

**SELECTION NOTICE FOR ADMISSION TO THE II LEVEL MASTER PROGRAMME IN  
SUSTAINABLE WATER AND LAND MANAGEMENT IN AGRICULTURAL ECOSYSTEMS**

**Academic Year 2025 – 2026**

**jointly delivered by the Politecnico di Bari and the CIHEAM Bari**

### **1 – Objectives**

The Master's programme aims at preparing the new generation towards professional and academic careers and enabling their effective contribution to the sustainable management of water and land resources, and to the socio-economic development thereof, in view of important challenges that include water scarcity, land degradation, demographic pressures and climate change.

A major focus is on the increase of cross-sectoral coherence between Sustainable Development Goals and the application of modern technologies and tools that integrate agronomic, engineering, environmental and socio-economic aspects of water and land management.

The programme presents the basic principles and the latest scientific and technological achievements in irrigation systems at farm and large-scale level, taking into consideration the application of innovative "green" management solutions.

At the end of the programme, the students acquire the following competencies:

- ❖ management of water resources with a view to land conservation and water use efficiency increase in Mediterranean agroecosystems,
- ❖ management of a range of alternative water resources including saline and reclaimed water, and water harvesting systems for irrigation purposes,
- ❖ planning and evaluation of irrigation projects, at farm and large-scale level to optimize water/land/nutrient use, considering societal/institutional aspects and economic criteria,
- ❖ knowledge of the latest technologies and tools for a sustainable management of water resources at different scales and in different agroecosystems.

### **2 – Training activities organisation**

The official language of the course is English. The programme activities correspond to 1500 hours.

Students follow theoretical and practical sessions and acquire the necessary skills to apply integrated approaches of water and land management for sustainable agriculture, under significant challenges of climate change, resource scarcity, environmental degradation, and societal changes.

A variety of teaching strategies, including practical activities, assignments and technical visits accommodate the needs of students with diverse learning styles, abilities, backgrounds and experiences.

The programme is carried out in collaboration with renowned Italian and foreign lecturers, academics and practitioners.

### **PROGRAMME**

The annual syllabus of the Master is divided into 9 Units - plus a preparatory one (to be held online), providing topics in line with the aims to develop the specific professional profile, considering the relative constant evolution of the sector. The achievement of ECTS is subject to passing a test.

The structure of the training activity is as follows:

**Preparatory Unit - Foundations of Sustainable Irrigation and Water Management (distance learning):** This teaching unit, inspired by a series of webinars, reflects the comprehensive nature of the Master's programme in sustainable water management. It covers critical aspects of the field, including technological innovations, economic considerations, and governance structures essential for effective water management. The unit is designed to provide students with a holistic understanding of how water resources can be managed sustainably across various sectors and contexts.

**Unit I - From Soil Genesis to Sustainable Practices: A Comprehensive Approach:** This unit describes land and water resource status in Mediterranean environments and the main challenges for their use in agriculture. Key concepts for resources classification and survey are accomplished by technical field visits and practical examples. Linkages between rainfall patterns, soil properties, land degradation, desertification, drought and land use planning will be discussed. Moreover, the unit focuses on conceptual and quantitative understanding of surface and groundwater hydrological processes and explores the practices, approaches and tools, with regards to an integrated surface and groundwater management in agricultural environments.

**Unit II - Soil-Plant-Atmosphere Dynamics in Sustainable Irrigation:** This unit focuses on the soil-plant-atmosphere interaction at the farm scale and aims to enhance students' capacities to apply sustainable water management practices and tools under different pedo-climatic conditions and contexts considering agronomic, engineering and environmental issues. Students will enhance their knowledge on soil physics, agro-meteorology and soil plant-atmosphere continuum.

**Unit III - Advanced Irrigation Water Management: Principles, Practices and Tools:** Crop water requirements, Irrigation scheduling, resources use efficiency, crop growth modelling, and on-farm water management strategies and technologies are core to this unit. Through theoretical and practical sessions this TU will deliver the basic and advanced knowledge to simulate crop growth, development and yield, and to manage on-farm irrigation with practical tools including digital apps.

**Unit IV - Modern Irrigation Infrastructure: Planning, Design, and Management:** This unit explores an integrated approach that fosters optimal water allocation and resilient design of irrigation systems in a performance-oriented perspective. For an outlook in efficient resource management in agriculture, students will learn about renewable energy for sustainable irrigation, and multi-objective planning, design and management of open channel and of pressurized large-scale irrigation systems.

**Unit V - Harnessing Geomatics for Natural Resource Management in Agriculture:** This unit provides students with basic knowledge on the use of smart tools for driving decisions towards a more sustainable irrigation management in agriculture. Remote sensing, geographic information and global position systems are deployed as tools for the acquisition, management, processing, analysis and display of spatial data and information. Moreover, advances and innovations in digital ag and farm irrigation including IoT-based systems are explored.

**Unit VI - Reimagining Irrigation: Sustainable Use of Alternative Water Resources:** This unit offers a holistic approach towards Alternative Water Resources (AWR) management and practices in agriculture as a sustainable, innovative, and cost-effective way for improving community access to water in scarce areas, thereby contributing to climate adaptation. Major focuses will be on the use of low-quality waters, salinity control and its impact on soils and crops, drainage systems design and management, and desalination processes.

**Unit VII - Economic Principles of Irrigated Agriculture and Water Management:** The unit introduces the basic concepts of economic principles of farm management for an optimal use of irrigation water and the planning of irrigation projects taking into account the main institutional problems of the Mediterranean irrigation sector. Cost recovery and irrigation water pricing issues will be important focuses.

**Unit VIII - Eco-Environmental Evaluation in Irrigation: Governance and Sustainability:** Drivers, challenges and main outcomes and shortcomings of water policies in the Mediterranean agricultural context will be illustrated and analyzed. Participatory approaches for Irrigation Management (PIM) and Transfer (IMT) will be important focuses. Students will be introduced to the most used approaches and metrics to evaluate the social and environmental impacts of the main programs and measures. Students will also acquire the basic concepts of economic and financial feasibility evaluation and learn how to undertake a Cost/Benefit Analysis of irrigation projects.

**Unit IX - Holistic Design and Management of Irrigation Projects and Case study application:** Students will be engaged since the beginning of the course in an extensive teamwork to design a large-scale irrigation system, integrating concepts, techniques and approaches, developed throughout the different teaching units. Team-working provides great learning opportunities and promotes workplace synergy. The process will include a comprehensive analysis of climate, soil, and crop data and the hydraulic design of a large-scale distribution network based on optimal cropping pattern determined using different simulation scenarios and economic criteria.

TRAINING UNITS	TOPIC	Hours of lectures	ECTS (European Credit Transfer System)	SSD (Scientific Didactic Sector)
Preparatory Unit	Foundations of Sustainable Irrigation and Water Management	90	—	—
Unit 1	From Soil Genesis to Sustainable Practices: A Comprehensive Approach	90	6	CEAR-01/B
Unit 2	Soil-Plant-Atmosphere Dynamics in Sustainable Irrigation	90	6	CEAR-01/B
Unit 3	Advanced Irrigation Water Management: Principles, Practices and Tools	90	6	CEAR-01/B
Unit 4	Modern Irrigation Infrastructure: Planning, Design, and Management	90	6	CEAR-01/B
Unit 5	Harnessing Geomatics for Natural Resource Management in Agriculture	90	6	CEAR-04/A (4 ECTS) CEAR-01/B (2 ECTS)
Unit 6	Reimagining Irrigation: Sustainable Use of Alternative Water Resources	90	6	CEAR-02/A
Unit 7	Economic Principles of Irrigated Agriculture and Water Management	90	6	IEGE-01/A (2 ECTS) CEAR-01/B (4 ECTS)
Unit 8	Eco-Environmental Evaluation in Irrigation: Governance and Sustainability	90	6	IEGE-01/A (2 ECTS) AGRI-04/A (4 ECTS)
Unit 9	Holistic Design and Management of Irrigation Projects	150	10	CEAR-01/B
Project work	Case study application	30	2	CEAR-01/B
<b>Total ECTS</b>			<b>60</b>	

## ATTENDANCE AND EXAMS

The student's progress is monitored throughout the academic year. The preparation of project work (individual or group and supervised work) and a final exam are mandatory.

Attendance is obligatory in all its activities and educational phases for at least 80% of the scheduled hours in each Teaching Unit; any absence shall be adequately justified. The students who are absent for more than 20% of the total scheduled hours shall not be allowed to take the final exam for the obtention of the qualification, except for special cases evaluated by the Technical-Scientific Committee (TSC).

The educational activities of the Master will take place at CIHEAM Bari Campus – Istituto Agronomico Mediterraneo, Via Ceglie 9, Valenzano (Ba). For more information about CIHEAM Bari Scholarships, consult <https://www.iamb.it>, or call CIHEAM Bari Secretariat: + 39 080 4606281; [didattica@iamb.it](mailto:didattica@iamb.it).

### 3 – Duration and number of places

The Master’s course lasts one academic year, from October 2025 until June 2026.

The minimum number of participants is 12; the maximum number of participants is 30.

### 4 – Access qualifications and prerequisites

QUALIFICATIONS:	PREREQUISITES:
<p>II LEVEL DEGREE that allows access to third-cycle courses (PhD)</p> <p>a) If the degree is issued in Italy and EU countries (one of the following qualifications)</p> <ul style="list-style-type: none"><li>• A five-year university degree obtained prior to the entry into force of D.M. 509/99, recognized as appropriate by the Master Technical-Scientific Committee for enrollment purposes.</li><li>• A master’s degree according to D.M. 509/99 or D.M. 270/04, recognized as appropriate by the Technical-Scientific Committee for enrollment purposes.</li></ul> <p>b) If issued in a Foreign Country</p> <ul style="list-style-type: none"><li>• A qualification of equal value issued abroad, recognized as appropriate by the Master Technical-Scientific Committee for enrollment purposes.</li></ul>	<ul style="list-style-type: none"><li>• Agricultural, civil engineering or related sciences including irrigation, land management, socioeconomics and environmental conservation.</li><li>• Good Knowledge of spoken and written English</li></ul>

### 5 – Application to the Master

The application will take place in 2 steps.

#### FIRST STEP: APPLICATION ON CIHEAM BARI PLATFORM

Within May 31<sup>st</sup> 2025, candidates must submit their **APPLICATION** through CIHEAM Bari Platform, with modalities and within deadlines hereby indicated <https://www.iamb.it/education/application>.

Candidates will be evaluated by the Evaluation Board (see art. 6). The administrative staff of Politecnico di Bari will check the documents and CIHEAM Bari will inform those who have passed the first step evaluation (see art. 7).

#### SECOND STEP: APPLICATION ON THE POLITECNICO DI BARI PLATFORM

Within July 1<sup>st</sup> 2025, only candidates who have passed the first step evaluation can go further with the procedure and submit their application through Esse3 portal of Politecnico di Bari (<https://poliba.esse3.cineca.it>).

In the online application for admission, candidates with disabilities (as per Law no. 104 of 5 February 1992, supplemented by Law no. 17 of 28 January 1999) or with Specific Learning Disorders (DSA) (pursuant to Law no. 170 of 8 October 2010) must explicitly request any required aid and additional time for the examination.

#### Application supporting documents

Candidates must upload the following documents in Italian or English or French along with the application form:

- Curriculum vitae (including Scientific publications and professional activities, if any)
- ID Document (one of the below):

- Identity card (issued by an EU Member State)
- Driving license (issued by an EU Member State)
- Passport
- Certified copy of the University Degree, along with a specific certification containing:
  - the official duration of the programme
  - the level degree, see art. 4, of the acquired qualification whereas scheduled by the attended study programme
- Certified copy of the University Transcripts
- Motivation letter
- Two reference letters duly signed and dated
- Certificate of English Language (minimum level of knowledge: Intermediate).

## **6 – Evaluation Board**

The Evaluation Board will be appointed by Rectoral Decree, issued by the Politecnico di Bari, and will be responsible of the entire selection procedure of candidates (including the verification of accuracy and completeness of the provided documents). Incomplete applications or those lacking the mandatory qualifications required by this notice will be deemed invalid and excluded.

According to the professional and administrative needs, upon request, the TSC could appoint, in the Evaluation Board, other members and/or experts enrolled by Politecnico di Bari and CIHEAM Bari.

## **7 - Approval of selected applications - ranking list and short-list**

The selection score is awarded up to a maximum of 100 points. Evaluable qualifications include: the relevance of the degree (see prerequisites of art. 4), the relevance of the CV related to the goal of the Master, Certified English level and motivation letter, uploaded online by candidates (20/100); online interviews assessing pre-acquired technical knowledge and background, attitude, motivation and English language proficiency (up to 70/100); other qualifications such as scientific publications, professional activities, and specialization courses, uploaded on line (up to 10/100). A merit ranking is produced by the Evaluation Board.

Admission to the Master programme is subject to the availability of places and the final judgment of the Evaluation Board. At the end of the selection procedure, the Politecnico di Bari will publish the ranking list of admitted students on the official online ALBO (<http://www.poliba.it/it/amministrazione-e-servizi/albo-online>) and on the Master dedicated section (<https://www.poliba.it/didattica/master>). The CIHEAM Bari will publish the ranking list of admitted students on the CIHEAM Bari web site (<https://www.iamb.it/education/>). This publication serves as official notification.

### **After the evaluation process:**

- Non-Italian candidates admitted to the Master's programme must provide a "Declaration of value" issued by the Italian Embassy, demonstrating the equivalence of their qualifications.
- All admitted students will be registered on the Esse3 platform of Politecnico di Bari (<https://poliba.esse3.cineca.it/Home.do>).

## **8 - Scholarships**

CIHEAM Bari grants up to 12 full scholarships to candidates from non-EU Southern and Eastern Mediterranean, Middle Eastern and African countries according to the merit ranking. These scholarships cover tuition fees, travel and insurance expenses, board and lodging, and pocket money.

Additional full or partial scholarships may be offered by other institutions and will be assigned according to the qualification ranking.

## **9 – Enrolment and payment of fees**

The admitted Candidate will complete the procedure for enrolment, according to the instructions published together with the above-mentioned ranking. Candidates who will not complete the enrolment procedures within the expected deadline lose the right to be admitted to the Master.

Only the admitted candidates can enroll.

The total amount of registration and attendance fees is € 4.000,00 (four thousand euro).

The enrollment procedure must be completed with the payment of the **registration fee of € 400,00** (four hundred euro).

The registration fee of applicants who benefit from the CIHEAM Bari scholarship will be paid directly by CIHEAM Bari (see art. 8).

The **attendance fee** (€ 3.600,00) will be paid into three equal installments, before the start of classes, after the first semester, before the final exam. No refund is expected in case of withdrawing or exclusion from the Master's course.

No other payment is required.

Students who benefit from the CIHEAM Bari scholarship will not pay any attendance fee (see art. 8).

In any case, stamp duty fees will be due according to Italian law.

The enrolment is an online procedure only. No paper document should be delivered. The enrolment made through a different procedure will not be taken into consideration and does not represent a justified reason for a delay.

## **10 - Payment modalities of fees and contributions.**

With due regard to the principle of transparency and traceability, in accordance with the rules in force on electronic payments for public authorities, the payment of taxes and contributions shall be made through the *pagoPA* system by one of the following modalities:

- by printing the payment notification *pagoPA* and making the payment by Credit/debit card at the bank tellers that provide a similar service;

- by printing the payment notification *pagoPA* and making the payment at any provider of payment services of the *PagoPA* circuit - the system implemented by the *Agenzia per l'Italia Digitale (AgID)* to facilitate payments to public authorities (*SISAL points, Lottomatica, bank tellers, etc.*). The complete and updated list of the Providers of Payment Services (*Servizi di Pagamento (PSP)* covered by *PagoPA* is published on the website *AgID*;

- online payment: by a link on the page of online Secretariat; you can access "online payment" that proposes all the providers of Payment services (home banking services, credit cards, current account debit order, Providers of Payment Services – *PSP PagoPA*).

## **11 – Giving up**

Students who withdraw from the Master Course have to produce a written communication to the office Post-Lauream ([post-lauream@poliba.it](mailto:post-lauream@poliba.it)) and to CIHEAM Bari ([didattica@iamb.it](mailto:didattica@iamb.it)). Fees already paid are not refundable.

## **12 – Final exam and achievement of title of II Level Master**

The final exam to achieve the title of II level Master degree "*Sustainable Water and Land Management in Agricultural Ecosystems*" consists of a discussion of the project work, showing the knowledge acquired during the course and operative capacity linked to the forecasted professional figure.

At the end of the course a Diploma of II level Master degree in "*Sustainable Water and Land Management in Agricultural Ecosystems*" will be issued by Politecnico di Bari and CIHEAM Bari.

### **13 – Treatment of personal data**

The private nature of information provided by candidates will be guaranteed. All data provided will be used only for purposes connected with selection procedures. For successful candidates, this data will also be used for purposes related to the programme. For students completing the programme, data supplied will be used for purposes of employment opportunities. All data treatment follows the European General Data Protection Regulations EU2016/679.

According to the abovementioned European General Data Protection Regulations EU2016/679, candidates have the right to access their personal data as well as request modifications, additions and cancellations. Candidates may also request limits for their data treatment by contacting the Politecnico di Bari at [rpd@poliba.it](mailto:rpd@poliba.it).

In all cases, by participating in the selection process applicants give their implied consent for the publication of their data, including examination results, on the Politecnico di Bari website, as per the abovementioned Law.

In accordance with Law 241 (7 Aug 1990) and Presidential Decree 184 (12 Apr 2006) and subsequent modifications and additions, any party with a related legal interest may have access to the selection procedure documentation, in line with guidelines set out under current legal rules. Accordingly, any documentation provided by applicants may be made available for consultation by other candidates.

### **14 – Technical - Scientific Committee**

The Technical-Scientific Committee (TSC) is composed of Giacomo Scarascia Mugnozza, Umberto Fratino, Gabriella Balacco and Leonardo Damiani (for Politecnico di Bari); Nicola Lamaddalena, Roula Khadra and Daniela D'Agostino, with Ayman Sawassi as substitute member (for CIHEAM Bari). It is co-chaired by Giacomo Scarascia Mugnozza and Nicola Lamaddalena.

The Coordinators of the Master, jointly delivered by the Politecnico di Bari and the CIHEAM Bari, are Giacomo Scarascia Mugnozza and Nicola Lamaddalena.

### **15 – Procedure officer and additional contacts**

The procedure officer is Simona Del Vecchio ([post-lauream@poliba.it](mailto:post-lauream@poliba.it)).

Requests for additional information can be addressed by e-mail to [didattica@iamb.it](mailto:didattica@iamb.it); [francesca.signorile@poliba.it](mailto:francesca.signorile@poliba.it).

### **16 – Reference standards**

For anything not reported in the present call, refer to Politecnico di Bari regulations.

Students registered at the Master in *Sustainable Water and Land Management in Agricultural Ecosystems* must respect

- Ethical and behavior rules of Politecnico di Bari and of CIHEAM Bari.
- All rules and regulations of Politecnico di Bari and CIHEAM Bari.

The present call will be published in the institutional website of POLIBA in the sections “Albo Ufficiale on-line del Politecnico di Bari, <http://www.poliba.it/it/amministrazione-e-servizi/albo-online>” and “Master, <https://www.poliba.it/didattica/master>” and on web platform of CIHEAM Bari <http://www.iamb.it> .