



Objective

Water is a natural resource that requires careful management to ensure its availability and quality for future generations. In order to face the challenges of water management and governance we need to work in an integrated and interdisciplinary manner, involving hydrological, biophysical, economic, institutional, regulatory, policymaking and planning efforts.

The main objective of this Master is to train future professionals responsible for decision-making in the field of water management and governance in the natural and agricultural environment, and equip them with the required blend of skills and an integrating and interdisciplinary vision.

The specific objectives of this Master are:

- to train for decision-making and for action according to good water governance practices, aware of the importance of society engagement;
- to know and analyse the legal framework and current regulations weighing the opportunities and limitations involved;
- to contribute to the sustainability, better use, and conservation of water resource and aquatic systems;
- to gain experience in the application of models, new information and communication technologies, and digitalization to enhance the efficacy of services and improve risk prediction and management.

” We want to train future professionals responsible for decision-making in the field of water management and governance

Organization

The Master is organized by the Mediterranean Agronomic Institute of Zaragoza (CIHEAM Zaragoza) of the International Centre for Advanced Mediterranean Agronomic Studies (CIHEAM), with the collaboration of the National Institute for Agro-food Research and Technology (CSIC-INIA) and the International Center for Agricultural Research in the Dry Areas (ICARDA).

Why choose this Master of Science?

1. International and multicultural experience

Take a unique opportunity to study with participants and experts from all over the world. This international, multicultural environment is an essential differentiating factor in today's competitive job market.

2. Lecturers of acknowledged prestige

Train with top international experts who are authorities in the different subject matters of the programme. Over 90 experts from 16 countries.

3. Chance to get to know the Spanish flagship water management model

4. Initiation to research or professional activity

Design an original and independent project or do a traineeship in firms or other entities in the public or private sector related to water management and governance.

5. CIHEAM Master of Science Degree

Official Master of Science degree, awarded by the International Centre for Advanced Mediterranean Agronomic Studies (CIHEAM), recognized as equivalent to the official Spanish Master qualification.

Programme

1st year of the Master (60 ECTS)

The programme of the first year comprises seven core modules within three thematic areas: water governance, quality and management.

Unit 1: Conceptual aspects of water resources management (5 ECTS)

- Key aspects and driving forces of water resources and water management
- Hydrology, climate and geomorphology
- Water and ecosystems
- Water and climate and global change
- The water-energy-food nexus
- Integrated adaptive planning and management of water resources

Unit 2: Institutional and regulatory framework and socioeconomic aspects (10 ECTS)

- Legal and regulatory dimension of water governance
- Institutional dimension of water governance
- International institutions for water governance
- Water governance instruments: allocation of uses and water resources planning
- Water economics and financial and economic instruments

Unit 3: Water quality and pollution control (4 ECTS)

- Water quality principles and standards
- Quality monitoring, analysis and dynamics
- Policies for water quality management
- Wastewater treatment and reuse and water desalination
- Practices for the control of water pollution from agriculture

Unit 4: Tools to support water planning and management (11 ECTS)

- Water sensors
- Remote sensing (RS)
- Use of geographic information systems (GIS) applied to water planning and management
- Scenario building, models and decision support systems for water resource planning and management
- Digital transformation in water management and governance

Unit 5: Integrated water management and restoration of aquatic systems (10 ECTS)

- Hydraulic infrastructure management
- River management and ecological restoration
- Wetland management and ecological restoration
- Lakes: ecological features, management and ecological restoration
- Groundwater management, contamination and preservation
- Monitoring and evaluation of water management and water management planning

Unit 6: Applied water management in agriculture and forest systems (13 ECTS)

- Agricultural water management in dry environments
- Water management in rainfed and agropastoral systems
- Water management in irrigated agriculture
- Water use in animal production
- Water management in forest and shrub systems
- Prevention and management of risks associated with extreme water events: drought and floods

Unit 7: Individual project (7 ECTS)

2nd year of the Master (60 ECTS)

Unit 8: Introduction to research (30 ECTS)

- Soft skills (6 ECTS)
- Practicum (24 ECTS)

Unit 9: Master's thesis (30 ECTS)

The second year of the Master consists of tutored initiation to research or to professional activity in collaboration with governmental institutions, universities, research centres, ONGs, associations and private firms. CIHEAM Zaragoza will provide information about the activities of the centres where students will carry out their projects. Students will choose a topic of their interest. They may also propose a project upon agreement with the host centres.

With the collaboration of:



Admission

This Master of Science programme is targeted to graduates of agricultural science, agricultural engineering, forestry engineering, environmental engineering, other engineering degrees, environmental science, biology, geography, geology, chemistry and biochemistry. Candidates with degrees related to social science, economics, law and information and communication technologies may also apply.

Spanish and English are the working languages.

Registration fees are approximately 2490* euro for each academic year of the Master. This amount covers:

- A) Cost of credits enrolled
- B) Administration fee

(*) This fee will be updated according to the new official rates of the Government of Aragon for the corresponding academic year.

Candidates must apply online at the following address: www.admission.iamz.ciheam.org

Dates and deadlines

The first year of the Master will be held from September 2022 to June 2023.

The second year will begin in September 2023 for a duration of 10 months.

Application deadlines are as follows:

- European candidates without knowledge of Spanish: **Until 1st July 2022**
- Spanish or Spanish-speaking candidates*
18 March to 2 September 2022

(*) Non-European candidates should be aware of visa application deadlines.

Scholarships

Candidates from CIHEAM member countries may apply for scholarship to cover registration fees, medical insurance and accommodation. Candidates of any nationality may apply for a grant to cover all or part of the registration fees.

Degrees

- Postgraduate Specialisation Diploma (60 ECTS)
- Master of Science from the CIHEAM (120 ECTS)

Contact:

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www.masterwatermanagement.com

