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# MAKING SENSE OF DATA



## EVALUATING, PREDICTING, DECIDING

*ENSAE Paris* is the French *Grande École* specialized  
in Economics, Data Science, Quantitative Social Sciences,  
Finance and Actuarial Science



IP PARIS

The volume and complexity of available data is exploding and the problem is not just how to store and preserve all that information. The real issue is how to analyze massive data and use it relevantly for purposes of evaluation, prediction and decision-making.

*ENSAE Paris* is the French *Grande École* specialized in Economics, Data Science, Quantitative Social Sciences, Finance and Actuarial Science. The school offers elite Master programs combining advanced field knowledge with cutting-edge quantitative methods.

*ENSAE Paris* is a founding member of the *Institut Polytechnique de Paris* (IP Paris).

## At a Glance

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**1** *Ingénieur ENSAE* three-year degree program

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**4** Fifteen-month degree Advanced Masters programs

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**30** different nationalities

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**30%** of women

### About the *Ingénieur ENSAE* Program

The *Ingénieur ENSAE* Program is unique. It combines high selectivity, challenging pluridisciplinarity, outstanding scientific training as well as professional skills developed through ENSAE's close links with business and government. This three-year program prepares students to become experts in Data Science, Macroeconomics, Microeconomics, Actuarial Science, Quantitative Finance and Risk Management, or Quantitative Sociology.



# Program details

The program blends theoretical courses, applied projects, seminars and internships.

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1<sup>st</sup>  
year

## Harmonizing skills in Mathematics and Economics.

A core curriculum is delivered, including courses in Mathematics, Optimization, Theory of Probability, Statistics, Computer Skills, Microeconomic and Macroeconomic Modeling, Applied Economics and Communicational Skills.

**4-week internship minimum**

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2<sup>nd</sup>  
year

## Acquiring advanced scientific skills

ENSAE students are trained simultaneously to become excellent data scientists and experts in the field of Economics, Finance or Actuarial science. Their expertise is founded on fundamental and applied core subjects: Statistics, Machine Learning, Numerical Methods, Game Theory, Advanced Economics, Sociology, Mathematical Finance and Actuarial Science.

**10-week internship minimum**

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3<sup>rd</sup>  
year

## Professional specialization

ENSAE students choose among six multidisciplinary specialization tracks, all of which provide advanced scientific and professional skills

- Actuarial Science
- Data Science & Business Decision
- Data Science & Social Sciences
- Data science, Statistics & Machine Learning
- Finance & Risk Management
- Forecasting & Economic Policy

**14-week internship minimum**

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**Cti**  
Commission  
des titres d'ingénieur

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## Broadening skills through double degree programs

Students can further their skills through partnership programs with top French and international academic institutions

- Advanced Research Masters and PhD programs in Economics, Data Science, Finance or Sociology, delivered by *Institut Polytechnique de Paris*
- Double degree programs with France's top business schools (*HEC Paris, ESSEC or ESCP Europe*) and *Sciences Po Paris*
- Academic exchanges abroad
- Actuary accreditation

## International student admission

Depending on their academic background, international students may be admitted either into the first or into the second year of the 3-year *Ingénieur ENSAE* program.

- **A selective competitive exam:** the admission process combines a written exam in Mathematics and a motivation interview. Qualifications based on previous academic results are also taken into account.
- **Prerequisites:** Bachelor of Science in Mathematics, in Quantitative Economics or in Quantitative Finance, of comparable standards in their home countries.
  - Although more and more courses are delivered in English, courses are mainly taught in French
- **Calendar and admission process:** [ensae.fr](http://ensae.fr)
- **Fees 2019-2020:** 1,850 €/year (3-year program)



## Advanced Master (MS) 1-year programs

The Advanced Master degrees (*Mastères Spécialisés-MS*) are tailored to equip post-graduate students (already holding a Master's Degree) with a unique combination of advanced pluridisciplinary scientific skills, as well as practical and professional know-how. These programs build on both ENSAE's academic excellence and close ties with companies and industry professionals to broaden the professional opportunities of ENSAE graduates.

- **4 Advanced Master programs:** Actuarial Science, Data Science, Finance and Risk Management, Quantitative Methods for Economic and Financial Decision
- Certified by the French *Conférence des Grandes Écoles*

**6-month internship**



## International Student Admission

- **Admission:** depending on academic qualifications. Given the strong emphasis on quantitative methods, these programs require a strong initial level in Applied Mathematics.
- **Prerequisites:** Master degree in Quantitative Economics, Mathematics, Statistics or Quantitative Finance.
  - Although more and more courses are delivered in English, courses are also taught in French.

For Program details, Admission Procedure and Fees see: [ensae.fr](http://ensae.fr)



## An exceptional employability

### Professional and Corporate Relations

ENSAE Paris has close-knit partnerships with private companies, public services and international organizations. It has a particularly strong reputation in the banking industry, insurance companies, and data-oriented consulting firms.

Professional practitioners are involved in the academic life of ENSAE Paris in several ways:

- Internships and projects: an essential part of student training consists in applying the methods and models taught at ENSAE Paris to solve technical and managerial issues based on genuine business or public data
- Corporate seminars and conferences
- Specific training sessions on career opportunities, innovative projects such as Hackathon
- Courses and academic juries

A network of

**7 500** alumni all over the world

### Challenging and exponential Careers opportunities

Given the wide applicability of the mathematical modeling and data science skills mastered by ENSAE students, the job opportunities made available are numerous and in rapid growth. Banks, insurance companies, e-commerce companies, energy markets, the health sector, the environment sector, even musical streaming firms welcome ENSAE students.

First position held after graduation:

- 37% Data Scientists
- 21% Actuaries
- 19% Data Analysts
- 16% Economists
- 7% Experts in finance and risk management

**94%** of ENSAE students are contracted less than 2 months after graduation

**86%** of ENSAE students are offered a position even before the end of their studies

**TOP 2** best starting salary among all French engineering schools

## Outstanding Research: furthering excellence within IP Paris

Research at ENSAE Paris is conducted within the Center for Research in Economics and Statistics (CREST), a joint research unit (UMR status) in partnership with *École Polytechnique* and The French National Centre for Scientific Research (CNRS), located in the brand new ENSAE building.

### The Center for Research in Economics and Statistics

The common culture of CREST is characterized by a strong attachment to quantitative methods, data, mathematical modeling, and the continuous back-and-forth movement between theoretical models and empirical evidence to analyze concrete economic and societal problems.

**120** professors, researchers and PhD students

**4** main fields : Economics, Statistics, Finance-Insurance and Sociology

**1** Laboratory of Excellence in Economics and Decision Sciences (LabEx Ecodec)

**1** secure data hub on site (Equipex CASD)

### PhD and integrated PhD programs within Institut Polytechnique de Paris

The objective of the PhD programs of the newly founded *Institut Polytechnique de Paris*, in cooperation with *HEC Paris*, is to attract the brightest local and international students. Students aiming to develop highly specialized and research oriented skills can even start their research project at a Master level (5-year integrated PhD programs). This 'PhD track' allows Students to apply to various Master's programs jointly-offered by ENSAE Paris and its partners within IP Paris :

- Master in Economics
- Master Data Science
- Master Statistics, Finance & Actuarial Science
- Master Quantitative Sociology & Demography

## Campus life: a scientific and tech hub in the South of Paris

In 2017, *ENSAE Paris* moved to the “Plateau de Saclay” together with many prestigious *Grandes Écoles* and universities. This scientific and technical hub in the south of Paris, offers a world-class scientific environment, thanks to the presence of public and private research centers as well as technological firms.

Within the Plateau de Saclay, the newly founded *Institut Polytechnique de Paris* (IP Paris) associates *ENSAE Paris* with *École Polytechnique*, *ENSTA Paris*, *Télécom Paris* and *Télécom SudParis*. IP Paris also has close ties with *HEC Paris*. Besides stimulating shared academic projects, IP Paris aims, as a world-class university of science and technology, to become an internationally attractive destination thanks to a unique combination of academic excellence and vibrant student life on a fast developing campus.



### Student life

- Brand-new student accommodation
- State-of-the-art facilities across campus, including a semi-artificial lake, an equestrian center, a swimming pool and a shooting range, to name but a few
- On-campus dining, libraries and support services dedicated to international students

During their stay, all students are strongly incited to be involved in their school and in campus life. The various students associations, hackathons, Junior Enterprises, Students' Office, debating societies, business forums, etc. are effective ways for ENSAE students to engage in their studies.



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