UNIVERSITÀ DEGLI STUDI DI PALERMO

DEPARTMENT	Scienze della Terra e del Mare		
ACADEMIC YEAR	2017/2018		
MASTER'S DEGREE (MSC)	NATURAL SCIENCES		
INTEGRATED COURSE	ECOLOGY APPLICATIONS - INTEGRATED COURSE		
CODE	16512		
MODULES	Yes		
NUMBER OF MODULES	2		
SCIENTIFIC SECTOR(S)	BIO/07		
HEAD PROFESSOR(S)	GIANGUZZA PAOLA	Professore Associato	Univ. di PALERMO
OTHER PROFESSOR(S)	GIANGUZZA PAOLA TOMASELLO AGOSTINO	Professore Associato Professore Associato	Univ. di PALERMO Univ. di PALERMO
CREDITS	12		
PROPAEDEUTICAL SUBJECTS			
MUTUALIZATION			
YEAR	2		
TERM (SEMESTER)	1° semester		
ATTENDANCE	Not mandatory		
EVALUATION	Out of 30		
TEACHER OFFICE HOURS	**GIANGUZZA PAOLA** Wednesday 12:00 13:00 **TOMASELLO AGOSTINO** Monday 15:00 17:00 Per gli studenti del CdS in Biotecnologie e Innovazione Tecnologica, presso le strutture del polo didattico di Trapani O della struttura "Principe di Napoli". I ricevimenti, su richiesta, possono essere svolti anche su piattaforma teams. Ulteriori o differenti incontri possono essere concordati con il docente) Wednesday 14:30 15:30 Dipartimento di Scienze della Terra e del Mare, edificio 16 viale delle Scienze, piano seminterrato		

DOCENTE: Prof.ssa PAOLA GIANGUZZA

PREREQUISITES	A basic understanding of biology, zoology and botany and general ecology is required.
LEARNING OUTCOMES	Knowledge and understanding skills The course promotes the dissemination and application of the principles of ecology to conservation of nature. The specific training objective is to provide a solid cultural preparation in the analysis of the natural environment, in all its biotic and abiotic components and in their interactions; In particular it is proposed as a synthesis of the progress made in recent years by Ecology. The course provides the necessary cultural and methodological basics for analyzing issues related to the organization levels of ecology (individuals, populations, communities, ecosystems), including both vegetable organisms Learning Capacity Being able to deepen the subject by reading specific scientific articles and following seminars and insights into environmental conservation Ability to apply knowledge and understanding Ability to solve cases where a student has to relate to ecology, conservation and environmental policy. Judgment autonomy Being able to evaluate the proper management of natural resources and to promote conservation policies Communicative Ability To be able to communicate the basic concepts of conservation and the principal regulations found by the EC. Learning ability The student will have to develop the learning skills necessary to continue the study of Ecology applied to conservation by mastering basic cultural and basic contents needed to follow up the updates of the
ASSESSMENT METHODS	Assessment of learning will be carried out with an oral test at the end of the course. The 30-30th grading and praise will be given to the student who will demonstrate 'excellent knowledge of subjects, excellent language skills, good analytical skills, the student is able to apply knowledge to solve the proposed problems. The 26-29 vote will be assigned to the student who shows mastery of the arguments, full ownership of the language and the ability to apply knowledge to answer the proposed questions. The vote of 22-25 will be assigned when one recognizes a basic knowledge of the main arguments, a discrete language property, with limited ability to independently apply the knowledge to the solution of the proposed problems. Voting 18-21 will be awarded to a student who is not fully mastered in the main subjects of the teaching, but possesses knowledge, satisfying language ownership, lacking in ability to apply knowledge independently. acquired. Insufficient - The student does not have an acceptable knowledge of Contents of the topics covered in the teaching.
TEACHING METHODS	teacher up front lessons

MODULE
ECOLOGY APPLICATIONS

Prof. AGOSTINO TOMASELLO

SUGGESTED BIBLIOGRAPHY

Odum E. (1994), Ecologia per il nostro ambiente minacciato, Piccin
Ghetti P.F. (2001), Indice biotico esteso (I.B.E). Provincia Autonoma di Trento
Tonolli V. (2001) Introduzione allo studio della limnologia, CNR Istituto Italiano di Idrobiologia
AA.VV. (2014) Il trapianto delle praterie di Posidonia oceanica. ISPRA Manuali e Linee Guida
Appunti delle lezioni e dispense fornite dal docente

AMBIT	20987-Attività formative affini o integrative
INDIVIDUAL STUDY (Hrs)	98
COURSE ACTIVITY (Hrs)	52

EDUCATIONAL OBJECTIVES OF THE MODULE

The course aims is to provide a cultural background and experimental and analytical basis for tackling the basic studies on the ecology and functioning of ecosystems. In particular, it aims to highlight the network of relationships that bind organisms and the environment also with reference to the interactions resulting from human activities.

SYLLABUS

Hrs	Frontal teaching
8	Basic Concepts: The energy environment and the flow of energy. Primary and secondary production in ecosystems. Microbial conversion of the main elements in the environment. Structure, size, dispersion and distribution of populations. Areal distribution. Growth patterns of populations and control factors (extrinsic and intrinsic factors). Interactions among species: competition, predation, parasitism, amensalism, commensalism, mutualism, cooperation. The logistic and exponential equations. Population dynamic. Age pyramids. K and r strategies. Carrying capacity. Resilience and resistance.
10	Approach to aquatic ecosystems. The fluvial lake network. Morphology and morphometry of the lake. Optical properties of the lakes. Thermal properties of lakes. Movements of lake waters. Chemical properties of waters. Classification of aquatic ecosystems by the analysis of the biotic component. River ecosystem: the four dimensions, metabolism and spiraling process. The marine ecosystem: elements of physical and chemical oceanography. Zoning in the Mediterranean: the communities of hard and mobile substrata. Eutrophication of surface water bodies and water protection: main factors. Identification of loads from different sources. Classification of freshwater.
10	Seagrass meadows: dynamics and evolution. Role in the balance of the coastal strip. Their roles in term of trophic net and biodiversity maintainance. Causes of natural and anthropogenic regression. Structural analysis, phenology and lepidochronology. Reforestation by segrass.
12	Indices and environmental indicators: biotic indicators in Posidonia. Carlit index. Extended Biotic Index (I.B.E.) and STAR_ICMi Index.

Hrs	Practice
4	Analysis of the community of benthic macroinvertebrates in the river
4	Phenological and lepidochronological analisys in Posidonia oceanica
4	Analysis of data and calculation of indices by software

MODULE
APPLIED NATURE CONSERVATION

Prof.ssa PAOLA GIANGUZZA

SUGGESTED BIBLIOGRAPHY

1.Primack R.B., 2003. Conservazione della natura. Zanichelli Editore
2.Miller G.T., 1997. Ambiente, Risorse, Sostenibilita. Piccin, Padova
3.Conservation Biology. Chapman & Hall, New York. Frankham R. et al., 2002.

AMBIT	50511-Discipline ecologiche
INDIVIDUAL STUDY (Hrs)	98
COURSE ACTIVITY (Hrs)	52

EDUCATIONAL OBJECTIVES OF THE MODULE

Achieve a comprehensive understanding of research based applied ecology and conservation within an interdisciplinary scientific framework.
Discuss appropriate ecological, mathematical, and statistical concepts and methods to interpret, understand and communicate wildlife ecology and conservation data.
Have a broad knowledge of the range of relevant techniques available on marine and terrestrial conservation

SYLLABUS

Hrs	Frontal teaching
4	The concept of sustainable development, policy and operational Implication
4	Ecological theory and its application to conservation biology
4	Ecology, Conservation and Extinction
4	Minimum Population Size (MVP) and Population Viability Analysis (PVA)
4	Theory of Island Biogeography and Metapopulation Dynamics
4	Monitoring Biodiversity
4	The threats and problems affecting species and their survival Impact of habitat loss on species
6	The Importance of Connectivity in keeping biodiversity
4	Different Strategies for Protecting Biodiversity: the role of Mediterranean MPAs and parks
4	Restoration ecology
2	Invasive species management
4	Statistical approach to conservation