



# **Master Econometrics Statistics**

**Dual degree program with  
Católica Lisbon School of  
Business & Economics**

Dear candidate,

Aix-Marseille School of Economics promotes the idea of students acquiring international experience throughout their academic journey. This can be achieved through various avenues, including participating in a dual degree program. The advantages of such international experiences are indisputable.

One of the key benefits is the opportunity to gain fresh perspectives. Experiencing education and life in a different country allows students to broaden their worldview, fostering a more comprehensive understanding of global issues and diverse cultural practices. This exposure to new ideas contributes significantly to personal and intellectual growth.

Moreover, engaging with a different academic culture can be intellectually enriching. Experiencing diverse teaching methods, research approaches, and academic environments can enhance a student's skill set and provide a well-rounded education. It encourages adaptability and flexibility, qualities that are increasingly valuable in our interconnected and rapidly changing world.

Beyond the academic realm, international experiences contribute to the expansion of personal and professional networks. Interacting with individuals from diverse backgrounds not only enhances cultural competence but also creates connections that can be valuable in both personal and professional spheres. Building a global network can open doors to future collaborations, career opportunities, and a deeper understanding of the interconnectedness of the academic and professional landscape.

In essence, Aix-Marseille School of Economics recognizes the multifaceted advantages of international experiences for students.

Best regards,

**Karine Gente**

Professor of Economics

Vice Dean International Relations

## ● What is a dual degree?

A dual degree is a distinctive dual program that offers you the opportunity to:

- Study at two prestigious universities.
- Obtain two diplomas.
- Cultivate a unique differentiator for your CV.
- Spend the first academic year abroad and the second year at AMSE.
- Engage in programs taught exclusively in English.

## ● Why choose a dual degree?

Opting for a dual degree presents a multitude of advantages:

- Immerse yourself in new academic experiences and elevate your intellectual prowess.
- Expand your horizons through increased cultural and social exposure.
- Delve into a new business environment and broaden your understanding.
- Foster valuable connections worldwide for future professional collaborations.
- Spend a full academic year in an outstanding city and renowned school.
- Become an integral part of a diverse and inclusive international community.
- Equip yourself with the tools for a successful international career.

## ● How does it work?

- Eligibility: Students must hold a 180 ECTS Bachelor's degree and a letter from the English teacher certifying level B1.
- Duration: Four semesters (two years).
- Language: English.
- Accreditation: 120 ECTS.
- The M1 takes place in Portugal, Lisbon, Católica Lisbon School of Business & Economics.
- The M2 takes place in France, Marseille, AMSE/Aix-Marseille Université.

| CATÓLICA-LISBON Program (90 ECTS)                        | AIX-MARSEILLE Program (120 ECTS)                                                                                                     |
|----------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------|
| MSc in Economics, Specialization in Applied Economics    | Master in Econometrics Statistics (1 track to choose)<br>- Track Econometrics Data Science (EDS)<br>- Track Research in Econometrics |
| MSc in Economics, Specialization in Economic Theory      |                                                                                                                                      |
| MSc in Economics, Specialization in Macroeconomic Policy |                                                                                                                                      |

# Curriculum

## Master 1, choose 1 track among 3

### Specialization in Applied Economics

| Courses - Semesters 1 and 2                                                                                                                                                                                                                                                                | ECTS |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|
| Foundation Courses                                                                                                                                                                                                                                                                         | 20   |
| Microeconomics                                                                                                                                                                                                                                                                             | 4.5  |
| Imperfect Markets                                                                                                                                                                                                                                                                          | 4.5  |
| Macroeconomics                                                                                                                                                                                                                                                                             | 4.5  |
| Econometrics                                                                                                                                                                                                                                                                               | 4.5  |
| Ethics in Economics                                                                                                                                                                                                                                                                        | 2    |
| Specialization Mandatory Courses                                                                                                                                                                                                                                                           | 14   |
| Economic Analysis of Social Policies                                                                                                                                                                                                                                                       | 6    |
| Development Economics                                                                                                                                                                                                                                                                      | 3.5  |
| Microeconometrics                                                                                                                                                                                                                                                                          | 4.5  |
| Specialization Elective Courses (min. 7 ECTS from courses below)                                                                                                                                                                                                                           | 7    |
| Applied Economics                                                                                                                                                                                                                                                                          | 4.5  |
| Economics of Education                                                                                                                                                                                                                                                                     | 3.5  |
| Industrial Organization                                                                                                                                                                                                                                                                    | 3.5  |
| Labor Economics                                                                                                                                                                                                                                                                            | 3.5  |
| Economic Elective Courses (min. 7 ECTS)                                                                                                                                                                                                                                                    | 7    |
| Free Elective Courses<br><i>At most 2 ECTS in additional CAL. At most 2 ECTS in technical modules. At most 4.5 ECTS in language courses. Requirements for students lacking necessary background: Introduction to Econometrics (3.5 ECTS) and/or Mathematics for Economists (3.5 ECTS).</i> | 5.5  |
| Other Requirements                                                                                                                                                                                                                                                                         | 2    |
| Career Accelerator Lab                                                                                                                                                                                                                                                                     | 2    |
| Dissertation                                                                                                                                                                                                                                                                               | 30   |

### Specialization in Economic Theory

| Courses - Semesters 1 and 2                                                                                                                                                                                                                                                                | ECTS |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|
| Foundation Courses                                                                                                                                                                                                                                                                         | 20   |
| Microeconomics                                                                                                                                                                                                                                                                             | 4.5  |
| Imperfect Markets                                                                                                                                                                                                                                                                          | 4.5  |
| Macroeconomics                                                                                                                                                                                                                                                                             | 4.5  |
| Econometrics                                                                                                                                                                                                                                                                               | 4.5  |
| Ethics in Economics                                                                                                                                                                                                                                                                        | 2    |
| Specialization Mandatory Courses                                                                                                                                                                                                                                                           | 15   |
| Game Theory                                                                                                                                                                                                                                                                                | 3.5  |
| Economic Growth                                                                                                                                                                                                                                                                            | 3.5  |
| Information and Uncertainty                                                                                                                                                                                                                                                                | 3.5  |
| Microeconometrics                                                                                                                                                                                                                                                                          | 4.5  |
| Specialization Elective Courses (min. 7 ECTS from courses below)                                                                                                                                                                                                                           | 7    |
| Business Cycles and Stabilization Policy                                                                                                                                                                                                                                                   | 3.5  |
| Industrial Organization                                                                                                                                                                                                                                                                    | 3.5  |
| Macrodynamics                                                                                                                                                                                                                                                                              | 3.5  |
| Monetary Policy and Optimal Taxation                                                                                                                                                                                                                                                       | 3.5  |
| Economic Elective Courses (min. 7 ECTS)                                                                                                                                                                                                                                                    | 7    |
| Free Elective Courses<br><i>At most 2 ECTS in additional CAL. At most 2 ECTS in technical modules. At most 4.5 ECTS in language courses. Requirements for students lacking necessary background: Introduction to Econometrics (3.5 ECTS) and/or Mathematics for Economists (3.5 ECTS).</i> | 4.5  |
| Other Requirements                                                                                                                                                                                                                                                                         | 2    |
| Career Accelerator Lab                                                                                                                                                                                                                                                                     | 2    |
| Dissertation                                                                                                                                                                                                                                                                               | 30   |

## Specialization in Macroeconomic Policy

| Courses - Semesters 1 and 2                                                                                                                                                                                                                                                                | ECTS |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|
| Foundation Courses                                                                                                                                                                                                                                                                         | 20   |
| Microeconomics                                                                                                                                                                                                                                                                             | 4.5  |
| Imperfect Markets                                                                                                                                                                                                                                                                          | 4.5  |
| Macroeconomics                                                                                                                                                                                                                                                                             | 4.5  |
| Econometrics                                                                                                                                                                                                                                                                               | 4.5  |
| Ethics in Economics                                                                                                                                                                                                                                                                        | 2    |
| Specialization Mandatory Courses                                                                                                                                                                                                                                                           | 14   |
| Macroeconomic Policy                                                                                                                                                                                                                                                                       | 6    |
| Economic Growth                                                                                                                                                                                                                                                                            | 3.5  |
| Microeconometrics                                                                                                                                                                                                                                                                          | 4.5  |
| Specialization Elective Courses (min. 7 ECTS from courses below)                                                                                                                                                                                                                           | 7    |
| Business Cycles and Stabilization Policy                                                                                                                                                                                                                                                   | 3.5  |
| Economic Globalization                                                                                                                                                                                                                                                                     | 3.5  |
| Forecasting                                                                                                                                                                                                                                                                                | 3.5  |
| Macrodynamics                                                                                                                                                                                                                                                                              | 3.5  |
| Monetary Policy and Optimal Taxation                                                                                                                                                                                                                                                       | 3.5  |
| Economic Elective Courses (min. 7 ECTS)                                                                                                                                                                                                                                                    | 7    |
| Free Elective Courses<br><i>At most 2 ECTS in additional CAL. At most 2 ECTS in technical modules. At most 4.5 ECTS in language courses. Requirements for students lacking necessary background: Introduction to Econometrics (3.5 ECTS) and/or Mathematics for Economists (3.5 ECTS).</i> | 5.5  |
| Other Requirements                                                                                                                                                                                                                                                                         | 2    |
| Career Accelerator Lab                                                                                                                                                                                                                                                                     | 2    |
| Dissertation                                                                                                                                                                                                                                                                               | 30   |

## Master 2, choose 1 track among 2

### Track Econometrics Data Science (EDS)

| Courses - Semester 3                                                                                                             | ECTS |
|----------------------------------------------------------------------------------------------------------------------------------|------|
| BCC 1 : Etre capable d'utiliser les méthodes de la science de données                                                            |      |
| <b>Machine Learning et Programmation I / Machine Learning and Programming I</b>                                                  | 9    |
| Machine learning et statistical learning / Machine Learning and Statistical Learning                                             |      |
| Programmations / Programming                                                                                                     |      |
| Logiciels / Software                                                                                                             |      |
| BCC 2 : Etre capable de comprendre et appliquer les techniques économétriques                                                    |      |
| <b>Econométrie I / Econometrics I</b>                                                                                            | 12   |
| Méthodes de prévision / Predictive Methods                                                                                       |      |
| Méthodes de réduction de l'information / Methods for Information Reduction                                                       |      |
| Méthodes non paramétriques en économétrie / Non-parametrics Methods in Econometrics                                              |      |
| Séries temporelles / Time Series                                                                                                 |      |
| BCC 3 : Etre capable de concevoir, conduire et communiquer autour d'un projet en maîtrisant l'environnement professionnel        |      |
| <b>Applications et projets I / Applications and Projects I</b>                                                                   | 8    |
| Utilisation de la science des données : limites et défis / Practicing data science in the real world: Limitations and Challenges |      |
| Application: marketing quantitatif / Application: Quantitative Marketing                                                         |      |
| Méthodologie des études économétriques et statistiques / Methodology of econometric and statistical studies                      |      |
| <b>Préparation de l'insertion professionnelle / Preparation for entering the job market</b>                                      | 1    |
| Ateliers de professionnalisation / Professional training                                                                         |      |
| Courses - Semester 4                                                                                                             | ECTS |
| BCC 1 : Etre capable d'utiliser les méthodes de la science de données                                                            |      |
| <b>Machine Learning et Programmation II / Machine Learning and Programming II</b>                                                | 6    |
| Machine learning avancé / Advanced Machine Learning                                                                              |      |
| Interprétabilité et la causalité en Machine Learning / Interpretability and Causality in Machine Learning                        |      |
| BCC 2 : Etre capable de comprendre et appliquer les techniques économétriques                                                    |      |
| <b>Econométrie II / Econometrics II</b>                                                                                          | 3    |
| Modèles de transitions et de durées / Transition and Duration Models                                                             |      |
| Colles en économétrie / Oral training in econometrics                                                                            |      |
| BCC 3 : Etre capable de concevoir, conduire et communiquer autour d'un projet en maîtrisant l'environnement professionnel        |      |
| <b>Applications et projets II / Application and projects II</b>                                                                  | 3    |
| Hackathon / Hackathon                                                                                                            |      |
| Certification / Certification                                                                                                    |      |
| BCC 4 : Se professionnaliser                                                                                                     |      |
| <b>Stage de fin d'études / End-of-studies internship</b>                                                                         | 18   |
| Rapport de stage / Internship report                                                                                             |      |
| Soutenance de stage / Internship defense                                                                                         |      |

## Track Research in Econometrics

| Courses - Semester 3                                                                                                                                         | ECTS |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------|------|
| BCC 1 : Etre capable d'utiliser les méthodes de la science des données et des mathématiques à des fins diagnostiques et prédictives                          |      |
| Econométrie et mathématiques appliquées / Econometrics and applied mathematics                                                                               | 8    |
| Econométrie approfondie / Advanced Econometrics                                                                                                              |      |
| Economie des réseaux / Network Economics                                                                                                                     |      |
| Machine learning et Statistical learning / Machine Learning and Statistical Learning                                                                         |      |
| BCC 2 : Etre capable de mobiliser des savoirs économiques théoriques et appliqués pour effectuer de la modélisation économique et économétrique              |      |
| Tronc commun en Economie / Core Classes in Economics                                                                                                         | 6    |
| Macroéconomie approfondie / Advanced Macroeconomics                                                                                                          |      |
| Microéconomie approfondie / Advanced Microeconomics                                                                                                          |      |
| Analyse Econometrique et Financière (2 ECUE au choix) / Economic analysis (choose 2 among 4)                                                                 | 6    |
| Méthodes de prévision / Predictive Methods                                                                                                                   |      |
| Méthodes non paramétriques en économétrie / Non-parametrics Methods in Econometrics                                                                          |      |
| Finance d'entreprise approfondie / Advanced Corporate Finance                                                                                                |      |
| Processus Stochastique et Application / Stochastic Processes and Application                                                                                 |      |
| BCC 3 : Etre capable de concevoir, conduire et communiquer autour d'un projet de recherche en maîtrisant les outils économiques et économétriques appropriés |      |
| Introduction à la recherche et professionalisation / Introduction to research and professionalisation                                                        | 4    |
| Questions de recherche / Research Questions                                                                                                                  |      |
| Ateliers de professionnalisation / Professional training                                                                                                     |      |
| Enseignements spécialisés / Specialised Classes                                                                                                              | 6    |
| Méthodes de réduction de l'information / Methods for information reduction                                                                                   |      |
| Séries temporelles / Time Series                                                                                                                             |      |
| Courses - Semester 4                                                                                                                                         | ECTS |
| BCC 2 : Etre capable de mobiliser des savoirs économiques théoriques et appliqués pour effectuer de la modélisation économique et économétrique              |      |
| Modelisation économétrique / Econometric modelling                                                                                                           | 8    |
| Modèles de transitions et de durées / Transition and duration models                                                                                         |      |
| Interprétabilité et la causalité en Machine Learning / Interpretability and Causality in Machine Learning                                                    |      |
| BCC 3 : Etre capable de concevoir, conduire et communiquer autour d'un projet de recherche en maîtrisant les outils économiques et économétriques appropriés |      |
| Méthodologie et mémoire de recherche / Methodology and research thesis                                                                                       | 22   |
| Méthodologie de la recherche / Research methodology                                                                                                          |      |
| Mémoire de recherche ou stage de fin d'études / Research thesis or internship report                                                                         |      |



# Contacts

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Website <https://www.amse-aixmarseille.fr/en/study/amse-school>

AMSE is a department of the Faculty of Economics and Management, within Aix-Marseille Université.

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