



"This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 952396".



H2020-WIDESPREAD-2020-5 CSA Twinning

Promoting SMART agricultural WATER management in Bosnia and Herzegovina

Grant Agreement number: 952396



SMARTWATER project and  
University of Sarajevo, Faculty of Agriculture and Food Sciences  
announce:

**the scholarships for the Master of Science in  
“Sustainable Water and Land Management in Agriculture”**

to be held in Italy at the CIHEAM – Mediterranean Agronomic Institute of Bari, Italy.

**About the Master of Science Program**

The Master of Science Program provides a two-year curriculum whose main objective is to prepare a new generation of motivated students towards professional and academic careers for the promotion of a sustainable use of land and water in agriculture, in view of important challenges that include water/land scarcity, population growth, climate change and correlated environmental and socio-economic burdens. A major focus will be on the application of modern technologies and tools that integrate agronomic, engineering, environmental and socio-economic aspects of land and water management in agriculture.

Candidates will follow theoretical and practical sessions that aim at framing the water and land resources management within a sustainable development perspective of agriculture and food sectors. The programme presents basic principles and advanced topics of the latest scientific and technological achievements, discussing challenges for the best exploitation of resources and options for a sustainable management at farm and large-scale level. Irrigation technologies and systems are analysed according to technical, social, economic, and environmental issues, taking into considerations the application of innovative “green” management solutions.

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**SMARTWATER — H2020-WIDESPREAD-2018-2020 / H2020- WIDESPREAD-2020-5**



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At the end of the programme, students will acquire the following skills and competencies:

- treat water management issues in the context of sustainability of agriculture and food systems, taking into consideration the challenges of climate change, resource scarcity, societal changes, food security,
- manage water resource in a variety of agroecosystems for land conservation and increase the water use efficiency and productivity under rainfed and irrigated agriculture,
- use a range of alternative water resources, including saline and treated wastewater, for irrigation purposes,
- plan and evaluate irrigation projects, at farm and large-scale level to optimize water/land/nutrient use, considering societal/institutional aspects and economic criteria,
- use latest technologies and tools for a sustainable management of water resources at different scales and in different agroecosystems.

The Programme is carried out in collaboration with national and international Institutions and Universities. International scientists and practitioners, with a consolidated knowledge on the covered topics, will give lectures. Students will also undertake several practical activities and assignments, aimed at developing their skills and competencies in the Master sector.

All classes and activities are conducted in English. All MSc theses must be written in English.

### **Organization of the course**

*First Year: 60 ECTS*

Diploma: Master of MAIB / Master Universitario di I Livello (First level Master)

Duration: 9 months (Oct 2021 - June 2022) – the course will be organized at CIHEAM Bari Institute, Italy. In the case of unfavourable pandemic situation, the course might be partially carried out as distance learning.

*Second Year: 60 ECTS*

Diploma: Master of Science

Duration: 12 months (Nov 2022 - Oct 2023) – the course will be held in Italy or in mobility in the country of origin or in some other country (Portugal or Spain).



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## **Candidates' profile**

Courses are addressed to new graduate students and young professionals with a university background related to agronomic, irrigation, agricultural engineering, and socio-economic issues.

### **Requirements:**

*Education (one of the following criteria):*

- completion of at least three years (180 ECTS) of university studies – and corresponding university degree;
- completed four years out of five of university studies (240 ECTS), upon agreement between the sending University and CIHEAM Bari.

### *Compulsory*

- Good Knowledge of spoken and written English – will be tested upon the submission of application;
- Personal access to computer facilities.

### *Required documents*

- Diploma or documentation of graduation (of bachelor study);
- Complete transcript of study records;
- Letter of motivation/statement of purpose;
- Curriculum Vitae;
- 2 letters of recommendation.

*Selection of students is based on:*

1. Evaluation of the required documents related to the education sent online by the candidates to support the application;
2. Online interview.

*Submission of applications:*

- until May 7<sup>th</sup>, 2021, via Email at: [s.cadro@ppf.unsa.ba](mailto:s.cadro@ppf.unsa.ba)

## **Scholarship:**

SMARTWATER project will grant full scholarship for one successful candidate. The scholarship covers registration, tuition, travel, accommodation and insurance expenses, as well as monthly pocket money for ordinary living needs.



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## MASTER COURSE PROGRAM DESCRIPTION

The 1<sup>st</sup> year Master course will be developed through a series of teaching units and a final irrigation project design:

- Unit I - Sustainability in agriculture and food systems
- Unit II - Climate “smart” agroecology and ecosystem management
- Unit III - Smart tools and technologies for the water and land management in agriculture
- Unit IV - Sustainable on-farm irrigation management
- Unit V - Irrigation systems design, planning and management
- Unit VI - Use of Alternative Water Resources in Agriculture
- Unit VII - Water Economics and Governance
- Unit VIII - Irrigation project design: an integrated approach

Topics available for Master of Science (2<sup>nd</sup> year) are in the following research areas:

- Application of remote sensing technologies and other modern tools to improve land, water and nutrient use in agriculture;
- Soil water balance and crop-growth modelling under different climatic and management scenarios;
- Resource-use optimization and eco-efficiency in land and water management
- Nexus Energy - Hydraulic Performance, based on Management of Large-Scale Pressurized Irrigation Systems;
- Modernization techniques of pressurized irrigation system and related technical and socio-economic impacts;
- Impact of saline and treated wastewater use on the environment, cropping pattern, irrigation management and irrigation systems performance;
- Agro-hydrological modelling and modern techniques to estimate soil hydraulic parameters;
- Agroecological characterization, soil degradation and conservation, sustainable soil/land management;
- Characterization, modelling and participatory simulations of water use and development strategies at the level of rural households and rural territories;
- Economic policies and tools for an effective implementation of Water Demand Management in agriculture.