



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 in natural and agricultural environments, professionals need to work in an integrated and interdisciplinary manner, involving hydrological, biophysical, economic, institutional, regulatory, policy-making 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, and equip them with the required blend of skills from an integrating and interdisciplinary vision.

The master's degree enables participants to:

- make decisions and act in accordance with good water governance practices, aware of the importance of society's participation in decision-making;
- know and analyse the legal framework and regulations in force, weighing opportunities and constraints;
- contribute to the sustainability, better use and conservation of water resources and aquatic systems;
- gain experience in the application of modelling, new information and communication technologies and digitisation to increase the efficiency of services and improve risk prediction and management; and
- support cooperation and development of the rural environment by promoting rational water management in agriculture, with prospects for economic growth, social development and respect for the environment.

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

Organisation

The Master is organized by CIHEAM Zaragoza (Mediterranean Agronomic Institute of Zaragoza), with the collaboration of Spain's Ministry for Ecological Transition and the Demographic Challenge (MITECO), the Spanish Agency for International Development Cooperation (AECID), the Tragsa Group, the *Sociedad Mercantil Estatal de Infraestructuras Agrarias* (SEIASA), the National Institute for Agricultural and Food Research and Technology (INIA-CSIC), the International Center for Agricultural Research in Dry Areas (ICARDA) and the Iturriaga Dañobeitia Foundation (IDF). The working languages are Spanish and English.

Why choose this Master of Science?

- 1. International and multicultural experience.** A unique opportunity to study and work with students and experts from all over the world. This international and multicultural experience is an essential differentiating factor in today's competitive job market.
- 2. Lecturers of acknowledged prestige.** Programme delivered by over 50 international experts from 12 countries who are authorities in the different subject matters.
- 3. Integrated water management.** Getting to know the management and planning of water resources and the most appropriate irrigation technologies in a context of modernisation for sustainable food production.
- 4. International cooperation.** Obtain the knowledge and develop the attitude required to engage in international cooperation development projects focusing on water management and governance.
- 5. Initiation to research and professional activity.** Design an original and independent project and participate in traineeships in public or private companies or institutions.
- 6. Possibility to enrol in independent modules.** A flexible structure that allows students and professionals to attend specific parts of the programme.
- 7. Master of Science degree.** International MSc degree equivalent to the official Master's Degree of the Spanish University System.

Programme

1st year of the Master (60 ECTS)

The programme of the first year comprises ten core modules within three thematic areas: governance, management and sustainability.

Unit 1: Conceptual aspects of water resources management (4 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: Water economy and policy (4 ECTS)

- Water as an economic resource
- Economic evaluation
- Economic valuation
- Economic and financial instruments

Unit 3: Regulatory, institutional, and international cooperation framework (6 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
- Development cooperation in water management

Unit 4: Tools to support water planning and management (9 ECTS)

- Water sensors and remote sensing
- Use of geographic information systems in water planning and management
- Scenario development and use of modelling and decision support systems for water resources planning and management
- Digital transformation in water management and governance

Unit 5: Water risks: floods, drought and pollution (4 ECTS)

- Concept of risk
- Prevention and management of flood-related risks
- Prevention and management of drought-related risks
- Prevention and management of risks associated with water pollution

Unit 6: Integrated water management and restoration of aquatic systems (8 ECTS)

- Hydraulic infrastructure management
- River management and ecological restoration
- Wetland management and ecological restoration
- Lakes: ecology, management and ecological restoration
- Groundwater management, pollution and preservation

Unit 7: Water management in dry/rainfed environments (4 ECTS)

- Agricultural water management in dry environments
- Water management in rainfed and agropastoral systems
- Water management in forest and shrub systems

Unit 8: Irrigated systems: structures, agronomy, institutions and microeconomy (9 ECTS)

- Irrigation structures and water management
- Irrigation institutions and microeconomy
- Irrigation modernisation

Unit 9: Irrigated systems: non-conventional resources and diffuse pollution (6 ECTS)

- Generation of non-conventional water resources in Mediterranean agriculture
- Management of non-conventional water resources in Mediterranean agriculture
- Management of diffuse pollution in irrigated areas

Unit 10: Individual/group project (6 ECTS)

2nd year of the Master (60 ECTS)

Unit 11: Introduction to research (30 ECTS)

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

Unit 12: 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, NGOs, associations and 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 degree in agricultural science, agricultural engineering, forestry engineering, environmental engineering, environmental science, other engineering specialities, biology, geography, geology, chemistry or biochemistry. Applications are also welcome from candidates with degrees related to social science, economics, law and information and communication technologies.

Knowledge of English will be considered in the selection process.

Registration fees are approximately 1880* euro for each academic year of the Master. This amount covers:

- Cost of credits enrolled
- 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 October 2024 to June 2025.

The second year will begin in September 2025 for a duration of 10 months.

Application deadlines are as follows:

- Candidates requiring visa and/or without knowledge of Spanish: 5 May 2024.
- Candidates not requiring visa and with knowledge of Spanish:

1st Deadline: 15 June 2024. Candidatures presented by this deadline will have preference

2nd Deadline: 8 September 2024

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

Scholarships

Candidates from CIHEAM member countries (Albania, Algeria, Egypt, France, Greece, Italy, Lebanon, Malta, Morocco, Portugal, Spain, Tunisia and Türkiye) and other neighbouring countries (Jordan, Libya, Mauritania, Syria) may apply for scholarships. They will be awarded according to academic merit. Priority will be given to applicants from low, medium and medium-high income.

Degrees

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

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www.masterwatermanagement.com

