



UNIVERSITÀ DEGLI STUDI DI PALERMO

DEPARTMENT	Scienze e Tecnologie Biologiche, Chimiche e Farmaceutiche		
ACADEMIC YEAR	2022/2023		
MASTER'S DEGREE (MSC)	CONSERVATION BIOLOGY		
INTEGRATED COURSE	BIOLOGY AND CONSERVATION OF INVERTEBRATES - INTEGRATED COURSE		
CODE	21837		
MODULES	Yes		
NUMBER OF MODULES	2		
SCIENTIFIC SECTOR(S)	BIO/05, AGR/11		
HEAD PROFESSOR(S)	ARIZZA VINCENZO	Professore Ordinario	Univ. di PALERMO
OTHER PROFESSOR(S)	LO VERDE GABRIELLA	Professore Associato	Univ. di PALERMO
	ARIZZA VINCENZO	Professore Ordinario	Univ. di PALERMO
CREDITS	9		
PROPAEDEUTICAL SUBJECTS			
MUTUALIZATION			
YEAR	1		
TERM (SEMESTER)	1° semester		
ATTENDANCE	Not mandatory		
EVALUATION	Out of 30		
TEACHER OFFICE HOURS	ARIZZA VINCENZO Monday 9:00 13:00 Studio, Dip. STEBICEF Via Archirafi, 18 Tuesday 15:00 17:00 Sede del Consorzio Universitario, corso Vittorio Emanuele, 92, 93100 Caltanissetta Wednesday 9:00 13:00 Studio, Dip. STEBICEF Via Archirafi, 18 Thursday 9:00 13:00 Studio, Dip. STEBICEF Via Archirafi, 18 Friday 9:00 13:00 Studio, Dip. STEBICEF Via Archirafi, 18 LO VERDE GABRIELLA Monday 09:30 13:00 Studio del docente (n. 105), viale delle Scienze, Ed. 5, ingresso B (ex Entomologia agraria), primo piano.		

DOCENTE: Prof. VINCENZO ARIZZA

PREREQUISITES	Knowledge of zoology and ecology
LEARNING OUTCOMES	Knowledge and understanding: acquisition of basic and methodological concepts and their use to formulate adequate procedures for monitoring and managing insects in their habitats. Ability to apply knowledge and understanding: ability to recognize the main invertebrate species of interest and to set up adequate monitoring and management strategies. Autonomy of judgment: ability to evaluate and choose the methods of investigation and intervention according to the species and objectives. Communication skills: ability to correctly formulate problems and show the results obtained, with the use of specific terminologies. Learning skills: develop and / or apply original ideas in a context applied to the management of entomological fauna, starting from bibliographic research and addressing any problems.
ASSESSMENT METHODS	Learning will be assessed through an oral exam. The student will have to answer questions relating to the topics developed during the course, demonstrating that they have adequate knowledge and interpretative competence of general and specific contents, an ability to connect and process the contents, as well as a pertinent, clear and correct exposition ability. The evaluation of the test will be expressed out of thirty and will be considered insufficient in the event that the student demonstrates: difficulty in focusing on the proposed topics, highly lacking knowledge of the topics and extreme limited exposure. The maximum score will be obtained in case of excellent mastery and critical-interpretative competence of the contents of the course, associated with good presentation skills through appropriate scientific terminology.
TEACHING METHODS	Lectures, laboratory and field exercises

MODULE INVERTEBRATE BIOLOGY AND CONSERVATION <i>Prof. VINCENZO ARIZZA</i>	
SUGGESTED BIBLIOGRAPHY	
Hickman et al. ZOOLOGIA Ed. Mc GrawHill Materiale fornito dal docente	
AMBIT	50506-Discipline del settore biodiversità e ambiente
INDIVIDUAL STUDY (Hrs)	98
COURSE ACTIVITY (Hrs)	52
EDUCATIONAL OBJECTIVES OF THE MODULE	
Knowledge and understanding: Acquisition of theoretical and methodological knowledge in the field of zoology that allows to understand the current and historical mechanisms and causes of their distribution and adaptations and threats. Ability to apply knowledge and understanding: Ability to independently use the acquired knowledge and process fauna data, to describe the state of the environment according to the species present and implement conservation activities. Autonomy of judgment: Ability of personal interpretation of data and a conscious assessment of the level of integrity of the animal component of biological systems. Communication skills: Ability to expose the acquired skills with clarity and language properties and to disseminate them with scientific rigor. Acquisition of interpersonal skills essential to collaborate in multidisciplinary studies in the area. Learning skills: Acquire the ability to find information from international zoological literature and to constantly deepen and update the subject. Ability to undertake more in-depth zoological conservation studies with scientific and technical preparation and with a high degree of autonomy.	

SYLLABUS

Hrs	Frontal teaching
6	Evolutionary Principles and Approaches and Methods of Taxonomy
2	Status, protection and conservation of Protozoa
2	Status, protection and conservation of Porifera
4	Status, protection and conservation of Cnidarians and Ctenophores
2	Status, protection and conservation of Platyhelminthes
4	Status, protection and conservation of the Nematoda
4	Status, protection and conservation of Molluscs
4	Status, protection and conservation of the Annelids
4	Status, protection and conservation of Arthropods
4	Status, protection and conservation of Echinoderms
4	Status, protection and conservation of Urocordates
Hrs	Practice
12	Case studies of conservation of invertebrates.

**MODULE
ENTOMOLOGY APPLIED TO CONSERVATION**

Prof.ssa GABRIELLA LO VERDE

SUGGESTED BIBLIOGRAPHY

Battisti, A., De Battisti, R., Faccoli, M., Masutti, L., Paolucci, P., & Stergulc, F. (2013). Insetti e foreste. Lineamenti di zoologia forestale. Padova University Press

Piante e insetti impollinatori: un'alleanza per la biodiversità (ISPRA) <https://www.isprambiente.gov.it/it/pubblicazioni/rapporti/piante-e-insetti-impollinatori-unalleanza-per-la-biodiversita>

Appunti dalle lezioni e articoli forniti dal docente su argomenti specifici.

AMBIT	20879-Attività formative affini o integrative
INDIVIDUAL STUDY (Hrs)	47
COURSE ACTIVITY (Hrs)	28

EDUCATIONAL OBJECTIVES OF THE MODULE

The course will provide an adequate level of knowledge, to deal with the study and monitoring of insects, as well as the design, implementation and evaluation of management plans aimed at insect conservation.

SYLLABUS

Hrs	Frontal teaching
5	Morphology, biology and identification of insects.
4	Insects and the environment. Ecological role of insects and their use as bioindicators.
2	Insect sampling and monitoring: theory and practice.
2	Insect conservation and diversity.
2	Case studies related to ecological management for the conservation of insects.
1	Guided tour of the Entomological Collection of the Department of Agricultural, Food and Forestry Sciences
Hrs	Practice
2	Laboratory activity: identification of the main insect orders
2	Field and laboratory activity; insect sampling and monitoring.
8	Implementation of a project aimed at increasing entomological diversity.