



ÉCONOMIE



# ÉCONOMIE

## Master in Economics (MIE)

Responsible  
**Jean-Baptiste Michau**  
 jean-baptiste.michau@polytechnique.edu

### Description

The Master in Economics is jointly offered by École Polytechnique, ENSAE ParisTech, ENS Cachan, HEC Paris and the University of Paris Sud. The objective of this two-year program is to provide an advanced training in economics to students who want to become professional economists working in government, central banking, international organizations, consulting, and finance or in academic research.

The Master in Economics trains students to have a sound expertise in economics. The program heavily relies on advanced quantitative methods for both theoretical and empirical analysis. In the first year, students learn the main tools used in economics and their most important applications. This is, by far, the most important year in the training of an economist.

Students who choose to stay for the second year will specialize within subfields of economics (finance, games and decision theory, industrial economics, macroeconomics, international economics, public economics, labor economics, sustainable development, and econometrics). By the end of that year, they should be familiar with the research frontier within their main area of specialization.

The Master in Economics is entirely taught in English.

### Fourth-year opportunities

#### In France

- Corps de l'État
- Second year (M2) of the Master in Economics
- *Écoles*: ENSAE ParisTech, Mines ParisTech, Ponts ParisTech (économie, gestion, finance), HEC.

#### Abroad

- PhD in Economics, Master in Finance, Public Administration, Operations Research.

### Career prospects

The Master in Economics provides a sound graduate level training in economics. The following sectors are the examples in career prospects:

- Government (ministries, regulation agencies)
- Central banks
- International organizations
- Consulting (management, economics)
- Finance
- Insurance
- Academic research



### Curriculum

#### Project (through 1<sup>st</sup> and 2<sup>nd</sup> semester)

- ECO511 – Applied Economics Project

In order to complement theoretical knowledge acquired during the courses, Project ECO511 provides students opportunities to work on a topic in applied economics, with some empirical ingredients or applied economic theory. Students work in a group of two or three members, and they will be graded during an oral exam in March. A written report should be submitted a week before the oral exam.

The academic tutor is supposed to provide a topic, and meet the students at the beginning to help starting the project, and expected to be available for a help from October to March. The list of topics will be provided at the end of September. The allocation of the students will be on the first-come-first-serve basis.

Approximate timeline for academic year:

- September: announcement of the subject list by the Dept.
- Beginning of October: registration, beginning of work.
- Beginning of December: deadline for submission of a mid-term report.
- Beginning of March: deadline for the final report.
- Mid-March: oral exam.

#### Site web

<http://www.master-in-economics.com/>

## COMPOSITION DU PROGRAMME

**First period***3 mandatory courses*

- ECO550 – Microeconomics I  
(Individual decision making and market equilibrium)
- ECO551 – Macroeconomics I (Economic growth)
- ECO552 – Econometrics I (Linear regression and extensions)

*1 Optional course*

- ECO571 – History of Economics since 1945 (*at ENS Cachan*)
- ECO573 – Experimental Economics
- ECO575 – European Economics (*at ENS Cachan*)
- ECO576 – Development Economics (*at ENS Cachan*)

**Project (through 1<sup>st</sup> and 2<sup>nd</sup> period) – Compulsory**

- ECO511 – Applied Economics Project

**Second period***3 mandatory courses*

- ECO560 – Microeconomics II (Strategic information and interaction)
- ECO561 – Macroeconomics II (Business cycles)
- ECO562 – Econometrics II (Nonlinear, Qualitative Data, and Panel Data)

*1 Optional course*

- ECO580 – Competition Policy
- ECO581 – Macroeconomic Policies
- ECO585 – Microeconomics for Publics Economics (*at ENS Cachan*)
- ECO589 – Fintech, Blockchain & Cryptocurrencies
- ECO567A – Energy Economics with a Geography Focus

## COMPOSITION DU PROGRAMME

**Third period***Stage de recherche (Research Internship)*

- ECO591 – Economie d'entreprise et microéconomie
- ECO592 – Economie internationale et politique économique
- ECO593 – Banque – Finance

In the third semester, students should do an internship of 16 weeks' minimum. The objective of this research internship is to provide students with opportunities to apply economic theory in practice. The students are expected to deliver application of economic theory into practice in a public or private institution, or conduct economic research in an academic institution.

# ÉCONOMIE

## Stratégie d'Entreprise et Finance (SEF)

Responsable

Marie-Laure Allain  
marie-laure.allain@  
polytechnique.edu

### Description

The SEF offers a one-year program which treats the questions of strategy of firms and finance, putting accents on quantitative methods and data management. The program emphasizes the quantitative aspects in Microeconomics, Business Analytics, Finance, Applied Econometrics and Data Management, so that students are expected to acquire skills in business with a mindset based on solid understanding of microeconomic theory. Three main fields studied in this program are (i) applied microeconomics, (ii) finance, (iii) applied econometrics and data management. Although various courses are based on case studies, applications in real examples and data analysis, the main focus of the program will be on scientific studies aimed at engineers, and thus the provided courses will use strong scientific methodologies. The students are expected to acquire skills to be able to make economic decisions, as managers or decision makers in private or public sectors. Courses (mandatory and optional) are provided in a variety of fields including: Applied Microeconomics, Applied Econometrics, Corporate Finance, Financial Markets, Big Data Management, Operational Research, Environmental Economics.

Behavioral Economics, and more. The program is aimed to the students who expect to develop their career (i) in private sector, such as bank, finance, insurance, consulting, (ii) in public sector, such as economic administration, regulation agency, and international organization, or (iii) as an entrepreneur.

All courses of SEF are given in English.

### Fourth-year opportunities

#### In France

- Corps de l'État
- Écoles: ENSAE, Mines, Ponts (Économie, gestion, finance), Télécom, HEC.
- Master 2 at École Polytechnique : Economics, Data Analytics and Corporate Finance, Smart Cities and Urban Policy.
- Economie du développement durable de l'énergie et de l'environnement (with X, EHESS, Agro ParisTech, Mines, INSTN, ENSPM, Ponts).
- Projet, innovation, conception (MIXT, avec HEC, Mines ParisTech, Paris Dauphine).

#### Abroad

- Master in Business Analytics, Economics, Finance, Public Administration, Technology and Management, International Affairs, Operations Research.



### Career prospects

The SEF program is aimed to the students who expect to develop their future career in the fields of business or finance, consultancy, or entrepreneurship, particularly in the following sectors:

- Bank, finance, insurance.
- Economic administration.
- Consulting in business strategies.
- International organizations.
- Regulation agency.
- Corporations.

### Curriculum

#### Project (through 1<sup>st</sup> and 2<sup>nd</sup> semester)

- ECO511 – Applied Economics Project

In order to complement theoretical knowledge acquired during the courses, Project ECO511 provides students opportunities to work on a topic in applied economics, with some empirical ingredients or applied economic theory. Students work in a group of two or three members, and they will be graded during an oral

exam in March. A written report should be submitted a week before the oral exam. The academic tutor is supposed to provide a topic, and meet the students at the beginning to help starting the project, and expected to be available for a help from October to March. The list of topics will be provided at the end of September. The allocation of the students will be on the first-come-first-serve basis.

#### Approximate timeline

- September: announcement of the subject list by the Dept.
- Beginning of October: registration, beginning of work.
- Beginning of December: deadline for submission of a mid-term report.
- Beginning of March: deadline for the final report.
- Mid-March, oral exam.

## OVERVIEW OF THE CURRICULUM

## First period

## 2 mandatory courses

- ECO552 – Econometrics 1
- ECO556 - Industrial Organization

## 1 mandatory course among the following courses:

- ECO553 – Financial Decisions under Risk 1
- ECO554 – Corporate Finance
- ECO557 – Market Design

## 1 course is mandatory among:

- ECO553 – Financial Decisions under Risk 1 *(if not already chosen)*
- ECO554 – Corporate Finance *(if not already chosen)*
- ECO557 – Market Design *(if not already chosen)*
- ECO572 – Environmental issues and policy at local scale
- ECO579 – Case studies in Corporate Finance
- ECO611 – Lecture Series
- INF553 – Database and BigData
- MAP557 – Operations Research: Mathematical Aspects and Applications

## Semester 1 &amp; 2

- ECO511 – Applied Economics Project  
*(it can be chosen instead of 2 EA), a mid-term grade is given at the end of Semester 1.*  
*If ECO511 is not chosen, 1 EA has to be a project-based course among: ECO557, ECO579, ECO611, ECO580, ECO583, ECO588, ECO568, ECO587*

INF553 Prerequisite:  
INF411 (strongly  
recommended)  
or INF412.

## OVERVIEW OF THE CURRICULUM

## Second period

## 2 courses among

- ECO562 – Econometrics II
- ECO568 – Advanced Corporate Finance
- ECO582 – Financial Decisions under Risk 2
- ECO583 – Business Economics
- ECO584 – Market Design 2

## 2 Optional courses chosen among

- ECO562 – Econometrics II *(if not already chosen)*
- ECO563 – Financial Markets
- ECO568 – Advanced Corporate Finance *(if not already chosen)*
- ECO580 – Competition Policy
- ECO582 – Financial Decisions under Risk 2 *(if not already chosen)*
- ECO583 – Business Economics *(if not already chosen)*
- ECO584 – Market Design 2 *(if not already chosen)*
- ECO587 – Behavioral Finance
- ECO588 – Digital Economics
- ECO589 – Blockchain and Fintech
- ECO662 – Supply Chains
- ECO664 – Blockchain and Platform Design

## Third period

## Stage de recherche (Research Internship)

- ECO591 – Economie d'entreprise et microéconomie
- ECO592 – Economie internationale et politique économique
- ECO593 – Banque – Finance

In the third semester, students should do an internship of 16 weeks' minimum. The objective of this research internship is to provide students with opportunities to apply economic theory in practice. The students are expected to deliver application of economic theory into practice in a public or private institution, or conduct economic research in an academic institution.

ECO562 Prerequisite:  
ECO552

ECO568 Prerequisite:  
ECO554

ECO582 Prerequisite:  
ECO553

ECO584 Prerequisite:  
ECO557