

# ÉCONOMIE

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## Program Description

The PA Economics is a one-year specialization program in Economics. The program emphasizes the quantitative aspects of economic analysis and relies mainly on modeling and game theory for the theory part, and on econometrics and data analytics for the empirical part. 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 program is aimed to the students who expect to develop their career in the public sector (economic administration, ministries, regulation agency, central banks, international organization) or the private sector (consulting in business

strategy, industry, bank, M&A, insurance, Financial services), or who wish to become entrepreneurs.

The PA Eco offers four specialization tracks: market strategy, corporate finance, public policy, and Master in Economics (Research track). All courses are taught in English.

## Research track

The “research track” of the PA Economics corresponds to the first year (M1) of the Master in Economics, which is a two-year program jointly offered by IP Paris and HEC. The objective of this program is to provide an advanced training in economics to students who want to become professional economists working in government, central banks, 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. The first year focuses on the theoretical and empirical tools of modern economic analysis, together with their most important applications. By the end of that year, students should be able to read research papers and assess the quality of economic arguments on non-trivial policy issues.

Students who choose to stay on for the second year (M2) will specialize within subfields of economics (finance, games and decision theory, industrial economics, macroeconomics, international econo-

mics, labor economics, public 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.

After finishing the M2, many strong students start a PhD in the U.S., at IP Paris, or elsewhere.

### SITE WEB DU MASTER IN ECONOMICS

<http://phd-in-economics.com/>

## Fourth-year opportunities

### In France

- Corps de l'État.
- Écoles: ENSAE, Mines, Ponts (économie, gestion, finance), Télécom, HEC.
- Master en Economie de l'énergie et de l'environnement et de transports.
- Master 2 at École Polytechnique: Economics, Data Analytics and Corporate Finance, Economics for Smart Cities and Climate Policy, REST, STEEM.
- Second year (M2) of the Master in Economics at IP Paris (mainly for students from the “research track”).

### Abroad

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

# COMPOSITION DU PROGRAMME

## Track Corporate Finance

### First period

*2 Mandatory courses*

**EC0552A** - Applied Econometrics 1/**EC0552B** Advanced Econometrics 1

**EC0554** - Corporate Finance

*One mandatory course among*

**EC0553** - Financial Decisions under risk 1

**EC0570** - Blockchain 1: Bitcoin and Smart-Contracts (ENSAE)

**EC0579** - Case studies in Corporate Finance

**EC0579B** - Private Equity

**EC0652** - Valuation of start-ups

*One course among*

**EC0511** - Research Project in Applied or Theoretical Economics

**EC0553** - Financial Decisions under risk 1 (*if not chosen*)

**EC0556** - Industrial Organization

**EC0557** - Market Design

**EC0559** - Urban Economics and Real Estate

**EC0570** - Blockchain 1: Bitcoin and Smart-Contracts (ENSAE)

**EC0572** - Environmental economics and corporate environmental responsibility

**EC0579** - Case studies in Corporate Finance (*if not chosen*)

**EC0579B** - Private Equity (*if not chosen*)

**EC0611A** - Lecture Series

**EC0652** - Valuation of start-ups (*if not chosen*)

**INF553** - Database and Big Data, Prerequisite: INF411 (*strongly recommended*) or INF412

**MAP557** - Operations Research: Mathematical Aspects and Applications

### Second period

*2 Mandatory courses*

**EC0562B** - Advanced Econometrics 2/**EC0562A** Applied Econometrics 2,  
*prerequisite: ECO552A/B*

**EC0568** - Advanced Corporate Finance, *Prerequisite: ECO554*

*One mandatory course among*

**EC0563** - Financial Markets

**EC0582** - Financial Decisions under Risk 2, *prerequisite ECO553*

**EC0584** - M&A (ENSAE)

**EC0587** - Behavioral Finance

**EC0664** - Blockchain 2: Advanced topics on Blockchain and Platform Design

**EC0586/PHY560C** - Modelling of Financial Markets: an Introduction to Econophysics

*One course among*

**EC0511B** - Research Project in Applied or Theoretical Economics

**EC0563** - Financial Markets (*if not chosen*)

**EC0564** - Economics of energy sectors

**EC0567A** - Energy Economics with geography focus

**EC0569** - Environmental Economics 2 (*prerequisite ECO572*)

**EC0580** - Competition Policy (*prerequisite ECO556*)

**EC0582** - Financial Decisions under Risk 2, *prerequisite ECO553 (if not chosen)*

**EC0584** - M&A (*if not chosen*)

**EC0585** - Economics facing nature: history and context

**EC0586/PHY560C** - Modelling of Financial Markets: An Introduction to Econophysics (*if not chosen*)

**EC0587** - Behavioral Finance (*if not chosen*)

**EC0588** - Digital Economics (*prerequisite ECO556*)

**EC0589** - Perspectives croisées sur les problématiques environnementales à travers  
l'étude de territoires

**EC0664** - Blockchain 2: Advanced topics on Blockchain and Platform Design (*if not chosen*)

**EC0680B** - Big Data (for X)

**EC0684** - Public Economics & Public Finance (ENSAE) (*Prerequisite ECO550 or ECO431*)

# COMPOSITION DU PROGRAMME

## Market Strategy

### First period

2 Mandatory courses

**EC0552A** – Applied Econometrics 1/**EC0552B** Advanced Econometrics 1

**EC0556** – Industrial Organization

One mandatory course among

**EC0557** – Market Design

**EC0572** – Environmental Economics (*prerequisite ECO431*)

One course among

**EC0511** – Research Project in Applied or Theoretical Economics

**EC0554** – Corporate Finance

**EC0652** – Valuation of start-ups

**EC0553** – Financial Decisions under risk 1

**EC0557** – Market Design (*if not chosen*)

**EC0559** Urban Economics and Real Estate

**EC0570** – Blockchain 1: Bitcoin and Smart-Contracts

**EC0572** – Environmental Economics (*if not chosen*)

**EC0579** – Case studies in Corporate Finance

**EC0579B** – Private Equity

**EC0655** – Dynamic pricing and revenue management (ENSAE)

**EC0611A** – Lecture Series in Economics and Finance

**INF553** – Database and Big Data, Prerequisite: INF411 (*strongly recommended*) or INF412

**MAP557** – Operations Research: Mathematical Aspects and Applications

### Second period

2 Mandatory courses

**EC0562B** – Advanced Econometrics 2/**EC0562A** Applied Econometrics 2, (*prerequisite: ECO552*)

**EC0583** – Business Economics; *prerequisite ECO556*

One mandatory course among

**EC0580** – Competition Policy (*prerequisite ECO556*)

**EC0588** – Digital Economics (*prerequisite ECO556*)

**EC0680B** – Big Data (for X)

One course among

**EC0511B** – Research Project in Applied or Theoretical Economics

**EC0563** – Financial Markets

**EC0564** – Economics of energy sectors

**EC0567A** – Energy Economics with geography focus

**EC0568** – Advanced Corporate Finance, (*Prerequisite: ECO554*)

**EC0569** – Environmental Economics 2 (*prerequisite ECO572*)

**EC0580** – Competition Policy (*prerequisite ECO556 if not chosen*)

**EC0581** – Economics of Biodiversity

**EC0582** – Financial Decisions under Risk 2, (*Prerequisite: ECO553*)

**EC0584** – Mergers and Acquisitions (ENSAE)

**EC0585** – Economics facing nature: history and context

**EC0587** – Behavioral Finance

**EC0588** – Digital Economics (*Prerequisite ECO556 if not chosen*)

**EC0589** – Perspectives croisées sur les problématiques environnementales à travers l'étude de territoires

**EC0660** – New technologies and Sharing Economy

**EC0664** – Blockchain 2 : Advanced topics on Blockchain and Platform Design

**EC0680B** – Big Data (for X) *if not chosen*

**EC0684** – Public Economics & Public Finance (ENSAE)

# COMPOSITION DU PROGRAMME

## Master in Economics

*All is mandatory*

### First period

- EC0511** – Research Project in Applied or Theoretical Economics
- EC0550** – Microeconomics 1
- EC0551** – Macroeconomics 1
- EC0552B** – Advanced Econometrics 1
- EC0558** – Time Series Econometrics

### Second period

- EC0511B** – Research Project in Applied or Theoretical Economics
- EC0560** – Microeconomics 2
- EC0561** – Macroeconomics 2
- EC0562B** – Advanced Econometrics 2

## Public Policy

### First period

*1 Mandatory course*

- EC0552A** – Applied Econometrics 1/**EC0552B** Advanced Econometrics 1

*Two mandatory course among*

- EC0550** – Microeconomics 1 (*compulsory if ECO431 not passed*)
- EC0556** – Industrial Organization
- EC0557** – Market Design
- EC0572** – Environmental Economics
- EC0559** – Urban Economics and Real Estate

*One course among*

- EC0550** – Microeconomics 1 (*if not chosen*)
- EC0511** – Research Project in Applied or Theoretical Economics
- EC0553** – Financial Decisions under Risk 1
- EC0554** – Corporate Finance
- EC0556** – Industrial Organization (*if not chosen*)
- EC0557** – Market Design (*if not chosen*)
- EC0559** – Urban Economics and Real Estate (*if not chosen*)
- EC0570** – Blockchain 1: Bitcoin and Smart-Contracts
- EC0572** – Environmental Economics (*if not chosen*)
- EC0579** – Case studies in Corporate Finance
- EC0579B** – Private Equity
- EC0611A** – Lecture Series
- INF553** – Database and Big Data, Prerequisite: INF411 (*strongly recommended*) or INF412
- MAP557** – Operations Research: Mathematical Aspects and Applications

# COMPOSITION DU PROGRAMME

## Second period

### 1 Mandatory course

**EC0562B** – Advanced Econometrics 2/**EC0562A** Applied Econometrics 2, (*Prerequisite: ECO552*)

### 1 mandatory course among

**EC0561** – Macroeconomics 2

**EC0580** – Competition Policy

**EC0684** – Public Economics and Public Finance (ENSAE)

### 2 courses among

**EC0511B** – Research Project in Applied or Theoretical Economics

**EC0561** – Macroeconomics 2 (*if not chosen*)

**EC0563** – Financial Markets

**EC0564** – Economics of energy sectors

**EC0567A** – Energy Economics with geography focus

**EC0568** – Advanced Corporate Finance, (*Prerequisite: ECO554*)

**EC0569** – Environmental Economics 2 (*Prerequisite ECO572*)

**EC0580** – Competition Policy (*Prerequisite ECO556*)

**EC0680B** – Big Data (for X)

**EC0581** – Economics of Biodiversity

**EC0582** – Financial Decisions under Risk 2, (*Prerequisite: ECO553*)

**EC0585** – Economics facing nature: history and context

**EC0587** – Behavioral Finance

**EC0588** – Digital Economics (*Prerequisite ECO556*)

**EC0589** – Perspectives croisées sur les problématiques environnementales à travers l'étude de territoires

**EC0664** – Blockchain 2: Advanced topics on Blockchain and Platform Design

**EC0684** – Public Economics and Public Finance (ENSAE) (*if not chosen*)

## All Tracks

### Semester 1 and 2

#### Elective Applied projects

**EC0511** and **EC0511B** – Research Project in Applied or Theoretical Economics through 1st and 2nd semester, can replace two courses

In order to complement theoretical knowledge acquired during the courses, Project EC0511 provides students with opportunities to work on a topic in applied economics, with some empirical ingredients or applied economic theory. Students work in groups of two or three members, and they are graded during an oral exam in March. A written report is submitted a week before the oral exam. Academic tutors provide topics, and meet the students on regular basis to supervise their work. The list of topics is provided at the end of September. The allocation of the groups will be on the first-come-first-serve basis. Any topics proposed by the students/ any arrangements are to be discussed individually.

#### Approximate timeline

- September: announcement of the subject list by the department
- Beginning of October: registration, beginning of work
- Beginning of December: mid-term report
- Beginning of March: final report
- Mid- March, oral exam

### Semester 3

#### Stage de recherche (Research Internship)

**EC0591** – Internship in Microeconomics/Corporate/Environmental Sector

**EC0592** – Internship in International Economics/Public Policy

**EC0593** – Internship in Banking/Finance

In the third semester, students 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.