



UNIVERSITÀ DEGLI STUDI DI PALERMO

DEPARTMENT	Scienze e Tecnologie Biologiche, Chimiche e Farmaceutiche
ACADEMIC YEAR	2016/2017
MASTER'S DEGREE (MSC)	BIODIVERSITY AND ENVIRONMENTAL BIOLOGY
SUBJECT	BIOLOGICAL ANALYSIS OF ECOSYSTEMS
TYPE OF EDUCATIONAL ACTIVITY	B
AMBIT	50506-Discipline del settore biodiversità e ambiente
CODE	18625
SCIENTIFIC SECTOR(S)	BIO/03
HEAD PROFESSOR(S)	NASELLI FLORES LUIGI Professore Associato Univ. di PALERMO
OTHER PROFESSOR(S)	
CREDITS	6
INDIVIDUAL STUDY (Hrs)	98
COURSE ACTIVITY (Hrs)	52
PROPAEDEUTICAL SUBJECTS	
MUTUALIZATION	
YEAR	1
TERM (SEMESTER)	1° semester
ATTENDANCE	Not mandatory
EVALUATION	Out of 30
TEACHER OFFICE HOURS	NASELLI FLORES LUIGI Monday 10:30 11:30 Studio del docente, Via Archirafi, 28 - I piano Wednesday 10:30 11:30 Studio del docente, Via Archirafi, 28 - I piano Friday 10:30 11:30 Studio del docente, Via Archirafi, 28 - I piano

DOCENTE: Prof. LUIGI NASELLI FLORES

PREREQUISITES	A basic knowledge of General Ecology is required
LEARNING OUTCOMES	<p>Acquiring knowledge and comprehension abilities The goals of the class is to get critical tools aimed at (i) identifying and understanding the regulation role of the biota in the different ecosystems, (ii) selecting and identifying the tropho-dynamic structure of ecological communities and (iii) analysing the biological interactions allowing ecosystem functioning.</p> <p>Ability to apply knowledge and comprehension Ability to autonomously build a bio-analytical protocol sized on specific environmental features to be investigated. Ability to illustrate both graphically and orally the results achieved.</p> <p>Judgement autonomy The course is aimed at developing a basic knowledge to evaluate the implications deriving from the selection of biological variables and the general results achieved through the analysis itself. Ability to analyse the principal features deriving from a biological assessment of (local) communities.</p> <p>Communication skills The course will promote the ability to explain and sustain operative choices according to the biological structure and to the environmental features of the different ecosystems. In addition, the ability to underline the importance and the necessity to biologically monitor and control the environment even in (apparently) unimpacted ecosystems.</p> <p>Learning skills The course is aimed at developing the ability to critically analyse specialised scientific literature on the topics of the course. It is also aimed at facilitating the study required in a second-level degree or master course.</p>
ASSESSMENT METHODS	Oral exam is scheduled at the end of the course. The exam is addressed toward ascertaining the ability to determine the ecological status of a given ecosystem through the choice and the analysis of selected bioindicators
EDUCATIONAL OBJECTIVES	According to the "manifesto" of the 2nd-grade course in Biodiversity and Environmental Biology, the goal of the course "Biological Analysis of Ecosystems" is to give to students a good knowledge on the scientific methods necessary to develop a critical vision on the role exerted by the organisms and their interactions on a suitable ecosystem functioning. The course is also aimed at highlighting how human impacts on the biological structure of ecosystems may cause a threat to human survivorship. The cultural and technical skills useful to be an expert in the biological management will be also provided. Biological "deviations" will be also analysed in relation to ecotoxicological aspects dealing with the functioning of different ecosystems.
TEACHING METHODS	Frontal lectures. Lectures will be given in English if the class includes foreign students or upon request of the students
SUGGESTED BIBLIOGRAPHY	Articoli su riviste internazionali selezionati dal docente Papers from selected literature will be distributed by the teacher

SYLLABUS

Hrs	Frontal teaching
8	Introduction. Analysis of the ecological problems coming from the human use of natural resources. Human-induced impacts on the different ecosystems on a global scale.
8	Analysis of the biological structures in the different ecosystem typologies. Biodiversity and its role in maintaining the emergent properties of ecosystems: stability, resilience, resistance. Importance of biological redundancy. Analysis of human impacts on aquatic and terrestrial ecosystems
8	Ecological relationships among the different biological compartment of ecosystems. Functional roles of organisms and analysis of their functional traits. Relationships between morphology and function in analysing the biological structure of ecosystems.
8	Morpho-functional traits and ecological role of organisms. Functional classifications vs. taxonomic classifications. How to identify and measure morpho-functional traits of ecological communities. Protocols for the analysis of the ecological state of ecosystems through the analysis of morpho-functional traits of organisms.
8	Functional classification of terrestrial and aquatic vegetation and their use in the analysis of ecosystems. C-S-R- classification and ecosystem trajectories. Functional analysis of zooplankton and macroinvertebrates. Fish functional groups
Hrs	Practice
6	Exercise: how to apply morpho-functional analyses to characterise the ecological state of aquatic ecosystems
6	Exercise: how to apply morpho-functional classifications to characterise terrestrial ecosystems