



# UNIVERSITÀ DEGLI STUDI DI PALERMO

DEPARTMENT	Ingegneria
ACADEMIC YEAR	2023/2024
BACHELOR'S DEGREE (BSC)	MARINE TECHNOLOGIES ENGINEERING
SUBJECT	INNOVATIVE FISH PRODUCTIONS - LABORATORY
TYPE OF EDUCATIONAL ACTIVITY	F
AMBIT	10813-Altre conoscenze utili per l'inserimento nel mondo del lavoro
CODE	21704
SCIENTIFIC SECTOR(S)	
HEAD PROFESSOR(S)	MESSINA CONCETTA      Professore Ordinario      Univ. di PALERMO MARIA
OTHER PROFESSOR(S)	
CREDITS	3
INDIVIDUAL STUDY (Hrs)	48
COURSE ACTIVITY (Hrs)	27
PROPAEDEUTICAL SUBJECTS	
MUTUALIZATION	
YEAR	3
TERM (SEMESTER)	1° semester
ATTENDANCE	Not mandatory
EVALUATION	Pass/Fail
TEACHER OFFICE HOURS	MESSINA CONCETTA MARIA Monday    13:00    14:00    diSTeM: Via archirafi o Vle delle Scienze Ed 16, da concordare via email col docente

**DOCENTE:** Prof.ssa CONCETTA MARIA MESSINA

<b>PREREQUISITES</b>	Basic knowledge of the marine biological resources of fisheries and aquaculture
<b>LEARNING OUTCOMES</b>	<b>EXPECTED LEARNING OUTCOMES</b> Knowledge and understanding-Comprehension of the relationships between environmental and supply chain factors on the final quality of the product and process Ability to apply knowledge and understanding-The course aims to make the student able to assimilate and critically rework the knowledge acquired, aimed at understanding the effect of applied technologies on the final product quality Autonomy of judgement Students are guided to learn critically and responsibly all that is explained to them in the classroom and to enrich their judgement skills through classroom discussion of scientific problems of wide media coverage. Communication skills The course aims to develop the student's ability to present the knowledge acquired in a clear and rigorous manner. At the end of the course the student should be able to state definitions, problems and mechanisms relating to the course content correctly and with appropriate vocabulary. Learning ability Learning ability will be monitored throughout the course by means of participatory classroom discussion. The course aims to develop learning skills to undertake professional activities in which engineering skills can be combined with the development of innovative technologies in fish production
<b>ASSESSMENT METHODS</b>	The learning assessment is based on an oral test. The test consists of an interview in which the student must answer a minimum of three questions aimed at ascertaining the skills acquired in accordance with the expected learning outcomes, i.e. the knowledge and understanding of the topics covered, the ability to apply the knowledge and the interpretation of the results obtained, as well as the ownership of language and mastery of exposition. The examination is assessed by a final grade in thirtieths. In order to pass the examination, and thus achieve a grade above 18/30, the student must demonstrate a minimum level of competence and sufficient expository skills. A lack of acceptable knowledge of the topics results in an insufficient mark. The highest mark (30/30 with distinction) is achieved by the student who has attended the lectures assiduously and demonstrates an excellent level of competence and ability.
<b>EDUCATIONAL OBJECTIVES</b>	The course aims to emphasise the importance of innovative technologies applied to fish productions, in improving their quality, traceability and economic and environmental sustainability. The fishery resources of Mediterranean artisanal and industrial fisheries, marine aquaculture and integrated multitrophic aquaculture will be presented and the strategies to improve their production performance and sustainability will be discussed. The workshop will examine instrumental methodologies for the rapid assessment of product quality in the industrial environment, new processing techniques (smart packaging, bioactive packaging, MAP, cold-smoking, slurry ice) for the improvement of the value-chain, and advanced technologies for the extraction of marine bioactive molecules, capable of supporting virtuous circular economy paths.
<b>TEACHING METHODS</b>	Lectures, seminars, demonstrative actions in the lab, working groups.
<b>SUGGESTED BIBLIOGRAPHY</b>	Dispense fornite dal docente. Articoli scientifici di approfondimento.

## SYLLABUS

Hrs	Frontal teaching
4	Marine resources: general overview of food resources with focus on the Mediterranean. Analysis of the main categories of supply chains and products and the sustainability of the respective production systems
3	Aquaculture products: traditional and innovative species and valorisation and innovation strategies. Effects of productive system on value-chain performances
3	set-up of IMTA systems, production of fish/shellfish algae as a strategy for the improvement of sustainability and the production of value-added nutritional components.
3	non-destructive laboratory and instrumental methodologies for determining product quality
3	productive parameters and methods of determination.
3	nutritional parameters. Chemical, physical, and non-destructive/ instrumental methods of determination
2	technological parameters. Instrumental detections
3	innovative processing technologies, functional food production and recovery of bioactive molecules (SFE, SPD) from processing waste
3	Markers and methods for the traceability of fish products.