Program Structure

The MARVOOLEA Master's Degree consists of a two-year program. In the first year, students will follow a common curricular plan designed in collaboration with three prominent Moroccan higher education institutions - the Agronomic and Veterinary Institute Hassan II, the University Ibn Tofail, and the University Mohammed Premier - with the support of two European universities, the University of Évora and the University of Barcelona. The first year covers a wide range of subjects including Food Chemistry, Food Microbiology, Laboratory Biosafety, Food Analysis Methods, Applied Statistics, Technical English, Food Toxicology, Unit Operations in Food Processing, Food Safety and Quality Management, Food Safety and Hygiene, Food Legislation, Human Nutrition, and Health.

The second year is a specialization year where students will have access to a multidisciplinary training program that includes lectures, practical training at the ENA experimental virgin olive oil mill, olive orchards, and a newly installed food quality and safety laboratory. Students will also have access to online courses on the FOSAMED project's e-learning platform, conferences, visits to olive orchards and olive oil companies, and a final internship where they will have the opportunity to address the current challenges of the olive growing sector.

		TEACHING UNIT		WORKLOAD	EVALUATION SCHEME (Final assessment (exam), Continuous assessment and practical work)
FIRST YEAR	semester 1	• Food Chemistry • Food Microbiology • Laboratory Biosafety	• Food Analysis Methods • Applied Statistics • Technical English	50 H per Unit	Mixed assessment
	semester 2	• Food Toxicology • Unit Operations in Food Processing • Food Safety and Quality Management	• Food Safety and Hygiene • Food Legislation • Human Nutrition and Health		
SECOND YEAR	semester 3	• Olive growing and olive oil technology • Table olives processing • Quality and safety of olive tree products • Olive by-products valorization	• Seminars and special topics • Documentary analysis, research methods and writing of the master thesis	50 H per Unit	Mixed assessment
	semester 4	Master's thesis		300 H	Mixed assessment

Outcomes of the program

- **The degree is awarded by a renowned institution known for its excellence among both Moroccan and international public actors and agri-food companies.**
- **Courses are taught by academic and professionals with a large expertise in their fields.**
- **Training includes individual or group projects (thesis, research article, oral presentations, business creation projects).**
- **Professional training includes a personalized follow-up in addition to the company tutor.**
- **Conferences led by professionals or experts are organized, providing testimony and reflection on the practical application of the tools and methods learned in theory classes.**

Acquired skills

The MARVOOLEA students are trained in the following eight competences:

1. To identify innovative needs in (inter)national olive growing sector.
2. To advise on the best and environmentally friendly practices for olive orchard management.
3. To mainstream olive products processing technologies.
4. To manage quality assurance in the olive products processing chain.
5. To control the quality and safety of olive tree products in accordance with Moroccan and international legislation.
6. To facilitate olive growing chain governance towards sustainability and efficiency.
7. To communicate effectively and convincingly when addressing the (inter)national olive growing sector issues.
8. To apply an independent and creative learning attitude in a continuously changing (inter)national olive growing sector environment towards a more circular economy.

Eligibility for admission

The candidates must have qualified for their Agronomic /agri-food engineering degree OR Bachelor of Biology Science / Bachelor of Food Technology / Food Technology OR Bachelor of Microbiology / Chemistry / Food Science / Biology or equivalent qualification from a recognized High Education Institution.

Mode of selection and admission

Through a merit-based admission process, where candidates are selected based on the scores earned in their Bachelor's degree and an entrance examination test conducted by the ENA Meknès Educational Committee for admission.

Application deadline

The admission process starts in the month of August on ENA Meknès official website in an online mode. Candidates who are interested in MARVOOLEA master have to visit the official website and fill the ENA Meknès application form before the deadline. Before applying for MARVOOLEA master candidates should check the eligibility criteria. For most recent - and only official - information on application deadlines, check ENA Meknès web site: **www.enameknes.ac.ma**

Mode of teaching Hybrid

Languages of teaching French and English

ADDRESS & CONTACTS

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Department of Applied Sciences and Food Sciences
National School of Agriculture

Haj kedour Road, Km 10
BP S/40 Meknès (Morocco)

Telephone: (+212) 6 69 45 92 88

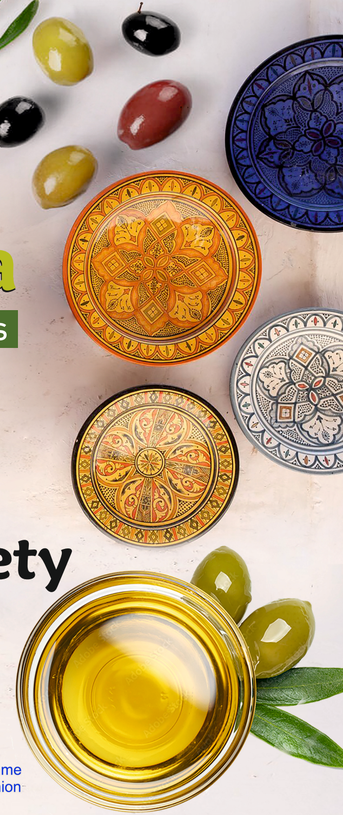
Email (Office of the Secretary): for administrative formalities of the registration process and fees, you can contact the Secretary of MARVOOLEA at:
secretariat.marvoolea@enameknes.ac.ma

Email (academic information):
marvoolea@enameknes.ac.ma

The MarVOOlea

Master's Degree at ENA Meknès

Enhancing Virgin Olive Oil Quality and Safety in Morocco



Co-funded by the Erasmus+ Programme of the European Union

Why this programme?

Morocco's Olive Growing Sector: A Key Contributor to the Country's Economic Growth

Morocco is currently experiencing a remarkable growth in its olive growing sector, with a surging demand for its exceptional high-quality olive tree products both locally and internationally.
This sector is one of the largest agri-food industries in Morocco, making a significant contribution to the national economy. Moreover, it plays a crucial role in environmental stewardship by promoting sustainable farming practices and contributes to the settling and sustenance of populations in rural areas.

The olive growing sector in Morocco

There are **1,200,000 *hectares of land*** dedicated to olive growing in Morocco

Represents **65%** of the country's tree-growing area.

The sector employs over **100,000 *people*** in olive orchards, olive oil mills, and table olive producing companies.

Contributes up to **5%** of Morocco's agricultural gross domestic product.

Morocco produces **130,000 *tons*** of table olives and **145,000 *tons*** of virgin olive oil per year.

Virgin olive oil production in Morocco helps meet almost **19%** of the country's edible oil needs.

7% of all agricultural exports.

Provides more than **51 *million*** working days per year, with 20% of those held by women.

Ensuring foreign inflow equivalent to **1.8 *billion DH/year,*** or **156 *million €/year.***

Morocco is the **5th *largest producer*** of virgin olive oil in the world & an important player in table olive world market.

Facing opportunities and challenges

Morocco's table olive and virgin olive oil companies operate within a diverse market, yet face similar challenges in an era of globalization. Small and medium-sized firms seeking to enter the high-quality segment of the olive industry must compete fiercely with larger companies, whose economies of scale provide them with an advantage in attaining profitability. Technological advancements and climate change, in conjunction with the emergence of new producing countries, have contributed to the challenges facing Moroccan olive producers.

To address these challenges, the Moroccan government has emphasized the role of open innovation, education, and skill development in its Green Generation 2030 Strategy. These initiatives will equip Moroccan companies with the necessary tools to increase their competitiveness in the global market. By leveraging innovation and knowledge transfer, companies can enhance their operational efficiency, product quality, and value creation, thereby bolstering their ability to compete in the global olive industry.

Revolutionizing the Moroccan Olive Growing Sector: Embracing New Skills and Moving Towards the Future

The National School of Agriculture (ENAM) is the flagship higher education institution for olive growing and olive product processing in Morocco and the Mediterranean region, with over 60 years of academic excellence.

ENAM is committed to working hand in hand with the Moroccan olive growing sector to foster sustainable development and promote the country's renowned Table Olives and Virgin Olive Oil. Trough the MARVOOLEA master program, ENAM aims to create a dynamic learning environment that nurtures innovation and provides students with the necessary tools and skills to excel in the ever-evolving olive growing industry.

With its committed faculty, state-of-the-art facilities, and deep-rooted connection to the olive growing sector, ENAM is the premier destination for anyone looking to pursue a career in this exciting field.

MARVOOLEA Master's Degree

Enhancing Competitiveness and Sustainability of Olive Growing Sector through Olive Tree Products Quality and Safety Assurance

Vission and Mission

Offered by ENAM, an internationally recognized Moroccan higher education institution with global reach expertise in all facets of olive growing and olive table and virgin olive oil production, the MARVOOLEA master's degree (Olive tree Products Safety and Quality) focuses on enhancing the production of table olives and virgin olive oil in a profitable and environmentally sustainable manner while adhering to quality and safety requirements of the Moroccan and international olive chain. Through this multidisciplinary education and training programme, ENAM offers an advanced, career-oriented education and training curricula that covers the whole olives table and virgin olive oil production chain from primary production via processing to consumers. Based on customized coursework and experiential projects to advance technical knowledge and career potential in the olive agri-food industry, **MARVOOLEA aims to produce innovative young professionals who are committed to producing high-quality and safe olive tree products with a fair share for all stakeholders in the olive industry, from field to table. Graduates of this program are capable of driving technical and organizational changes that enhance governance, efficiency, and sustainability of the entire Moroccan olive sector.**

Focus Areas

The MARVOOLEA degree program provides seven distinct areas of focus for degree candidates. Each focus area is tailored to cultivate the necessary skill set and theoretical problem-solving capacity required for successful careers within the Moroccan and International Olive Sector.

1. OLIVE FARMING SYSTEMS
Understanding the management of the entire olive farming systems (olive orchards establishment and management, fertilization, irrigation, harvest labor, etc.)

2. OLIVE TREE PRODUCTS CHEMISTRY
Understanding the analytical, chemical, physical, nutritional, and toxicological aspects of olive tree products and their application in food.

3. PROCESSING AND ENGINEERING
Covers topics such as thermodynamics, reaction kinetics, and transport phenomena as applied to olive tree product processes. Students focus on state-of-the-art novel processing technologies applied in olive sector.

4. QUALITY
Understanding, planning, controlling and ensuring olive tree products physicochemical, organoleptic and nutritional quality in accordance with Moroccan and international legislation.

5. CHEMICAL/MICROBIAL SAFETY
Application of conventional and advanced metabolomics and modern biotechnological methods to ensure and control olive tree products quality and safety during production and preservation and relations to human health.

6. OLIVE AGRI-FOOD BY-PRODUCTS VALORISATION
Debating environment issues and recent technological developments surrounding state of the art of olive by-products management techniques and emerging technologies for their valorisation focusing on potential industrial applications (bioactive compounds recovery, biofuel production) to support circular economy concepts.

7. GREEN GROWTH AND CIRCULAR ECONOMY
Boosting sustainable growth using natural resources more efficiently and help Moroccan olive growing sector make the transition towards a more circular economy.