

2024-2025

Master Econometrics Statistics Track: Econometrics Data Science

Joint heads	Descriptions	Practical information
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AIMS

This is a programme in Data Science built on solid statistical and econometric foundations. Students will learn how to code and apply machine learning techniques as well as interpret and communicate the results of their scientific projects. This will enable them to contribute to the industrial and administrative decision-making process by providing relevant and robust input.

Besides gaining a solid knowledge of state-of-the-art econometric and machine learning methods and their conditions of use, students will be trained to implement them on real data and to present the results, in oral or written form, to various audiences. Students will learn to use English in any professional context: converse in English, use technical vocabulary, understand documentation and scientific articles and write in English.

At the end of the M2, our students will have acquired the technical skills to manage and analyse massive data sets and the soft skills to communicate, which will enable them to pursue professional careers as Data Scientists or Data Analysts. The pedagogy is based on carrying out projects. The student's capacity for analysis in a professional context, and therefore employability, is developed through an end-of-study internship, culminating in the writing and presentation of a report. Alternatively, students can select the apprenticeship track ("alternance/apprentissage") in which they alternate between coursework at university and work in a firm.

ADMISSION

Applicants must have taken two validated econometrics courses that cover at least the following: statistics (estimation, tests, confidence intervals) and the econometrics of linear and non-linear models. They must also have at least intermediate-level competence in statistical and econometric software and programming languages (such as R or Python).

Priority access is afforded to M1 students from the Master's in Econometrics-Statistics, or M1 students

from the Master's in Economics of the AMSE department at the Faculty of Economics and Management of Aix-Marseille University. However, parallel entry to M2 may be considered for students who have validated 60 credits at M1 Economics level in a programme with a strong quantitative focus.

TEACHING AND RESEARCH

This Master's is part of the Ecole Universitaire de Recherche (EUR) AMSE, which includes almost a hundred researchers from AMU, CNRS, EHESS and ECM. The teachers are selected according to their research expertise within those entities. The teaching staff is also supplemented by practitioners.

M2 TRACKS

- Econometrics and Data Science
- Research

TEACHING SITES

Faculté d'économie et de gestion, Ilot Bernard du Bois site and Ferry site, Centrale Méditerranée.

REGISTRATION REGIMES

- Initial training
- Apprenticeship
- Continuing education

PROFESSIONAL SKILLS TO BE ACQUIRED

Professional skills acquired by the end of the M2 :

- Ability to manipulate, analyse and interpret data using state-of-the-art machine learning techniques and econometric methods, irrespective of their nature (e.g. quantitative, qualitative, or unstructured data such as text and images) or size.
- Competence in various programming languages (such as Python and R) and data science applications (such as dashboard visualisations), capacity to adapt quickly to any business environment.
- Ability to independently choose the most appropriate machine learning tools and

implement them in order to obtain reliable and robust answers that create added value for the company, or to provide public or private administrations with analyses useful in their operations.

- Ability to communicate clearly, orally and in writing, the results of quantitative analyses to a variety of audiences such as non-specialist business managers or professional data scientists.

INTERNSHIPS AND SUPERVISED PROJECTS

For students in the classic track:

At the end of the year, students perform an internship and write a master's internship report. The objective of the report is to demonstrate the student's ability to apply the conceptual tools acquired to questions pertaining to the professional world. The student must therefore identify the research question, implement the tools and be able to communicate the results to both a professional and an academic audience. The internship is supervised by an internship director (from the company). The report is defended in front of a jury.

For students in the apprenticeship track:

There is no internship, as students alternate throughout the year between time spent at university and in their firm. Students have to write an end-of-year report and defend it in front of a jury.

ASSESSMENT OF KNOWLEDGE ACQUISITION

The student's performance on each course is assessed by written exam or by an oral defence of a written portfolio, or by a report. To limit the number of personal projects per student, the teachers propose transversal projects when possible.

POTENTIAL CAREERS (ROME classification)

M1401 - Conduite d'enquêtes

M1403 - Études et prospectives socio-économiques

M1404 - Management et gestion d'enquêtes

NSF FIELDS

114D - Mathématiques de l'économie, statistique démographique, mathématiques des sciences sociales, des sciences humaines

114G - Mathématiques de l'informatique, mathématiques financières, statistique de la santé

122B - Modèles économétriques ; Méthodes d'analyse économique

TARGETED CAREER PATHS

As with all recognised educational institutions, the attractiveness of AMSE is based primarily on the quality of its students' professional development. Our students find jobs in France and abroad.

This track trains economists and economic engineers who master the tools of economic analysis, statistics and Data Science. The professional insertion of our students is one of our major concerns.

Examples of jobs held by our graduates:

- Data analyst AIRBUS HELICOPTERS
- Data Scientist STMICROELECTRONICS
- Business analyst - Health Economics IMS HEALTH
- Data scientist DIGITAL VIRGO
- Head of statistical studies POLE EMPLOI
- Data scientist KEYRUS
- Statistician-Economist SEABIRD
- Data scientist consultant CAPGEMINI
- Data analyst VOYAGE PRIVÉ
- Consultant-advanced analytics BUSINESS & DECISION GROUP
- Data manager INSERM
- Data scientist EQUANCY
- Consultant KPMG
- Statistical officer CER FRANCE
- Agricultural economist ARVALIS
- Business analyst ALTRAN

Watch our alumni describe their careers on Youtube:

<https://www.youtube.com/c/AMSEChannel/playlists>

Every year, our alumni meet with students during the school's Career Day to present their AMSE experience and their careers.