

M.Sc. in Sustainable Agriculture (120 ECTS)

The postgraduate on Sustainable Agriculture is a two-year programme for graduates holding a university Bachelor degree in Agriculture or other related sciences leading to a Master of Science degree (120 ECTS).

In the first year participants follow the programme to: i) be introduced to agroecology, environmental indicators of integrated crop management and organic farming systems; ii) familiarize themselves with the certification systems of environmentally friendly and sustainable agricultural production; iii) present the latest advances in the management of soil, water and genetic resources in agriculture; iv) be exposed to a thorough background of crop protection; v) get acquainted with automation and modern recycled soilless greenhouse production methods; and vi) understand innovation and communication for sustainable farming.

The qualified first-year graduates are entitled to pursue their research in an environ-

ment fully equipped with the most updated facilities.

In the second year, students who have successfully completed the first year according to the CIHEAM/MAICH specific regulations develop a thesis based on research work.

The Master of MAICH (60ECTS) is awarded to those students who successfully complete the first year requirements but do not satisfy the additional required conditions which allow them to be accepted into the second year of the M.Sc. programme (120 ECTS) as stated in the CIHEAM/MAICH specific academic regulations.

The scientific results of graduate studies are usually announced in International Conferences and/or published in world-renowned journals.



Scholarships

Qualified candidates may be eligible for scholarship covering fully or partly: tuition, teaching material, board, lodging, health insurance and compensation.

Research Activities

- ▶ Evaluation of substrates in hydroponic systems and plant nutrition.
- ▶ Use of biochar as a soil amendment and for remediation of soils contaminated with heavy metals.
- ▶ Study of mediterranean insect pests activity and their biological characteristics
- ▶ Host-virus interactions essential for virus replication and resistance
- ▶ Genetic basis of weeds resistance to herbicides
- ▶ Comparison of nutrient and energy budgets of conventional and organic farming systems as environmental indicators

Requirements

Applicants must have the academic level that qualifies them to undertake postgraduate level studies in their home country or equivalent to a minimum of four years undergraduate studies. Their degree must also be in a discipline compatible with the area of specialization requested. Additional conditions may be required for certain programmes.

The working language of MAICH is English. Selection is made on the basis of the files submitted by applicants – priority

being given to applicants from CIHEAM member countries, and takes account of their academic results, professional experience acquired in the chosen field of specialization, reference letters and their competence in English.

The documentation required by MAICH includes:

1. Academic records and transcripts
2. Graduation degree
3. Proof of english language competence
4. Two letters of recommendation.

How to Apply



Applications to study at MAICH must be made through the online application form that can be accessed by this link:

<https://www.iamc.ciheam.org/education/admissions>

Information

For more information, visit our website at: <https://bit.ly/2H8PcNV> or send inquiries to livieratos@maich.gr

Educational Sequence

The programme is organized in 8 Units (60 ECTS)

Semester I

October 2021—February 2022

SAG520.11512.0 - INTRODUCTION TO SUSTAINABILITY (15 ECTS)

Content: Agroecosystems & Population Dynamics
Agro-Environmental Impact Assessment & Farm Management
Ecotoxicology
Climate Change Adaptation & Mitigation in Agriculture

SAG530.1712.0 - NATURAL RESOURCES MANAGEMENT (7 ECTS)

Content: Water Management
Soil properties & Quality Assessment
Soil Microbiology
Nutrient Management & Soil Fertility Improvement

SAG540.1810.0 - ASSESSMENT OF GENETIC RESOURCES (8 ECTS)

Content: Seed Production & Quality Management
Plant Breeding
Agro-Biodiversity Assessment & Management

Semester II

February 2022—June 2022

SAG550.11510.0 - CROP PROTECTION (14 ECTS)

Content: IPM / Fungal & Bacterial Disease Management
Detection & Epidemiology of Plant Virus Diseases
Insect Management
Weed Management

SAG560.1612.0 - CURRENT TOPICS IN SUSTAINABLE AGRICULTURE (5 ECTS)

Content: Sustainable Circular BioEconomy
Soilless Cultivation

SAG510.1312.0 - BIOMETRICS (3 ECTS)

Content: Crop Experimentation

SAG572.1312.0 SYSTEMS THINKING / INNOVATION & COMMUNICATION (5 ECTS)

Content: Innovation & Communication in Sustainable Farming
Systems Thinking / Farming System Research (Concepts & Practice)

SAG500.1312.0 - EXTENDED ESSAY (3 ECTS)

Part 2 - The Master of Science Program (Project - 9 months duration, 60 ECTS)

Independently of the thesis thematic area, students acquire standard common competencies such as literature reviewing, hypothesis formulation and experimental design, sampling and collection of data, statistical analysis of acquired measurements, scientific writing and critical interpretation of results. Linked to the thematic area of their research

work, students gain specific competencies that might fall in different groups: molecular biology techniques, soil and plant tissue labs, sugars and antioxidants measurements in fruits, chlorophyll and carotenoids analysis in leaves, operation of fully automated hydroponics system.

Recent Publications

Salavert, F., Navarro, J. A., Owen, C. A., Khechmar, S., Pallás, V. Livieratos, I. C. (2020). *Cucurbit chlorotic yellows virus* p22 suppressor of RNA silencing binds single-, double-stranded long and short interfering RNA molecules in vitro. *Virus Research* 229, 197887.

Dimitrova, A., Milošević, M., Spanos, T., Livieratos, I., Gkisakis, V. D. (2020). Yellow or transparent? Comparison of sticky traps for monitoring functional arthropod diversity in an olive agroecosystem. *Animal Biodiversity and Conservation* 43, 159–167.

Chatzigianni, M., Ntatsi, G., Theodorou, M., Stamatakis, A., Livieratos, I., Roupheal, Y. & Savvas, D. (2019). Functional Quality, Mineral Composition and Biomass Production in Hydroponic Spiny Chicory (*Cichorium spinosum*

L.) Are Modulated Interactively by Ecotype, Salinity and Nitrogen Supply. *Frontiers in Plant Science* 10, Article 140, doi: 10.3389/fpls.2019.01040.

Mathioudakis, M.M. et al. & Livieratos, I.L. (2018) A Thioredoxin Domain-Containing Protein Interacts with *Pepino mosaic virus* Triple Gene Block Protein 1. *Int. J. Mol. Sci.* 2018, 19(12), 3747.

Chatzigianni, M., Alkhaled, B., Livieratos, I., Stamatakis, A., Ntatsi, G. & Savvas, D. (2017). Impact of nitrogen source and supply level on growth, yield and nutritional value of two contrasting ecotypes of *Cichorium spinosum* L. grown hydroponically. *J. Sci. Food Agriculture* doi: 10.1002/jsfa.8636. [Epub ahead of print]

Owen, C. A., Moukarzel, R., Huang X., Kassem, M. A., Eliasco, E., Aranda, M. A., Coutts, R. H. A., & Livieratos, I. C. (2016). *In vitro* synthesized RNA generated from cDNA clones of both genomic components of *Cucurbit yellow stunting disorder virus* replicates in cucumber protoplasts. *Viruses* 8(6), 170.

Gkisakis, V. D., Kollaros, D., Barberi, P., Livieratos, I. C. & Kabourakis, E. M. (2015). Soil arthropod diversity in organic, integrated and conventional olive orchards and different agroecological zones in Crete, Greece. *Agroecology & Sustainable Food Systems* 39, 276-294.



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