E. Stiglitz (1970), *Increasing Risk I: A Definition*, *Journal of Economic Theory*, 2, 225-243.

#### **4. Consumption-based Asset Pricing:**

- Cochrane, chapter 3. Back, chapters 2 and 4.
- Arrow, Kenneth J. and Gerard Debreu (1954), *Existence of an Equilibrium for a Competitive Economy*, *Econometrica*, 22, 265-290.

### **5. Arbitrage Pricing:**

- Back, chapters 3 and 8.

### **6. Dynamic Asset Pricing:**

- Back, chapters 9–11.
- Merton, Robert (1973), An Intertemporal Capital Asset Pricing Model, *Econometrica* 41, 867-887.
- Lucas, Robert (1978), Asset Prices in an Exchange Economy, *Econometrica*, 46, 1429-1445.
- Breeden, Douglas T. (1979), An Intertemporal Asset Pricing Model with Stochastic Consumption and Investment Opportunities, *Journal of Financial Economics*, 7, 265-296.
- Campbell, John Y. and Robert J. Shiller (1988), The Dividend-Price Ratio and Expectations of Future Dividends and Discount Rates, *Review of Financial Studies*, 1, 195-228.

### **7. Asymmetric Information and Asset Prices:**

- Grossman, Sanford J. and Joseph E. Stiglitz (1980), On the Impossibility of Informationally Efficient Markets, *American Economic Review*, 70, 393-408.
- Hellwig, Martin F. (1980), On the Aggregation of Information in Competitive Markets, *Journal of Economic Theory*, 22, 477-498.

### **8. Limits to Arbitrage:**

- De Long, J. Bradford, Andrei Shleifer, Lawrence H. Summers, and Robert J. Waldmann (1990), Noise Trader Risk in Financial Markets, *Journal of Political Economy*, 98, 703-738.
- Shleifer, Andrei and Robert Vishny (1997), The Limits of Arbitrage, *Journal of Finance*, 52, 35-55.
- Gromb, Denis and Dimitri Vayanos (2002), Equilibrium and welfare in markets with financially constrained arbitrageurs, *Journal of Financial Economics*, 66, 361-407.
- Kondor, Peter (2009), Risk in Dynamic Arbitrage: The Price Effects of Convergence Trading, *Journal of Finance*, 64, 631-655.
- Duffie, Darrell (2010), Presidential Address: Asset Price Dynamics with Slow-Moving Capital, *Journal of Finance*, 65, 1237-1267.

## [Behavioral economics and bounded rationality \(THEO, SPP, MF\)](#)

### **Teacher:**

Bertrand Villeneuve (Université Paris-Dauphine, LEDa & PSL Research University)

### **Contact Information**

Bertrand Villeneuve : [bertrand.villeneuve@dauphine.psl.eu](mailto:bertrand.villeneuve@dauphine.psl.eu)

### **Information on the course :**

Semester 1

Course load: 21 hours, 7 sessions of 3 hours

ECTS : 3

### **Overview:**

The course is about the main topics in behavioral economics:

- Nonstandard preferences about risk and time (reference dependent preferences, time inconsistency)
- Nonstandard beliefs about probability laws (processing data and learning)
- Nonstandard decision making (inattention, social preferences)

### **Prerequisites**

Standard microeconomic choice (static and intertemporal, with and without uncertainty). Standard game theory (occasionally Nash perfect, Bayesian perfect).  
Bayesian probability.

### **Course Objectives:**

The objective of the course is to present the most important themes in behavioral economics. This dynamic research program is largely empirical (anecdotes, experiments, structural econometrics). Accordingly, authors point at behaviors that standard models relying on the rationality assumption cannot explain. The course itself will focus on models that reconcile theory and observation, as well as unsettled issues. We see when these models enable new predictions and fine tuning, and also their limits.

The topic has reached a certain degree of maturity. The course will examine the new standards to see where the research is going to. Given the variety of ways in 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.

### **Mode of Assessment**

30% (participation + short prepared presentation) + 70% (written exam).

### **Planning / Course Schedule**

1	Introduction, motivation, problems with standard approaches. Reference dependent preferences 1/2
2	References dependent preferences 2/2
3	Errors in probabilistic judgment and biases
4	Intertemporal choice and inconsistency 1/2
5	Intertemporal choice and inconsistency 2/2
6	Inattention
7	Social preferences

### **Readings (short list)**

- **Read Kahneman in advance if possible for a long yet soft and topical introduction.**
- **Handbook of Behavioral Economics, 2 volumes, 2018 and 2019. A rich set of excellent surveys on specific topics.**

- Barberis, Nicholas C. (2013). **Thirty Years of Prospect Theory in Economics: A Review and Assessment.** *Journal of Economic Perspectives.* 27:1, 173-96.
- DellaVigna, Stefano (2009). **Psychology and Economics: Evidence from the Field.** *Journal of Economic Literature.* 47:2, 315-72.
- Kahneman, Daniel (2011). **Thinking Fast and Slow.** Farrar Straus Giroux.
- Thaler, Richard (2015). **Misbehaving: The Making of Behavioral Economics.** W. W. Norton and Company.

### **Moodle**

Pedagogical supports (slides and other materials) will be available through Moodle: Yes

### **Grading**

The numerical grade distribution will dictate the final grade, according to the faculty's recommended grade distribution.

### **Class participation:**

Encouraged, explicitly taken into account in the grading.

### **Exam policy:**

Time limited, on-table exam. Test for ability to solve exercises, to summarize one topic among those studied in class, to freely comment facts given in a short paper.

## [Business Cycles and stabilization policies \(MF\)](#)

### **Teacher:**

Anne Epaulard (Université Paris-Dauphine, LEDa & PSL, France Stratégie)  
Fabien TRIPIER (Dauphine & PSL Universities, Cepremap)

### **Contact Information:**

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Fabien Tripier : fabien.tripier @dauphine.psl.eu

### **Information on the course :**

Semester 1  
Course load: 24 hours, 8 sessions and of 3 hours per session  
ECTS : 6

### **Overview:**

The lectures provide insight into how to craft policies to stabilize an economy. Policymakers has several sets of policies available to stabilize the business cycles of an economy and thus reduce the welfare cost of business cycles. These policies are: 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 discussing what we currently know about the impact of these stabilization policies. How they can be implemented and their spillovers on one another. An equal weight will be given to recent developments in the empirical literature and to advances in macroeconomic modelling. The institutional framework for these macroeconomic policy decisions will also be presented. During the lectures, student will have to use simulation and econometric software to estimate and simulate simple models.

### **Prerequisites**

- Macroeconomics 1 (M1 – S1)
- Econometrics 1 (M1 – S1)
- Macroeconomics 2 (M1 – S2)

### **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.

### **Mode of Assessment**

Attendance, active participation, and assignments

### **Planning / Course Schedule**

- 1. Fiscal policy 1 – Empirical evaluations of the fiscal multiplier**
- 2. Fiscal policy 2 – Fiscal multiplier in a standard new Keynesian model**
- 3. Macroprudential policy 1 – Cost of financial crises – Monetary policy vs Macroprudential policies**
- 4. Macroprudential policy 2 – What do we know about the effect of macroprudential**
- 5. Model-based evaluations of macroeconomic policies: “Whatever it takes” during the COVID-19 crisis**
- 6. Why didn’t macroeconomic models predict the Great Financial Crisis?**
- 7. Uncertainty in crisis times: a challenge for policy makers**
- 8. New macroeconomic models to assess unconventional monetary policies**

## **Readings**

### **Fiscal Policy**

- Antonio Acconcia, Giancarlo Corsetti and Saverio (2014) Mafia and Public Spending: Evidence on the Fiscal Multiplier from a Quasi-Experiment, *The American Economic Review*, Vol. 104, No. 7, July 2014, pp. 2185-2209
- Blanchard – Leigh (2013) Effects of Fiscal Policy in Deep Recessions: Simple and Hopefully Credible Empirical Evidence, *American Economic Review: Papers & Proceedings* 2013, 112 – 120
- Blanchard – Perroti (2002) An Empirical Characterization of the Dynamic Effects of Changes in Government Spending and Taxes on Output, *The Quarterly Journal of Economics*, November 2002, pages 1329 – 1368
- Chodorow-Reich, Gabriel. 2019. "Geographic Cross-Sectional Fiscal Spending Multipliers: What Have We Learned?" *American Economic Journal: Economic Policy*, 11 (2): 1-34
- Christiano, Eichenbaum, and Rebelo, 2011, « When is the government spending multiplier large », *JPE*, 2011.
- Hall R., “By How Much Does GDP Rise If the Government Buys More Output?”, *Brookings Papers on Economic Activity*, Fall 2009.
- Ilzetzki – Mendoza – Vegh (2013) How big are fiscal multipliers ? *Journal of Monetary Economics*, 2013, n°60, pages 239 -254
- Kraay A., 2014, Government Spending Multipliers in Developing Countries: Evidence from Lending by *American Economic Journal: Macroeconomics*, Vol. 6, No. 4 (October 2014), pp. 170- 208
- Nakamura, Steinsson, (2014) Fiscal Stimulus in a Monetary Union: Evidence from US Regions, *The American Economic Review*, Vol 104 No. 3 (March 2014), pp. 753- 792
- Romer – Romer (2010) The Macroeconomic Effects of Tax Changes: Estimates Based on a New Measure of Fiscal Shocks, *American Economic Review* 100 (June 2010), pp. 763 – 801.

### **Macroprudential Policy**

- Altunbas, Binici and Gambacorta (2018) Macroprudential policy and bank risk, *Journal of International Money and Finance* 81 (2018) 203 – 220



- Bernanke, Gertler (2001) « Should Central Banks Respond to Movements in Asset Prices? » American Economic Review, Papers and Proceedings, 2001, Vol 91, n°2, p. 253 - 257.
- Cerruti, Claessens, Laeven (2017) “The Use and Effectiveness of Macroprudential Policies: New Evidence,” Journal of Financial Stability, vol. 28, pp. 203-224, 2017
- Richter, Schularick, Shim, 2018, The macroeconomic effects of macroprudential policy, BIS working paper
- Schularick and Taylor, 2012, Credit Booms Gone Bust: Monetary Policy, Leverage Cycles, and Financial Crises, 1870 - 2008, AER 2012
- Müller Karsten, (2020) “Electoral Cycles in Macroprudential Regulation” WP Princeton-University Julis-Rabinowitz Center for Public Policy & Finance

### **Model-based evaluations of macroeconomic policies and unconventional monetary policies**

- Blanchard, O. (2018). On the future of macroeconomic models. Oxford Review of Economic Policy 34(1-2), 43–54.
- Eichenbaum, M.; Rebelo, S., Trabandt, M. The Macroeconomics of Epidemics, The Review of Financial Studies, Volume 34, Issue 11, November 2021, Pages 5149–5187,
- Gertler, M. and P. Karadi (2011). A model of unconventional monetary policy. Journal of Monetary Economics 58(1), 17–34.
- Gertler, M., & Karadi, P. (2013). Qe 1 vs. 2 vs. 3...: A framework for analyzing large-scale asset purchases as a monetary policy tool. 29th issue (January 2013) of the International Journal of Central Banking.
- Iacoviello, M. (2015). Financial business cycles. Review of Economic Dynamics 18(1), 140–163. Money, Credit, and Financial Frictions.
- Langot, F., and Tripier F. (2022). L’impact de la loi de finance 2022 sur la croissance économique et la dette publique, Note de l’observatoire de macroéconomie n°2022-01.

### **Macroeconomic models with financial frictions and uncertainty shocks**

- Bernanke, B. S., Gertler, M., & Gilchrist, S. (1999). The financial accelerator in a quantitative business cycle framework. Handbook of macroeconomics, 1, 1341-1393.
- Bloom, N. (2009). The impact of uncertainty shocks. econometrica 77(3), 623–685.
- Bloom, N. (2014, Spring). Fluctuations in Uncertainty. Journal of Economic Perspectives 28(2), 153–76.

- Christiano, L. J., M. S. Eichenbaum, and M. Trabandt (2018). On dsge models. Journal of Economic Perspectives 32(3), 113–40.
- Ferrara, L., Lhuissier, S., & Tripier, F., 2017, "Uncertainty Fluctuations: Measures, Effects and Macroeconomic Policy Challenges," CEPII Policy Brief 2017- 20 , 2017 , CEPII

### **Grading**

The numerical grade distribution will dictate the final grade, according to the faculty's recommended grade distribution.

### **Class participation:**

Active class participation – this is what makes classes lively and instructive.

### **Assignment preparation:**

Each lecture, an assignment must be prepared and students are randomly picked up to correct the assignment in front of the class.

### **Exam policy:**

Presentation of an article in front of the class + lecture note on the article

## [Environment and sustainability \(THEO, SPP\)](#)

### **Teacher:**

Anna Creti (University Paris-Dauphine, LEDa & PSL)

### **Contact Information**

[anna.creti@dauphine.psl.eu](mailto:anna.creti@dauphine.psl.eu)

### **Informations on the course :**

Semester 1

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

ECTS: 3

### **Overview:**

Global warming and the related environmental and social issues raise serious concerns for the welfare of our current and future generations. Such changes require to develop new approaches and solutions to address these key issues so that they can become and remain sustainable. The course Environment and Sustainability will introduce students to key theories and models related to the environment, sustainability, societal issues, and the United Nations' Sustainable Development Goals

### **Prerequisites**

Advanced Micro and Macro Economics

### **Course Objectives**

Students will be able to critically evaluate the complex drivers and consequences of global environmental problems for different societal groups, applying academic concepts and theories. They will develop in-depth knowledge in specialist areas of environment and sustainability and gain critical thinking skills. Finally, attendees will be able to assess the effectiveness, equity and trade-offs of different sustainability goals and policies.

### Course schedule

1	Introduction: challenges for sustainability toward the net-zero economy
2	Climate Change: scientific evidence, impacts, adaptation, mitigation
3	Climate Change: economics
4	Climate Finance and The Just Transition
5	Shifting from fossil fuels to green energy
6	Sustainable mobility
7	Waste and Pollution

### Readings

- **Dasgupta, Sir Partha. "The Economics of Biodiversity The Dasgupta Review Abridged Version." (2021).**
- **Richard S. J. Tol, Climate Economics: Economic Analysis of Climate, Climate Change and Climate Policy Edward Elgar Publishing, 2019 - 234 pages**
- **Selected Videos from <https://rtol.github.io/ClimateEconomics/video/>**

### Grading

The numerical grade distribution will dictate the final grade, according to the faculty's recommended grade distribution.

### Mode of Assessment

Class participation: Explicitly taken into account in the grading: 20%.

Exam policy: written report: 80%

## [Empirical Industrial Organization \(THEO, SPP\)](#)

### Ex-ante policy evaluation, an empirical IO approach

#### Teacher:

Daniel Herrera (University Paris-Dauphine, LEDa & PSL)

#### Contact Information

Daniel Herrera: [daniel.herrera@dauphine.psl.eu](mailto:daniel.herrera@dauphine.psl.eu)

#### Informations on the course :

Semester 1

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

ECTS: 6

### **Overview:**

Consider a government (or a firm) that seeks to evaluate a policy that has yet to occur. Without prior data on the policy, regardless of the identification strategy, performing standard ex-post evaluation not possible. In this course we will cover mainstream empirical industrial organization methods, which are widely used to construct counterfactuals assessing ex-ante policy impacts.

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 Empirical 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 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 Stata or Matlab. Practical tutorials will ensure the implementation of the materials provided in the course.

### **Prerequisites**

Master 1 courses: Industrial Organization; Advanced Industrial Organization; Microeconometrics, Introduction to Matlab.

Basic knowledge of Stata and Matlab programming

### **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 and Matlab**

### **Mode of Assessment**

There are 2 problem sets and 1 take homework assignments accounting for 70% of the mark. Presenting papers will account for the remaining 30%. By the end of each topic, students will be asked to read some of the remaining material (not covered in the course). Randomly selected students will make a 30mins presentation about the assigned paper. Also, during the course, 2 practical problem sets will be assigned. Randomly selected students will be asked to discuss their problem sets' solutions (codes and results).

There is no final exam.

## Course topics

1	<p>Introduction to EIO</p> <ul style="list-style-type: none"> <li>• Meeting #1 <ul style="list-style-type: none"> <li>• assignment of problem set 1</li> <li>• assignment papers topic 1</li> </ul> </li> </ul>
2	<p>Estimation of demand and marginal costs</p> <ul style="list-style-type: none"> <li>• Meeting #2</li> <li>• Meeting #3 <ul style="list-style-type: none"> <li>• students discuss solution of problem set 1</li> <li>• assignment of problem set 2</li> </ul> </li> <li>• Meeting #5 <ul style="list-style-type: none"> <li>• students present topic 1 papers</li> <li>• assignment papers topic 2</li> </ul> </li> </ul>
3	<p>Estimation of entry models and fixed costs</p> <ul style="list-style-type: none"> <li>• Meeting #7 <ul style="list-style-type: none"> <li>• students discuss solution of problem set 2</li> </ul> </li> <li>• Meeting #8</li> <li>• Meeting #9 <ul style="list-style-type: none"> <li>• students present topic 2 papers</li> </ul> </li> </ul>

## Readings

### Introduction to empirical industrial organization

#### Online books of interest:

- [\*\*\*] P. Reiss and F. Wolak, “Structural Econometric Modeling: Rationales and Examples from Industrial Organization,” Handbook of Econometrics, Volume 6A, Chapter 64, 2007, 4277–4314, Sections 1–4.
- [\*\*\*] V. Aguirregabiria, “Empirical Industrial Organization: Models, Methods, and Applications,” Book in Progress, 2012, 1–23, Chapter 1.
- L. Einav and J. Levin, “Empirical Industrial Organization: A Progress Report,” Journal of Economic Perspectives, 2010.
  - Nevo and M. Whinston, “Taking the Dogma Out of Econometrics: Structural Modeling and Credible Inference,” Journal of Economic Perspectives, 2010.
- J. Angrist and J. Pischke, “The Credibility Revolution in Empirical Economics: How Better Research Design is Taking the Con out of Econometrics,” Journal of Economic Perspectives, 2010.
- Edward Green and Robert Porter, “Non-cooperative Collusion Under Imperfect Price Information,” Econometrica, 52 (January 1984), pp. 87-100.
- Robert Porter, “A Study of Cartel Stability: The Joint Economic Committee, 1880-1886,” Bell Journal of Economics, 14 (Autumn 1983), pp. 301-314.
- Glenn Ellison, “Theories of Cartel Stability and the Joint Executive Committee,” Rand Journal of Economics, 25 (Spring 1994), pp. 37-57.

- Kenneth Hendricks and Robert Porter, “An Empirical Study of an Auction with Asymmetric Information,” *American Economic Review*, (December 1988), pp. 865-83.
- “Competition and Collusion in the American Automobile Industry: The 1955 Price War,” *Journal of Industrial Economics*, 35 (June 1987), 457-482.

## **Entry models and market structure: estimation of fixed costs**

### **-1- Try to read these before our class**

- [\*\*\*] Berry, S., & Reiss, P. (2007). Empirical models of entry and market structure. *Handbook of industrial organization*, 3, 1845-1886.
- [\*\*\*] T. Bresnahan and P. Reiss, “Econometric Models of Discrete Games,” *Journal of Econometrics*, 1991a.
- [\*\*\*] T. Bresnahan, and P. Reiss, “Entry and Competition in Concentrated Markets,” *Journal of Political Economy*, 1991b.
- [\*\*\*] S. Berry, “Estimation of a Model of Entry in the Airline Industry,” *Econometrica*, 1992.
- [\*\*\*] K. Seim, “An Empirical Model of Firm Entry with Endogenous Product–Type Choices,” *RAND Journal of Economics*, 2006.

### **-2- Papers for presentations**

- Verboven, F., & Schaumans, C. Entry and competition in concentrated markets with product differentiation. *Review of Economics and Statistics*, 97(1), 195-209, 2015
- Schaumans, C. and F. Verboven (2008), "Entry and Regulation: Evidence from Health care Professions," *RAND Journal of Economics*, 39(4), pp. 949–972.
- P. Jia, “What Happens When Wal-Mart Comes to Town: An Empirical Analysis of the Discount Retail Industry,” *EMA*, November 2008, 1263-316.
- O. Toivanen, and M. Waterson, “Market Structure and Entry: Where’s the Beef?” *RAND Journal of Economics*, 2005.
- M. Mazzeo, “Product Choice and Oligopoly Market Structure,” *RJE*, Summer 2002, 221-42.
- S. Berry and J. Waldfogel, “Free Entry and Social Inefficiency in Radio Broadcasting,” *RAND Journal of Economics*, 1999.
- Cleeren, K., F. Verboven, M. G. Dekimpe, and K. Gielens (2010): “Intra-and Interformat Competition Among Discounters and Supermarkets,” *Marketing Science*, 29(3), 456–473.
- Draganska, M., M. Mazzeo, and K. Seim (2009): “Beyond Plain Vanilla: Modeling Joint Product Assortment and Pricing Decisions,” *Quantitative Marketing and Economics*, 7, 105-146.
- Einav, L. (2010): “Not All Rivals Look Alike: Estimating an Equilibrium Model of the Release Date Timing Game,” *Economic Inquiry*, 48(2), 369–390.
- Grieco, P. (2010): “Discrete Games with Flexible Information Structures: An Application to Local Grocery Markets,” *Working Paper: Penn State University*.

## **Estimation of demand and marginal costs**

### **-1- Try to read these before our class**

- [\*\*\*] Steven T. Berry, “Estimating Discrete-Choice Models of Product Differentiation,” *Rand Journal of Economics*, 25, 242-262, 1994.
- [\*\*\*] Berry, S., Levinsohn, J., & Pakes, A. (1995). Automobile prices in market equilibrium. *Econometrica: Journal of the Econometric Society*, 841-890.
- [\*\*\*] A. Nevo, “Identification of the Oligopoly Solution Concept in a Differentiated–Products Industry,” *Economics Letters*, 1998.
- [\*\*\*] Nevo, A. (2000). Mergers with differentiated products: The case of the ready-to-eat cereal industry. *The RAND Journal of Economics*, 395-421.
- [\*\*\*] A. Nevo, “Empirical Models of Consumer Behavior,” *Annual Review of Economics*, 2011.

## **-2- Papers for presentations**

- DellaVigna, S., & Gentzkow, M. (2019). Uniform pricing in us retail chains. *The Quarterly Journal of Economics*, 134(4), 2011-2084.
- Miller and Weinberg (2016) The Market Power Effects of a Merger: Evidence from the U.S. Brewing Industry
- Quan and Williams (2015). Product Variety, Across-Market Demand Heterogeneity, and the Value of Online Retail.
- M. Sovinsky Goeree, “Limited Information and Advertising in the U.S. Personal Computer Industry,” *Econometrica*, 2008.
- Berry, S., & Pakes, A. (2007). The pure characteristics demand model. *International Economic Review*, 48(4), 1193-1225
- Gentzkow (2007) Valuing new goods in a model with complementarities: online newspapers, *AER*
- Chaudhuri, S., Goldberg, P. K., & Jia, P. (2006). Estimating the effects of global patent protection in pharmaceuticals: a case study of quinolones in India. *American Economic Review*, 96(5), 1477-1514
  - Petrin, “Quantifying the Benefits of New Products: The Case of the Minivan,” *Journal of Political Economy*, 2002.
- Brynjolfsson, Hu, Smith (MS, 2003). Consumer Surplus in the Digital Economy: Estimating the Value of Increased Product Variety at Online Booksellers.
- Nevo (2001, Ecma). Measuring Market Power in the Ready-to-Eat Cereal Industry.
- Brynjolfsson, Hu, Smith (MS, 2003). Consumer Surplus in the Digital Economy: Estimating the Value of Increased Product Variety at Online Booksellers.
- Goldberg, P. K. (1995). Product differentiation and oligopoly in international markets: The case of the US automobile industry. *Econometrica: Journal of the Econometric Society*, 891-951

## **Other readings**

- Goolsbee and A. Petrin, “The Consumer Gains from Direct Broadcast Satellites and the Competition with Cable TV,” *Econometrica*, 2004.
- Petrin and K. Train, “A Control Function Approach to Endogeneity in Consumer Choice Models,” *Journal of Marketing Research*, 2010.

- Knittel and K. Metaxoglou, “Estimation of Random–Coefficient Demand Models: Two Empiricists’ Perspective,” *The Review of Economics and Statistics*, 2014.
- Nevo, “A Practitioner’s Guide to Estimation of Random–Coefficients Logit Models of Demand,” *Journal of Economics & Management Strategy*, 2000b.
- G. Werden and L. Froeb, “The Effects of Mergers in Differentiated Products Industries: Logit Demand and Merger Policy,” *Journal of Law, Economics, & Organization*, 1994.

### **Grading**

The numerical grade distribution will dictate the final grade, according to the faculty’s recommended grade distribution.

### **Class participation:**

Active class participation – this is what makes classes lively and instructive. Come on time and prepared.

### **Exam policy:**

There is no final exam. Unexcused failure to deliver homework assignments before the pre-specified deadline will result in zero grades in the calculation of numerical averages.

## [Finance in continuous time \(THEO, MF\)](#)

### **Professor:**

René Aïd (Paris Dauphine University, LEDa & PSL Research University)

### **Contact Information**

rene.aid@dauphine.psl.eu

### **Informations on the course :**

Semester 1

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

ECTS : 3

### **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.

**Mode of Assessment**

Written exam.

**Planning / Course Schedule**

1	- Basic notion of probability theory
2	- The Brownian motion
3	- Stochastic integral and Itô's lemma (1/2)
4	- Stochastic integral and Itô's lemma (2/2)
5	- Black & Scholes model (1/2)
6	- Black & Scholes model (2/2)
7	- Intertemporel maximation of utility (1/2)
8	- Intertemporel maximation of utility (2/2)

**Readings**

- [1] Steven Shreve, Stochastic Calculus for Finance II: Continuous-time models. Springer. 2004.
- [2] Huyên Pham, Continous-time Stochastic control and Optimization with Financial Applications. Springer. 2010.
- [3] Suresh P. Sethi and Gerald L. Thomson, Optimal Control Theory: Applications to Management Science and Economics. Springer. 2000.

[Health, Welfare and Health behavior \(SPP\)](#)

**Teacher:**

Peter Eibich

**Contact Information :**

[peter.eibich@dauphine.psl.edu](mailto:peter.eibich@dauphine.psl.edu)

**Information on the course :**

Semester 1

Course load: 21 hours, 7 sessions of 3 hours

ECTS : 3

**Overview:**

This course will provide an overview of economic approaches to health investment decision-making. At the societal level, policy makers have to decide which health interventions (incl. preventive measures, drugs and medical procedures) to fund to maximize population health outcomes with limited economic resources. In the first part of the course, we will examine health economic evaluation as one potential framework to make such decisions. The course will cover the principles of economic evaluation and discuss the advantages and downsides of this approach. We will work through an example of how a cost-effectiveness analysis is conducted in practice, and we will discuss how evidence from such analyses is used in healthcare systems around the world by looking at several countries as case studies.

In the second part of the course we will consider individual decision-making for health and health behavior. We will discuss economic models of the demand for health and their implications for individual health behaviour and the demand for healthcare. We will also consider economic models for risky health behaviour (e.g., smoking) and discuss the empirical evidence for these models.

**Course Objectives:**

After participating in this course, students will:

- Understand how economic evaluation can be used to assess health interventions.
- Be able to critically discuss decision-analytic models for cost-effectiveness analyses.
- Have an overview of how evidence from economic evaluations is used in healthcare decision-making in different institutional contexts
- Understand how economic principles can be applied to model the demand for health and health behaviour.
- Have an overview of the empirical literature on risky health behaviour.
- Be able to critically assess empirical studies on health behaviour.

**Planning / Course Schedule**

1	Principles of health economic evaluation
2	Conducting cost-effectiveness analyses
3	Using economic evaluation to support decision-making in healthcare (case studies)
4	The demand for health: The health capital model and the health deficit model
5	Economics of risky health behavior: Theory
6	Economics of risky health behavior: Evidence
7	Economics of health prevention

## International Trade & International Macroeconomics (MF)

### **Professor:**

Gianluca Orefice

Lise Patureau

### **Contact Information**

Gianluca Orefice: [gianluca.orefice@dauphine.psl.eu](mailto:gianluca.orefice@dauphine.psl.eu)

Lise Patureau: [lise.patureau@dauphine.psl.eu](mailto:lise.patureau@dauphine.psl.eu)

### **Information on the course :**

Semester 1

Course load: 24h, 8 sessions of 3 hours each

ECTS : 6

### **Overview:**

The course is a topics course on international trade and macroeconomics, which covers the recent advances in international trade and macroeconomics with an emphasis on the role of firm heterogeneity. Starting from recent models of international trade with heterogeneous firms (Melitz 2003; Chaney 2008) and its effects on the labor market, the course 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. The first part of the course will provide students with the essential tools to study the optimal international strategy of firms with different levels of productivity. The second part of the course studies the recent advances in international macroeconomics that incorporate these elements from the international trade literature, by modeling the role of the extensive margin of trade à la Melitz (2003) in an international macroeconomic setting

### **Prerequisites**

International Trade, Macroeconomics, macroeconometrics

### **Course Objectives:**

The objective of the course is to introduce some key topics of interest in the field of international trade and international macroeconomics and to provide students with the modelling framework to address them. A specific focus will be made on the role of firm heterogeneity in shaping international trade flows as well as macroeconomic fluctuations in an international set-up. The students will be trained to read leading research articles on these issues.

After attending the classes, the students will have a sharp understanding of the optimal international strategy of firms, and how such trade microfoundations shed new light on long-standing or novel questions 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.

### **Mode of Assessment**

Final grade: 60%  
Mid-term grade: 40%

The mid-term grade will consist of a short essay written by each student individually. In this essay, the student will choose his/her favourite paper covered during classes. A first part of the essay will consist in summarizing the paper and putting it in perspective to the existing literature. In the second part of the essay, the student will focus on the main achievements/merits of the paper, and on the potential criticisms (if any). The essay should be no longer than 10 pages (policy 12) (bibliography excluded). The essay is expected to be sent to both teachers one month after the end of the course.

The final grade will be based on a written final exam, covering both parts of the course. It will be a closed-book exam.

**Class participation:** Active class participation – this is what makes classes lively and instructive. Come on time and prepared.

## Course Schedule

### **Part 1 – The New New Trade Theory and the Heterogeneity of firms**

9. International Trade with Heterogeneous Firms (Melitz 2003)
10. FDI with Heterogeneous Firms: Helpman, Melitz and Yeaple (2004)
11. Trade Liberalization, Labor Market, Homogeneous Firms (Trefler 2003, Kovak 2013)
12. Liberalization, Labor Market, Heterogeneous firms (Helpman and Itskhoki 2010)

### **Part 2 – International Macroeconomics**

13. Trade costs, trade integration and international macroeconomic puzzles
14. Firm heterogeneity, firm dynamics and international fluctuations
15. Trade, granularity and business cycles
16. The macro consequences of economic uncertainty in a globalized world

## Readings

There is no textbook for this course. We will base entirely on published academic papers, based on the (yet non-definitive) list of papers.

Common core papers · Melitz, M. (2003) “The Impact of Trade on Intra-Industry Reallocations and Aggregate Industry Productivity”, *Econometrica* 71: 1695-1725 (compulsory reading).

## Part I: International trade

· Brainard, S.L. (1997) “An Empirical Assessment of the Proximity- Concentration Trade-off Between Multinational Sales and Trade,” *American Economic Review*, 87(4), pages 520-544 (suggested reading) · Melitz, M., Helpman, H. and S. Yeaple (2004) “Export Versus FDI with Heterogeneous Firms”, *American Economic Review* 94: 300-316 (compulsory reading).

- Pavcnik (2002) “Trade Liberalization, Exit, and Productivity Improvements: Evidence from Chilean Plants”, *The Review of Economic Studies* 69, January 2002, pp. 245-76 (suggested reading).
- Trefler D. (2004) “The Long and Short of the Canada-U.S. Free Trade Agreement”, *American Economic Review* 94: 870-895 (compulsory reading).
- Helpman H. and Itskhoki (2010) “Labour Market Rigidities, Trade and Unemployment”, *Review of Economic Studies*, 77(3): 1100-1137 (compulsory reading).
- Kovak, B. (2013) “Regional Effects of Trade Reform: What is the Correct Measure of Liberalization”, *American Economic Review*, 103(5): 1960-1976 (compulsory reading).
- Autor D., Dorn D., and G. Hanson (2013) “The China Syndrome: Local Labor Market Effects of Import Competition in the United States”, *American Economic Review*, 2013, 103(6), 2121–2168 (compulsory reading).
- Kovak, B and R. Dix-Carneiro (2017) “Trade Liberalization and Regional Dynamics”, *American Economic Review*, 107(10): 1908-2946 (suggested reading).

## **Part II: International Macroeconomics**

### Trade, trade integration and international macroeconomic puzzles

- Backus, David K.; Kehoe, Patrick J.; Kydland, Finn E. (1995), "International Business Cycles: Theory and Evidence", in Cooley, Tom (ed.), *Frontiers of Business Cycle Research*, Princeton University Press
- The Six Major Puzzles in International Macroeconomics: Is There a Common Cause?, Maurice Obstfeld, Kenneth Rogoff. in *NBER Macroeconomics Annual 2000*, Volume 15, Bernanke and Rogoff. 2001
- Ghironi, Fabio, and Marc Melitz. 2005. “International Trade and Macroeconomic Dynamics with Heterogeneous Firms.” *Quarterly Journal of Economics* 120: 865-915

### Firm heterogeneity, firm dynamics and international fluctuations

- Barratieri, Alessandro, Cacciatore, Matteo, Ghironi, Fabio; « Protectionism and the business cycle », *Journal of International Economics*, vol. 129, 2021, p. 1-21
- Monetary policy, firm heterogeneity, and product variety, Hamano, Masashige and Zanetti, Francesco, *European Economic Review*, Vol. 104, 2022
- Cacciatore M., Ghironi F., “Trade, unemployment, and monetary policy”, *Journal of International Economics*, 2021

### Trade, granularity and business cycles

· The Micro Origins of International Business-Cycle Comovement, Julian di Giovanni, Andrei A. Levchenko and Isabelle Mejean, American Economic Review, Vol 108, 2018 "Large Firms and International Business Cycle Comovement", 2017, American Economic Review P&P, 107(5):598-602, J. di Giovanni, A. Levchenko and I. Méjean

· Volatility in the small and in the large: The lack of diversification in international trade, Francis Kramarz, Julien Martin and Isabelle Méjean, Journal of International Economics, Volume 122, January 2020

#### The macro consequences of economic uncertainty in a globalized world

· The economic effects of trade policy uncertainty, Dario Caldara, Matteo Iacoviello, Patrick Molligo, Andrea Prestipino and Andrea Raffo, Journal of Monetary Economics, Volume 109, January 2020

· Brexit and the macroeconomic impact of trade policy uncertainty, Steinberg, J., 2019. Journal of International Economics, 117, 175-195.

### [Introduction to Matlab programming \(upgrade course\)](#)

#### **Lecturer:**

Cédric Crofils (Université Paris Dauphine – PSL, LEDa)  
Inès Mourelon (Université Paris Dauphine – PSL, LEDa)

#### **Contact Information**

cedric.crofils@dauphine.psl.eu  
ines.mourelon@dauphine.psl.eu

#### **Information on the course :**

Master 2 Quantitative Economic Analysis, Semester 1 (up-grade course)

Course load: 12 hours, 4 sessions of 3h

ECTS : No ECTS attached to this course

**This course is mandatory to all Master 1 students.**

**It is also mandatory to students in the Master 2 Quantitative Economic Analysis track who have been admitted at the Master 2 level directly.**

**It is strongly recommended to all Master 2 students who choose the “Macro-Finance” specialization field.**

#### **Overview:**

This course introduces basics of MATLAB programming. MATLAB (the name stands for: Matrix Laboratory) is a high-performance programming language and a computing environment that uses vectors and matrices as one of its basic data types (MATLAB is a registered trademark of the

MathWorks, Inc.). It is a powerful tool for mathematical and technical calculations, and it can also be used for creating various types of plots.

### **Prerequisites**

There is no prerequisite.

### **Course Objectives:**

The first set of lectures are devoted to the introduction of standard programming such as mathematical operations, matrix creation and manipulation. The course next provides a deep assessment of loops and conditional statements. Next, the course also introduces the concept of functions. The course ends on a presentation of optimization methods and solvers.

### **Mode of Assessment**

To be defined

### **Course Schedule**

1	Introduction to MATLAB programming: <ul style="list-style-type: none"><li>• Installation and presentation of the commands</li><li>• Manipulation of vectors, matrices, and mathematical operations</li></ul>
2	Creation of plots: <ul style="list-style-type: none"><li>• Plot 2D and 3D graphics</li><li>• Present and exports graphs from MATLAB</li></ul>
3	Conditional statements and loops: <ul style="list-style-type: none"><li>• Understand and implement conditional statements</li><li>• Code loops</li></ul>
4	Functions: <ul style="list-style-type: none"><li>• Create functions with multiple input arguments or/and multiple output variables</li><li>• Introduction to optimization methods</li></ul>

## [Inequality and redistribution \(SPP, THEO\)](#)

### **Professor:**

### **Contact Information**

### **Information on the course :**

Master 2, Semester 1

Course load: 18 hours, i.e. 6 sessions of 3 hours each

ECTS : 3

## Labor & Education Economics (SPP)

### **Professor:**

Eve Caroli (Université Paris Dauphine, LEDa & PSL Research University)  
Gabrielle Fack

### **Contact Information**

Eve Caroli : [eve.caroli@dauphine.psl.eu](mailto:eve.caroli@dauphine.psl.eu)  
Gabrielle Fack : [gabrielle.fack@dauphine.psl.eu](mailto:gabrielle.fack@dauphine.psl.eu)

### **Information on the course :**

Master 2, Semester 1  
Course load: 24 hours, i.e. 8 sessions of 3 hours each  
ECTS : 3

### **Overview:**

This course will first cover 3 topics related to wage determination that are at the frontier of current research in labour economics. More specifically, we will consider compensating wage differentials, the impact of monopsony power on the labour market and the forms and consequences of labour market discrimination. The course will cover both the theoretical and empirical aspects of all topics. It will also systematically discuss the relevant policy implications.

### **Prerequisites**

Graduate Microeconomics  
Graduate Econometrics

### **Course Objectives:**

The first objective of the course is to equip the students with the tools that will allow them to understand contemporary labour market issues and the relevant public policies. With this aim, it will provide students with advanced knowledge of the determinants of wages. At the end of the course, the students will be able to identify the mechanisms underlying wage setting within firms. They will also have a clear idea of the type of public policies that are likely to mitigate labour market imperfections.

The second objective of the course is to review the empirical evidence regarding the importance of several wage setting mechanisms. At the end of this course, the students will have a good understanding of the main quantitative methods used by economists in the field of labour. They will also be equipped to make policy recommendations regarding labour market discrimination, exploitation due to monopsony power on the labour market etc.



This class will be very useful to students who want to do a PhD dissertation in the field of applied labour economics, as well as to students who plan to work in institutions that produce studies and policy recommendations regarding the labour market, such as the OECD, Ministries of Labour, the ILO, etc.

### **Mode of Assessment**

Presentation of an article and written exam

### **Planning / Course Schedule**

1	Compensating wage differentials
2	Labour Market discrimination
3	Labour Market discrimination
4	Monopsony and labour market concentration
5	
6	
7	
8	

### **Readings**

Tito Boeri and Jan Van Ours, *The Economics of Imperfect Labour Markets*, 2<sup>nd</sup> edition, Princeton University Press, 2013.

Pierre Cahuc, Stéphane Carcillo and André Zylberberg, 2014, *Labour Economics*, 2<sup>nd</sup> edition, MIT Press.

Articles listed on the reading list provided at the start of the course

## Machine Learning (Mandatory for all)

### **Teacher:**

Fabrice Rossi (Université Paris-Dauphine & PSL Research University, CEREMADE)

### **Contact Information :**

fabrice.rossi@dauphine.psl.eu

### **Information on the course**

Semester 1

Course Load: 36h, 12 sessions of 3 h each

ECTS: 6

### **Overview**

This course provides a thorough introduction to machine learning covering both supervised and unsupervised learning. The first part of the course is dedicated to an introduction to supervised learning, i.e., situations in which a predictive model has to be constructed from a data set. This part introduces simple machine learning algorithms (k nearest neighbors and decision trees) and contrasts them with the standard linear model (used in e.g. econometrics). The key concepts of generalization and overfitting are presented, together with the resampling techniques used to properly tune complex models. The second part of the course focuses on advanced supervised learning methods based on ensemble methods (random forests and boosting). It includes also an introduction to empirical risk minimization and to its variations. The complex setting of unbalanced data is also covered in this second part. Finally, the third part of the course is dedicated to unsupervised methods, with a particular focus on clustering techniques and on dimensionality reduction methods. Other aspects of unsupervised learning, such as frequent pattern mining and outlier detection are also discussed.

### **Course Objectives**

The objective of the course is to introduce the methods of multidimensional descriptive data analysis for the processing of medium to large data sets. The course is an applied one: all the methods are illustrated on real world data sets using R and python with their machine learning libraries and packaging. After attending the class, the students will know the main innovative techniques for the processing of medium to data sets and how to implement supervised machine learning, in view of applying these techniques to several economic issues.

### **Prerequisites :**

Mathematics and optimization, Statistics and probability; Practice of Python or R programming at introductory level.

### **Mode of Assessment**

The final grade will be made of two types of grading: A continuous assessment grade, made mostly of grades obtained to quizzes and programming tests (approximately 50 % of the grade) and integrating oral participation during the class and regular attendance; A grade obtained on a machine learning project (preferably done in groups of 2 students).

## Readings

- An introduction to statistical learning (<https://trevorhastie.github.io/ISLR/>)
- Probabilistic Machine Learning: An Introduction (<https://probml.github.io/pml-book/book1.html>)
- Tidy Modeling with R (<https://www.tmwr.org/>)

## [Methods for public policy evaluation \(THEO, SPP\)](#)

### Teacher:

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

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### Informations on the course :

Semester 1

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

ECTS: 6

### Overview:

This course explores different topics in applied microeconometrics at advanced level. 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 and Regression discontinuity designs. The course will review the theory underlying those different techniques and will discuss the recent studies that have applied these methods to make causal inference.

### Prerequisites

M1 Courses: Microeconometrics

### 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.

## **Mode of Assessment**

Short paper + exam and active participation in class

## **Planning / Course Schedule**

17. Causal inference and identification/ Randomized experiment
18. Regression and causality
19. Instrumental variables approach with heterogeneous effects: part 1
20. Instrumental variables approach with heterogeneous effects: part 2
21. Instrumental variables approach for nonlinear models
22. Regression discontinuity designs
23. Applications with Stata 1
24. Applications with Stata 2
25. Presentation of the short empirical papers by the students

## **Readings**

Mostly Harmless Econometrics, Joshua Angrist and Jörn-Steffen Pischke  
Econometric Analysis of Cross-section and Panel Data, Jeffrey Wooldridge  
Microeconometrics. Methods and Applications, A. Colin Cameron and Pravin K. Trivedi

## **Class participation:**

Active class participation – this is what makes classes lively and instructive. Come on time and prepared.

## **Exam policy:**

In the exam, students will not be allowed to bring any document (except if allowed by the lecturer). Unexcused absences from exams or failure to submit cases will result in zero grades in the calculation of numerical averages. Exams are collected at the end of examination periods.

## Python for data science (All)

### **Professor:**

Khalil EL MAHRSI

### **Contact Information**

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### **Informations on the course :**

Semester 1

Course load: 15 h (5 sessions, 3 hours each)

ECTS : 3

### **Overview**

This is an introductory course that presents the basics of Python programming and gives an overview of the Python libraries that are commonly used for conducting data analysis and visualization tasks.

### **Prerequisites**

Most of the course is self-contained, but you are expected to be familiar with mathematical tools associated to an economics curriculum (linear algebra, calculus, probability, and statistics) at an undergraduate level. The course does not assume any prior knowledge in programming in general and Python in particular. However, familiarity with another programming language can be useful in understanding the discussed concepts and topics..

### **Mode of Assessment**

You will be evaluated based on a team project (conducted in pairs) in which you will apply the knowledge and skills you acquired during the course. The project takes the form of an exploratory data analysis in which you will work on a tabular data set in order to extract valuable insights that can help solve a business problem.

The expected deliverables of the project are:

- A 5–10 pages report ;
- The source code (Jupyter notebooks or Python scripts) of your work, either in a Github repository or as a zip file.

You are expected to present your main findings during a 10-minutes presentation, which will be followed by approximatively 5 minutes of questions.

**Class participation:** Encouraged

**Exam policy:** written report and source code (50%) and oral presentation (50%).

### **Course Objectives**

By the end of this course, you will be able to:

- Write and understand entry-level to intermediate-level code in the Python programming language
- Use NumPy for scientific computing and efficient manipulation of multi-dimensional arrays and matrices

- Use pandas to load, manipulate, and analyze tabular data
- Use Matplotlib and seaborn to visualize data

### **Course Schedule**

1	<p><b>Introduction to Python Programming</b></p> <p>This first part introduces the fundamentals of Python programming. It covers topics such as working with basic built-in types (numbers, strings, booleans, ...), control flow statements, writing reusable code (functions), handling errors and exception that can occur during the execution of Python code, advanced data structures (lists, sets, dictionaries, ...), ...</p>
2	<p><b>Scientific Computing With NumPy</b></p> <p>This part focuses on using NumPy, a scientific computing package that provides a wide assortment of useful and highly-optimized routines for working with multi-dimensional arrays (matrices, tensors, ...), linear algebra, statistics and random simulation, and much more.</p>
3	<p><b>Processing Tabular Data With pandas</b></p> <p>The third part of the course is dedicated to pandas, a fundamental Python package when it comes to data science and data analysis. pandas provides functionalities for efficient manipulation of data frames, i.e., tabular data (stored in csv files, Excel sheets, ...). With the help of pandas, you can easily conduct tasks such as data cleaning (filling missing data, replacing outliers, ...), reshaping, merging, ...</p>
4	<p><b>Visualizing Data With Matplotlib and seaborn</b></p> <p>The last part of the course is a quick introduction to data visualization functionalities in Python using the Matplotlib and seaborn packages. Data visualization is a very powerful tool for making sense of large volumes of data, identifying patterns, and extracting useful insights that can help understand and solve real-world business cases.</p>

### **[Quantitative International Economics \(SPP, MF\)](#)**

**Professor:**

Farid Toubal (Paris Dauphine University, LEDa & PSL Research University)

**Contact Information**

Farid.toubal@dauphine.psl.eu

**Informations on the course :**

Semester 1

Course load: 21 h (7 sessions, 3 hours each)

ECTS : 3

**Overview**

This lecture covers advanced topics in international economics with a special emphasis on quantitative techniques employed international trade. This course is divided into two main components: the first part introduces important concepts and provides the theoretical foundations

of the structural gravity equation. The second part deals with partial and general equilibrium trade policy analysis using structural gravity.

### **Prerequisites**

This lecture requires a solid background in microeconomics and advanced knowledge of quantitative techniques.

### **Mode of Assessment**

The final grade is based on a tutorial exam (100%).

### **Course Objectives:**

The lecture aims to offer a comprehensive approach to trade policy analysis with the structural gravity model to provide deep intuition and practical guidance in order to make partial and general equilibrium trade policy analysis.

### **Course Schedule**

1	Trade theory and the Structural Gravity Equation (1/2)
2	Trade theory and the Structural Gravity Equation (2/2)
3	Estimating Structural Gravity: Challenges, Solutions, and Applications (1/2)
4	Estimating Structural Gravity: Challenges, Solutions, and Applications (2/2)
5	General Equilibrium Analysis with the Gravity Model. Theory and Applications (1/3)
6	General Equilibrium Analysis with the Gravity Model. Theory and Applications (2/3)
7	General Equilibrium Analysis with the Gravity Model. Theory and Applications (3/3)

### **Readings**

#### **Main textbook and additional readings (\*\*\*\*Compulsory Reading)**

- Head K. and T. Mayer, 2014. "[Gravity Equations: Workhorse, Toolkit, and Cookbook](#)", Handbook of International Economics, 4th ed, 4:131-195.
- [Gravity Cookbook website](#)
- Costinot, A., and A. Rodríguez-Clare, 2014. "[Trade Theory with Numbers: Quantifying the Consequences of Globalization](#)", Handbook of International Economics, 4th ed, 4:131-195.
- \*\*\*\*Yotov, Y. V., Piermartini, R., Monteiro, J. A., & Larch, M. (2016). [An advanced guide to trade policy analysis: The structural gravity model](#). Geneva: World Trade Organization.

## Semester 2

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### Advanced Health economics (SPP)

**Professor:**

Brigitte Dormont, Université Paris Dauphine, LEDa & PSL University

**Contact Information**

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**Informations on the course :**

Semester 2

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

ECTS : 3

**Overview:**

The course addresses important 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.

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?

**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.

**Mode of Assessment**

One written exam.

+ One short presentation of a paper



## Course Schedule

1	Structure of Health Care Systems
2	The Market for Physicians' Services
3	Hospital Care Regulation
4	Design and Regulation of Health Insurance

## Readings

- Health Care Spending Risk, Health Insurance, and Payment to Health Plans, (2012), Friedrich Breyer, M. Kate Bundorf and Mark V. Pauly, in *Handbook of Health Economics*, Volume 2
- Physician agency, (2000), McGuire TG.. In *The Handbook of Health Economics*, Culyer AJ, Newhouse JP (eds), North-Holland: Amsterdam, 2000; 461–536
- Demand for Health Insurance, (2012) T. G. McGuire, in *Handbook of Health Economics*, Volume 2.
  
- Does health insurance encourage the rise in medical prices?, A test on balance billing in France, Brigitte Dormont and Mathilde Peron *Health Economics*, Volume 25, Issue 9, September 2016, pp. 1073-1089
- Competition between hospitals. Does it affect quality of care ?, (2018) Brigitte Dormont & Carine Milcent co-editors, CEPREMAP, Editions Rue d'Ulm, novembre 2018
- Rebuilding the Health Insurance System, Dormont B., Geoffard P.-Y., Tirole J.. (2014), Les notes du Conseil d'Analyse Economique, n°12, avril

## [Advanced Environmental Macroeconomics \(MF, THEO\)](#)

### Teacher:

Garth Heutel (Georgia State University)

Gauthier Vermandel (Ecole Polytechnique et Université Paris-Dauphine)

### Contact Information

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### Information on the course :

Semester 1

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

ECTS : 3

**Prerequisites**

A solid background in both micro and macro is a prerequisite.

The course in Business Cycles Stabilization and Policies (Master 2, Semester 1) is a prerequisite, as this lecture is a direct extension to macroeconomic stabilization.

**Overview:**

The course focuses on market failures in environmental economics and the appropriate macroeconomic policies to correct them, with a particular focus on carbon taxing in an intertemporal perspective. The course is gradual and starts from a presentation of Integrated Assessment models (IAM) that analyze climate policy in a long perspective. Next, the course introduces the notion of carbon taxing at the business cycle frequency in Dynamic Stochastic General Equilibrium (DSGE) models. Environmental policy in the short term may interfere with the economic cycle, inflation dynamics as well as credit cycles.

**Course Objectives:**

The objective of the course is to provide students with an overview of recent developments in environmental macroeconomics dealing with carbon tax policies interacting with financial, nominal and economics components of the economy.

Students should be able to solve the theoretical models presented and to interpret their normative predictions. From a practical perspective, students are also expected to learn the relevant institutional framework for implementing these policies.

**Course Schedule**

1	A presentation of Integrated Assessment models
2	The intertemporal implementation of optimal carbon tax
3	Environmental economics and real business cycles
4	Environmental economics and nominal rigidities
5	Environmental economics and financial frictions

[Banking Economics \(MF, THEO\)](#)

**Professor:**

Sylvain Carré (joining Université Paris Dauphine, LEDa & PSL)

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**Informations on the course :**

Semester 2

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

ECTS : 3

**Overview:**

This course provides students with an in-depth introduction to banking economics. Students will be taken through the main challenges in Banking (financial stability, fire sales phenomena, regulation and moral hazard...) by studying some of the key papers in the literature and learning their main modelling techniques. Both long-lasting and more recent issues will be addressed, with a particular focus on the set of problems and debates that arose during the 2007-2009 Great Financial Crisis. Once equipped with the key concepts of banking theory, students will be introduced to the main policy instruments available to regulators for dampening the above-mentioned problems. We will study the nature and role of the Basel III agreements, as well as discuss their possible costs and benefits. We will also study the impact of other types of regulatory activities, notably stress tests and disclosures, and explain how policies aimed at market beliefs are complementary to those aimed at banks' balance sheet and operational decisions.

**Prerequisites**

Basic microeconomic knowledge, basic notions of calculus and optimization, basic notions of game theory.

**Course Objectives:**

Students will get acquainted to the modern modelling tools for Banking economics. They will see how these tools allow to shed light on both traditional banking issues (bank runs, moral hazard) and more recent ones (shadow banking, regulatory arbitrage). We will then study how regulation can help in addressing these issues and aim at understanding the *raison-d'être* of several policy instruments, ranging from the Basel III rules to stress test results disclosure strategies.

**Mode of Assessment**

The numerical grade distribution will dictate the final grade, according to the faculty's recommended grade distribution.

Class presentation (50%)

Referee report (50%)

**Course Schedule:**

1	Basic concepts in banking economics. The Diamond-Dybvig model. Financial instability issues: bank runs and bank panics.
2	Solutions to financial instability. Ex-ante and ex-post liquidity provision. Interbank markets, lender of last resort. Deposit insurance and moral hazard.

3	Financial fragility: fire sales, cash-in-the-market pricing.
4	Capital and Liquidity regulation: the Basel III framework.
5	Shadow banking: the Gennaioli-Shleifer-Vishny model.
6	Introduction to banking under asymmetric information: the impact of transparency and regulatory disclosure policies on financial fragility.

## Readings

### Books

I recommend the following books; some parts of the first half of the course will be adapted from some of their chapters.

- Freixas, X. and J.C. Rochet, 2008. *Microeconomics of banking*, 2nd ed., Cambridge, MA: MIT Press.
- Allen, F. and D. Gale, 2007. *Understanding financial crises*, New York: Oxford University Press.

### Selected articles

The following articles will either be discussed in class or are particularly relevant to the class material:

- Allen, F. and D. Gale, 1998. “Optimal financial crises”. *Journal of Finance* 53, 1245-1284.
- Bouvard, M., P. Chaigneau and A. de Motta, 2015. “Transparency in the Financial System: Rollover Risk and Crises”. *Journal of Finance* 70(4), 1805-1837.
- Bhattacharya, S. and D. Gale, 1987. Preference shocks, liquidity and central bank policy. In *New approaches to monetary economics*, ed. W. Barnett and K. Singleton. Cambridge: Cambridge University Press.
- Calomiris, C. and C. Khan, 1991. “The role of demandable debt in structuring optimal banking arrangements”. *American Economic Review* 81, 497-513.
- Carletti, E., I. Goldstein and A. Leonello, 2020: “The interdependence of bank capital and liquidity.” *Bocconi Working paper* 128.
- Cooper, R. and T. Ross, 2002. “Bank runs: deposit insurance and capital requirements”. *International Economic Review* 43, 55-72.
- Dang, T., G. Gorton, B. Holmström and G. Ordoñez, 2017. “Banks as Secret Keepers.” *American Economic Review* 107(4), 1005-1029.

- Diamond, P. and P. Dybvig, 1983. “Bank Runs, Deposit Insurance, and Liquidity”. *Journal of Political Economy* 91, 401-419.
- Diamond, D. and G. Rajan, 2001. “Liquidity risk, liquidity creation and financial fragility: A theory of banking”. *Journal of Political Economy* 109, 287-327.
- Diamond, D. and G. Rajan, 2005. “Liquidity shortage and banking crises”. *Journal of Finance* 60, 615-647.
- Farhi, E., M. Golosov, and A. Tsyvinski, 2009. “A theory of liquidity and regulation of financial intermediation.” *Review of Economic Studies* 76, 973-992.
- Fahri, E. and J. Tirole, 2021. “Shadow banking and the four pillars of traditional financial intermediation”. *Review of Economic Studies* 88(6), 2622-2653.
- Goldstein, I. and A. Pauzner. 2005. “Demand-Deposit Contracts and the Probability of Bank Runs”. *Journal of Finance* 60(3), 1293-1327.
- Goldstein, I. and Y. Leitner, 2018. “Stress Tests and Information Disclosure”. *Journal of Economic Theory*, 177, 34-69.
- Gorton, G. and G. Pennacchi, 1990. “Financial intermediaries and liquidity creation”. *Journal of Finance* 45, 49-71.
- Gennaioli, N, A. Shleifer and R. Vishny, 2013. “A Model of Shadow Banking”. *Journal of Finance* 68(4), 1331-1363.
- Hoerova, M., C. Mendicino and K. Nikolov, G. Schepens and S. Van der Heuvel, 2018. “Benefits and costs of liquidity regulation”. *ECB Working Paper* 2169.
- Plantin, G, 2015. “Shadow Banking and Bank Capital Regulation”. *Review of Financial Studies* 28, 146-175.
- Rochet, J.C. and X. Vives, 2004. “Coordination failures and the lender of last resort: was Bagehot right after all?” *Journal of the European Economic Association* 2, 1116-1147.
- Santos, J. and J. Suarez, 2019. “Liquidity standards and the value of an informed lender of last resort”. *Journal of Financial Economics*, 132, 351-368.

### Individual and collective decisions (THEO)

**Professor:**

Jean-Philippe Lefort (Université Paris-Dauphine, LEDa & PSL)

Remzi Sanver (University Paris-Dauphine, LAMSADE & PSL)

**Contact Information**

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Remzi Sanver: remzi.sanver@dauphine.psl.eu

**Information on the course :**

Semester 2

Course load: 15 hours (5 sessions of 3 hours)

ECTS: 3

**Overview:**

The course investigates the process of decision making, both at an individual and collective level. It is organised in two parts. 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.

**Prerequisites**

Game Theory, Microeconomics

**Course Objectives:**

The objective of the course is to present the fundamentals of decision making both at an individual and collective level. The students will have a good understanding of

- 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.

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

**Mode of assessment**

Final exam 95%

In-class participation 5%.

**Planning / Course Schedule**

1. What is a rational economic agent? Utility paradigm, Debreu gap lemma.
2. Revealed preference theorem: Afriat theorem, and recent extensions. Risk and uncertainty framework
3. Behavioral approach, expected utility and subjective expected utility. Non-expected utility approaches
4. We present the preference aggregation problem. For the particular case of two alternatives, we state and prove the characterization of the majority rule by May (1952). For the general case with at least three alternatives, we make a complete statement of Arrow's (1963) impossibility theorem.
5. We present one of the proofs of Arrow's impossibility theorem (Mas Colell et al. (1995)). We also discuss ways to escape this negative result via weakening the conditions which lead to the impossibility.

**Readings**

- Arrow, K. J., 1963, *Social Choice and Individual Values*, 2nd edition, John Wiley and Sons, New York.
- Binmore, K., 2008, *Rational decisions*, Princeton University Press, NJ.
- Gaertner, W., 2009. *A primer in social choice theory: Revised edition*. Oxford University Press.
- Gibbard, A., 1973, Manipulation of voting schemes: a general result, *Econometrica*, 41, 587-601.
- Gilboa I. 2018, *Rational choice*, MIT press.
- Mas Colell, A., M.D. Whinston, J.R. Green, 1995, *Microeconomic Theory*, Oxford University Press.
- May, K., 1952, A set of independent, necessary and sufficient conditions for simple majority decision. *Econometrica* 20, 680-684.
- M.A. Satterthwaite, MA, 1975, Strategy-proofness and Arrow's conditions: existence and correspondence theorems for voting procedures and social welfare functions, *Journal of Economic Theory*, 10, 187-217.
- Wakker, P., 2010, *Prospect theory for risk and ambiguity*, Cambridge University Press
- Roth, A. and M. Sotomayor: *Two-sided matching - A study in game-theoretic modeling and analysis*. Cambridge University Press. 1990.
- Roth, A. (2008), Deferred acceptance algorithms: history, theory, practice, and open questions, *International Journal of Game Theory* 36(3), 537-569.
- Sonmez, T. and U. Unver: *Matching, allocation, and exchange of discrete resources*. Chapter 17 in *Handbook of Social Economics (volume 1)*. North-Holland. 2010.
- *The Handbook of Market Design*. Oxford University Press. 2013

### **List of selected articles**

#### **For the topic House Allocation and Housing Markets: deterministic mechanisms**

- Shapley and Scarf (1974) On cores and indivisibility, *Journal of Mathematical Economics*.
- Roth and Postlewaite (1977) Weak versus strong domination in a market with indivisible goods. *Journal of Mathematical Economics*.
- Hylland and Zeckhauser (1977) The efficient allocation of individuals to positions, *Journal of Political Economy*.
- Roth (1982) Incentive compatibility in a market with indivisible goods, *Econom. Letters*.
- Ma (1994) Strategy-Proofness and the Strict Core in a Market with Indivisibilities. *International Journal of Game Theory*.
- Papai (2000) Strategy-proof Assignment by Hierarchical Exchange, *Econometrica*.
- Abdulkadiroglu and Sönmez (1999) House allocation with existing tenants, *Journal of Economic Theory*.
- Sönmez and Unver (2005) House Allocation with Existing Tenants: An Equivalence, *Games and Economic Behavior*.

#### **For the topic: Introduction to two-sided matching**

- Gale and Shapley (1962) College admissions and the stability of marriage, *American Mathematical Monthly*.
- Shapley and Shubik (1972) The assignment game I: the core, *International Journal of Game Theory*.
- Roth (1982) The economics of matching: stability and incentives, *Mathematics of Operations Research*.

· Dubins and Freedman (1981) Machiavelli and the Gale-Shapley algorithm, American Mathematical Monthly. Roth (1984) The evolution of the labor market for medical interns and residents: A case study in game theory, Journal of Political Economy.

## Policies in developing countries (SPP)

### **Professor:**

Olivia Bertelli (Université Paris-Dauphine, LEDa & PSL )

### **Contact Information**

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### **Information on the course :**

Semester 2

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

ECTS : 3

### **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 still live in extreme poverty, one child out of three is undernourished and lacks access to drinking water. Famines and conflicts keep rising around the globe, undermining human and economic development.

How to fight poverty and inequality? How to improve the life conditions of millions of people? This course looks at major public policies and interventions that tackled poverty in developing countries in the past twenty years. After discussing the main concepts and tools to measure poverty, inequality and human development, we will go deep in analysing actions taken around the world to improve people's lives. The course focuses on impact evaluations of public policies tackling the constraints to human and economic development tied to education, health, gender and agriculture in developing countries. It 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 the different types of instruments and the political economy of policy implementation. It will also discuss the impacts of education, health, gender and agricultural policies in developing countries.

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

### **Mode of Assessment**

Students' presentation 20%

Final written or oral exam 70%

Class participation 10%

### **Planning / Course Schedule**

1	Poverty, inequality, human development. Main concepts and measures
2	Poverty, inequality, human development. Main concepts and measures
3	Education economics in developing countries
4	Health economics in developing countries
5	Gender inequalities
6	Agriculture development

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