



# UNIVERSITÀ DEGLI STUDI DI PALERMO

Department: Earth and sea sciences

A.Y. 2016/2017

## DEGREE COURSE IN MARINE BIOLOGY

### Characteristics



Class of Master's Degree  
(MSc) on Biology (LM-6)



2 YEARS



PALERMO



FREE ACCESS



2105

### Educational objectives

The 2nd cycle Degree Course in Marine Ecology aims at providing a solid grounding in basic and applied biology, in the fields of marine organisms biology, marine ecology, population and community ecology as well as a good knowledge of the mechanisms explaining the processes through which organisms do adapt to different environments. Graduates of this course should also:

- possess the experimental and analytical bases of the ecology of interface environments, such as ponds, lagoons, coastal shallows, estuaries;
- Have adequate knowledge of the turnover cycles of organic substance and of the production mechanisms in marine environments and in interface waters;
- Know the basic principles of biodiversity of the relevant ecosystems;
- Be able to control and evaluate the effects of anthropic actions upon water ecosystems;
- Know the principal methods for instrumental analysis and the analytical tools, together with the techniques of data acquisition and analysis in the field of biological oceanography;
- Have acquired command of the scientific research method such to enable them to work autonomously and to participate to the design and interpretation of experiments;
- Have acquired an adequate knowledge of English language, scientific literature and computer techniques to cope with the international scientific community, to be updated and to be able to present scientific data through the most modern methodologies.

Graduate of this course are highly qualified professionals capable of using innovative and technologically advanced methods; they will be able to carry out specialist activities in the management of natural and artificial marine ecosystems. They will, in particular, carry out activities for the promotion and dissemination of scientific and technological innovation in the marine field, as well as activities related to the management and design of technologies and professional and project activities in fields related to biological disciplines in industry and in the public administration, with respect, in particular, to the knowledge of animal and vegetal organisms and to the understanding of biological phenomena related to the adequate use and to the increase of resources. Some examples of specific tasks could be; management of natural and artificial marine water systems; evaluation of the level of preservation of resources; proposal of new technologies to increase resources, through the application of consolidated and sustainable methods.

The educational programme provides for the acquisition of basic and applied knowledge in the field of experimental and applied marine ecology, of the conservation and management of environment, of environmental impact evaluation, also through laboratory and field practice. The specific objectives of the course are achieved through the following subjects: "Marine Ecology", "Conservation and management of coastal area", "Chemistry of marine environment", "Marine Geology and Sedimentology", "Applied statistics for ecological systems and analysis of ecological systems", "Marine microbiology", "Phytoecology", "Applied Zoology", "Ecology and Technology of Fishing and Aquaculture", "Environmental Impact Evaluation and environmental Certification", "Applied Ecology". Theoretical-practical activities, both in laboratory and on field, integrate and complete these courses, providing students with manual skills and experience in the design and implementation of sampling, analysis, and environmental evaluation activities.

### Professional opportunities

Biologists are recognized professionals. Graduates of this course may enrol in the National Board of Biologists, upon passing a State examination.

Graduates may find professional opportunities in:

- Public and private research centres and (regional, provincial and municipal) government agencies managing marine protected

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areas;

- Repopulation, aquaculture and mariculture consortiums and companies;
- Scientific consulting and environmental monitoring companies and public agencies overseeing environmental control;
- Fishing and fish processing companies, public agencies and consulting companies in the field of Fishing and coastal management.

They may also attend PhD courses and recognized specialisation courses, necessary for a career in both public and private research and management sectors.

### Final examination features

It consists of a written dissertation and an oral discussion. The final examination aims at ascertaining the competences acquired during the course, through the presentation of original experimental outcomes of a research project or part of it, obtained while attending the scientific facility where the project has been developed: university research laboratories, or other public or private laboratories which have agreements with the University. Normally, laboratories will be attended during the second year. However the Board of the Degree course, with regard to individual candidate's curricula, might admit laboratory attendance starting in the second semester of the first year. The research project is developed under the guidance of a professor (full professor, associate professor, researcher) with the role of tutor. The project will be discussed during the final examination

Subjects 1 ° year	CFU	Sem.	Val.	SSD	TAF
07751 - APPLIED ZOOLOGY <i>Arculeo(PO)</i>	6	1	V	BIO/05	B
13918 - ECOLOGY AND TECHNOLOGY OF FISHING AND AQUACULTURE <i>Mazzola(PQ)</i>	6	1	V	BIO/07	B
13834 - MARINE ECOLOGY <i>Vizzini(PO)</i>	6	1	V	BIO/07	B
03428 - MARINE PHYTOECOLOGY <i>Mannino(PA)</i>	6	1	V	BIO/02	B
16177 - ANALYSIS OF ECOLOGICAL SYSTEMS <i>Milazzo(PO)</i>	6	2	V	BIO/07	B
16178 - APPLIED STATISTICS FOR ECOLOGICAL SYSTEMS <i>Barone(PA)</i>	6	2	V	SECS-S/02	B
13917 - MARINE CONSERVATION AND COASTAL STRIP MANAGEMENT <i>Chemello(PO)</i>	6	2	V	BIO/07	B
14430 - MARINE GEOLOGY AND SEDIMENTOLOGY <i>Agate(PA)</i>	6	2	V	GEO/02	C

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Subjects 2 ° year	CFU	Sem.	Val.	SSD	TAF
15497 - APPLIED ECOLOGY AND ENVIRONMENTAL IMPACT EVALUATION - INTEGRATED COURSE	12	1	V		
- APPLIED ECOLOGY <i>Sara'(PO)</i>	6	1		BIO/07	B
- ENVIRONMENTAL IMPACT EVALUATION <i>Calvo(PQ)</i>	6	1		BIO/07	B
13793 - MARINE ENVIRONMENT CHEMISTRY <i>Orecchio(PA)</i>	6	1	V	CHIM/12	C
13836 - MARINE MICROBIOLOGY <i>Quatrini(PA)</i>	6	1	V	BIO/19	B
13121 - PRACTICE	3	1	G		F
05917 - FINAL EXAMINATION	30	1	G		E
07553 - PROFESSIONAL PRACTICE	3	1	G		S
Free subjects	12				D

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