

People's Democratic Republic of Algeria Ministry of Higher Education and Scientific Research Sétif 1 University – Ferhat Abbas

# **Faculty: Sciences**

# **Bachelor in Mathematics and Computer Science applied to Economics and Management Sciences**

# Presentation and objective of the CS

The objective of the **Mathematics and Computer Science Applied to Economic Sciences (MISE)** program is to train students who are capable of using mathematical, statistical, and computer science tools to model, analyze, and solve complex economic problems.

This program aims to:

- Provide a dual expertise in applied mathematics and computer science, while ensuring a solid foundation in economics.
- Prepare students for the **quantitative analysis of economic phenomena**, particularly through modeling, optimization, econometrics, and simulation.
- Train versatile profiles capable of working in both research and industry across various fields: finance, insurance, banking, risk management, data science, economic consulting, etc.
- Offer access to graduate studies (Master's degrees in applied economics, data science, financial mathematics, artificial intelligence, etc.) or direct entry into the workforce in positions requiring strong analytical skills.

#### **Organization of Studies and Official Duration of the Program:**

# **Program Overview:**

# **Training Canvas:**

- Logic Mathematical Analysis 1
- Probability and Descriptive Statistics
- Computer Operating Systems
- Algorithms
- Introduction to Economic Sciences
- Analysis 2 Linear Algebra
- Programming Language
- Introduction to Artificial Intelligence
- Introduction to Economic Theories
- Management
- Marketing

# Advanced training modules:

#### Semester 01:

- Logic Mathematical Analysis 1
- Probability and Descriptive Statistics
- Computer Operating Systems
- Algorithms
- Introduction to Economic Sciences
- Introduction to Social Sciences
- English 1
- Ethics and Professional Conduct 1
- Methodology for Academic Work

#### Semester 02:

- Analysis 2 Linear Algebra
- Programming Language
- Introduction to Artificial Intelligence
- Introduction to Economic Theories
- Introduction to Demography and Population Studies
- English 2
- Fundamentals of Law
- Business Creation and Management
- Methodology for Academic Work 2

#### Semester 03:

- Advanced Statistics Data Analysis 1
- Numerical Analysis
- Databases
- Networks and Web Technologies
- Microeconomics
- Macroeconomics
- Finance
- Law and Economics
- Language 3 (English/French)
- Ethics in Economic and Commercial Transactions

#### Semester 04:

- Advanced Statistics Data Analysis 2
- Operations Research Optimization
- Data Science and Artificial Intelligence
- Cybersecurity
- Microeconomics Accounting

- Advanced Statistics Data Analysis 2
- Operations Research Optimization
- Data Science and Artificial Intelligence
- Cybersecurity
- Microeconomics Accounting
- Business Intelligence and Big Data
- Advanced Programming
- Information Systems
- Actuarial Science Banking and Insurance
- Financial Markets
- Cryptography and Blockchain
- Economic Crime

## Language of instruction:

French and English

## **Training framework:**

The tables provided in the previous section "Program Overview"

# **Coordinator of the Program**:

Dr. Hakima LAASMI E-mail: hakima.laasmi@univ-setif.dz

- Law and Computing
- Management
- Marketing
- Language 4 (English/French)

#### Semester 05:

- Business Intelligence and Big Data
- Advanced Programming
- Information Systems
- Actuarial Science Banking and Insurance
- Financial Markets
- Cryptography and Blockchain
- Economic Crime
- Language 5 (English/French)
- Business Management
- Collaborative Work

#### Semester 06:

- Numerical Methods Applied to Economics
- Economic and Market Modeling
- Specialized Software
- International Economics and Trade
- Final Year Project

# **Highlights:**

The Mathematics and Computer Science Applied to Economic Sciences (MISE) program stands out for its multidisciplinary approach, combining mathematical rigor, proficiency in computational tools, and a deep understanding of economic mechanisms. It provides students with a solid foundation in analysis, algebra, probability, statistics, and optimization, while also introducing them to programming languages (such as Python, R, or MATLAB) and professional software widely used in the fields of economics and finance. This program enables the practical application of quantitative methods to the study of economic and financial phenomena, developing skills in modeling, simulation, and econometrics. It effectively prepares students for careers in economic analysis, quantitative finance, and data science, while also serving as an excellent gateway to research or competitive entrance exams for major public institutions (such as INSEE, Banque de France, etc.). Thanks to its rigorous and analytical framework, the MISE program shapes highly sought-after profiles

capable of addressing complex issues at the crossroads of mathematics, computer science, and economic sciences.

## **Admission Information:**

The current application of Articles 171 and

1023 of Decrees:

- Skills and knowledge acquisition are assessed every six months through continuous assessment and a final exam.
- Progress from the first to the second year is automatic if the student has completed the first two semesters of the training program.
- The student's assessment focuses on, depending on the training program: lectures, practical work, tutorials, and practical internships.