



# UNIVERSITÀ DEGLI STUDI DI PALERMO

**Department: Earth and sea sciences**

**A.Y. 2023/2024**

## **DEGREE COURSE IN NATURAL SCIENCES**

### **- NATURE VULNERABILITY AND SUSTAINABILITY -**

#### **Characteristics**



Class of Master's Degree  
(MSc) on Natural sciences  
(LM-60)



2 YEARS



PALERMO



FREE ACCESS



2056

#### **Educational objectives**

The 2nd cycle Degree in Natural Sciences is mainly characterized by its declared interdisciplinarity.

In fact, it constitutes one of the natural outlets for graduates of class L 32 - Science and Technology for the environment and nature - equally interdisciplinary in its articulation.

The 2nd cycle Degree aims at deepening the knowledge acquired in the 1st cycle course, training graduates with in-depth knowledge of the structural and functional components of ecosystems, both in the current environment and in the past, and to outline the conceptual tools aimed at conservation, defence, and management of the environment.

Adequate knowledge will also be provided for analysing biodiversity at different levels of organization (from genetic to specific and environmental biodiversity) as well as the skills for assessing ecosystems.

To deal with the complexity of the evolution of ecosystems in the various aspects, the degree can be divided into paths (curricula) defined by the Course Regulations.

Among the sectors which may be the subject of in-depth study, we highlight the analysis, management and conservation of natural environments through the acquisition of theoretical principles and modern technologies for environmental analysis; the systemic analysis of the natural environment of the recent past, mainly considered in its evolutionary and anthropological dimension; the study and analysis of continental aquatic ecosystems in order to combine the exploitation of water resources and the protection and conservation of the biological heritage, in compliance with EU directives and the requests of local authorities responsible for land management.

The educational programme will be integrated by laboratory activities, internships and practice, also in public institutions and private facilities, and field experimentation, through multi- and inter-disciplinary trips, among the training activities in the various scientific sectors.

At the end of the Course, graduates will have acquired in-depth knowledge with respect to the study of the biotic and abiotic components of ecosystems, their conservation, land management techniques, and processes influencing the quality of the environment and the conservation of biodiversity.

#### **Professional opportunities**

Profile:  
naturalist

Functions:

Graduates of this Course must be able to carry out: basic and applied natural science research; cataloguing of naturalistic assets and design of monitoring plans; impact evaluation, recovery and management of natural environments; faunal management and conservation of biodiversity; application of the norms of environmental regulations requiring natural science competences; organisation and management of scientific museums, aquariums, botanical gardens and natural parks; activities related to the naturalistic and environmental education (preparation of educational tools, even multimedia ones for schools, universities, natural museums, parks, aquariums and botanical gardens).

Skills:

Thanks to the acquired competences, graduates of this Course may practice, from the first employment after the end of the course, the profession of Botanist, Zoologist, and Ecologist.

They will be able to plan, Illustrate and interpret field and laboratory activities, selecting the most appropriate procedures for elaborating, analysing and synthesizing data, for impact evaluation studies (flora, fauna) and assessment; preparation of

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(biological and a-biological) thematic maps through the use of GIS and databases. They will be able to develop methods and techniques of territorial survey.

Professional opportunities

In the public sector:

Universities and Research agencies.

Environmental management and services, Ministries, local authorities, and other public bodies.

National and Regional environment protection agencies.

National Healthcare Institutions, experimental stations, archaeological superintendence.

In the private sector, graduates of the course may carry out their activity in various types of companies and professional practices dealing with environmental issues.

Graduates in possession of the credits required by current legislation may participate in the admission tests to training courses for teaching staff for first and second level secondary schools.

Further occupational areas consist of: - museum activities in scientific or naturalistic museums; - scientific dissemination activities and scientific journalism; - design of natural parks and plans for Park Plans; - management of protected areas.

#### Final examination features

The final examination consists of the preparation of an original written dissertation, consistent with the Course objectives, prepared under the guidance of a supervisor (usually a professor of the course) and of the presentation of the dissertation to the examining Board (Educational regulations of the Degree Course, approved on January, 31, 2017).

Subjects 1 ° year	CFU	Sem.	Val.	SSD	TAF
19792 - APPLIED STATISTICS FOR SCIENTIFIC RESEARCH <i>Cilluffo(RD)</i>	6	1	V	SECS-S/02	B
20538 - BIOGEOGRAPHY - INTEGRATED COURSE	9	1	V		
- GEOBOTANY <i>Ilardi(PA)</i>	6	1		BIO/03	B
- ZOOGEOGRAPHY <i>Marrone(PO)</i>	3	1		BIO/05	C
22410 - CLIMATE CHANGE AND VOLCANIC RISK <i>Parello(PO)</i>	6	1	V	GEO/08	B
22413 - ZOOLOGY AND ENTOMOLOGY APPLICATIONS - INTEGRATED COURSE	12	1	V		
- ENTOMOLOGY APPLICATIONS <i>Manachini(PA)</i>	6	1		AGR/11	B
- ZOOLOGY APPLICATIONS <i>Lo Valvo(PA)</i>	6	1		BIO/05	B
20691 - ENGLISH LANGUAGE SKILLS - EQUIVALENT TO LEVEL B2	3	1	G		F
22549 - APPLIED PALAEONTOLOGY <i>Incarbona(PA)</i>	6	2	V	GEO/01	B
19977 - ECOLOGY APPLICATIONS <i>Gianguzza(PA)</i>	6	2	V	BIO/07	B
22414 - HUMAN BIOLOGY AND BIODIVERSITY <i>Dumas(RU)</i>	6	2	V	BIO/08	B
Free subjects	6				D
<b>60</b>					

Subjects 2 ° year	CFU	Sem.	Val.	SSD	TAF
22411 - BIOGEOCHEMISTRY - INTEGRATED COURSE	6	1	V		
- BIOGEOCHEMICAL CYCLES	3	1		GEO/08	C
- GEOMICROBIOLOGY <i>Quatrini(PA)</i>	3	1		BIO/19	C
22412 - GEOLOGICAL RISKS AND RESOURCES - INTEGRATED COURSE	6	1	V		
- GEORESOURCES	3	1		GEO/04	C
- GEORISKS <i>Rotigliano(PO)</i>	3	1		GEO/04	C

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Subjects 2 ° year	CFU	Sem.	Val.	SSD	TAF
20536 - SOIL ECO-SYSTEMIC SERVICES <i>Scalenghe(PA)</i>	6	1	V	AGR/14	B
22415 - VULNERABILITY OF NATURAL SYSTEMS <i>Signa(PA)</i>	6	1	V	BIO/07	B
13121 - PRACTICE	3	1	G		F
22470 - SCIENTIFIC COMMUNICATION AND DISSEMINATION	3	1	G		F
05917 - FINAL EXAMINATION	24	2	G		E
Free subjects II	6				D
	<b>60</b>				

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