Specialisation "**Economics**"

MASTER'S PROGRAMME (Master 2 – Baccalaureat +5 years)

MEDITERRANEAN FARMING SYSTEMS DESIGN FOR A SUSTAINABLE FOOD-SYSTEM - MIDAS

Co-accredited with the University of Montpellier (UM) and the "Institut Agro" (Montpellier SupAgro). The programme is in partnership with the Universidad Politécnica de Madrid (UPM), University of Thessaly (UTH), ICARDA, Faculty of Agriculture - Cairo University (CU), and Faculty of Agronomy - Lebanese University.

OBJECTIVE

This master's programme focuses on students holding a university diploma corresponding to a minimum level of 240 ECTS and a background on agronomy, economics, or geography.

This Master's programme by the CIHEAM Montpellier focuses on the plot-farm-territory nexus in relation to socio-technical territorial dynamics, in a context of climatic uncertainty, socio-economic changes and natural resources' degradation. It has a strong international focus, and the language of study and assessment will be English. This one-year-study Master's programme is composed of 8 complementary modules and aims to address 3 major issues in relation with:

- Agricultural systems diversification and food security issues;
- Integrated assessment approach for designing innovative farming systems;
- Co-designing adaptation strategies to promote resilient and sustainable farming systems.

The CIHEAM Montpellier team is in collaboration with visiting professors/lecturers from the following international institutes for the elaboration of different modules and other aspects of the programme:

- Universidad Politécnica de Madrid (UPM),
- International Center for Agricultural Research in the Dry Areas (ICARDA),
- Faculty of Agronomy - Lebanese University,
- Maison de la télédétection - Montpellier,
- Leibniz Centre for Agricultural Landscape Research (ZALF),
- University of Milan (UM),
- University of Thessaly (UTH),
- Faculty of Agriculture - Cairo University (CU),
- University of Montpellier (UM),
- School of Environmental Engineering – Technical University of Crete,
- Banque de France.

This master's programme will provide the students with the necessary:

- **knowledge** to identify the main socio-economic and environmental issues of Mediterranean rural territories,
- **know-how** for designing technical, economic and environmentally viable agricultural production systems by using conceptual, agronomic, and economic models and scenario simulations,
- **skills** to be able to work in multidisplinary teams and to facilitate the interface between technical and socio-economic aspects.

STRUCTURE

→ MASTER'S PROGRAMME
(Master 2 - *Baccalaureat* +5 years)

Eight modules	**45 ECTS**
Internship and Master Thesis	**15 ECTS**

This training program is organized by the CIHEAM Montpellier.

This Master's programme offers the opportunity to

- continue to the Master of Science of the CIHEAM (Baccalaureat +6 years)
- pursue PhD studies and a research career.

LANGUAGE OF THE COURSES

English

APPLICATION & ADMISSION

The required academic level for admission is a minimum of 4 years of higher education (corresponding to 240 ECTS) in a university or a cycle of engineering in agronomy, economics or geography.
Applicants coming from a CIHEAM member country* are excluded from tuition fees (3 527 €) and are subject only to inscription costs (243 €).

DIPLOMAS

Master's programme delivered by the CIHEAM Montpellier in co-accreditation with the University of Montpellier (UM) and the "Institut Agro" (Montpellier SupAgro)

Master of Science of the CIHEAM

SCHOLARSHIPS

It is possible for applicants coming from a CIHEAM member country to obtain scholarships covering living expenses and tuition fees.

**CIHEAM member countries: Albania, Algeria, Egypt, France, Greece, Italy, Lebanon, Malta, Morocco, Portugal, Spain, Tunisia and Turkey.*

MASTER 2 PROGRAMME (60 ECTS)

Module 1: Prerequisites and prospective analysis in relation to climate change issues (September)

- Upgrade in economics (fundamentals in microeconomics and environmental economics),
- Upgrade in systems approach in agriculture,
- Prospective analysis in relation to climate change issues at a regional scale.

Module 2: Transition of agricultural systems under socio-economic and environmental uncertainty (October)

- Analyze the structure and assess the performance of the dominant production systems in the Mediterranean,
- Map agricultural systems and their impact on the environment,
- Conceptualize and represent complex agricultural systems,
- Prospective analysis in relation to climate change issues at a global scale.

Module 3: Modeling of Mediterranean Cropping Systems (November)

- Integration in the modeling approaches of agrosystems under high water stress,
- Master the use of mechanistic and dynamic cropping systems models,
- Master the development and testing of a water balance models.

Module 4: Methods of data collection and analysis (December)

- Establishement of the appropriate framework for data collection and analysis,
- Integration in questionnaires' design, data collection methods, sampling design, dealing with data quality, making estimates and combining data from different sources,
- Trainning of data analysis in different environments.

Module 5: Modeling of Mediterranean Agricultural Systems (January - February)

- Integration in the basic concepts of Environmental Economics and into the role of mathematical programming models as a tool for decision making,
- Integration in the different Mediterranean agricultural systems by taking into account a significant amount of technical, agronomic and economic data,
- Learn the development of bio-economic models by using GAMS language,
- Design and implement scenario simulations in different socio-economic and environmental contexts,
- Analyze the resilience of Mediterranean agricultural systems through multi-criteria and multi-scale analysis.

Module 6: Multi-agent analysis for designing resilient agricultural systems (February)

- Model sustainable food systems: from production to nutrition,
- Regional modeling and resilience analysis,
- Integration to companion modeling and multi-agent systems for the assessment of agricultural territories.

Module 7: Research workshop: issues and methods (January - March)

- Analysis of a scientific article,
- Scientific construction of a research project,
- Selection of intership's host institution (e.g. University, company, cooperative etc.),
- Preparation of the intership's project.

Module 8: Foreign language - French (October - March)

- Oral and written expression adapted to an academic and / or a professional context.

Internship and Master thesis (April - September)

- Elaboration of internship,
- Reduction of Master Thesis,
- Defence of Master Thesis

MASTER of science (60 ECTS)

Master of Science of CIHEAM thesis

- Preparation and defence

Scientific coordinators:

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