UNIVERSITÀ DEGLI STUDI DI PALERMO

DEPARTMENT	Scienze e Tecnologie Biologiche, Chimiche e Farmaceutiche
ACADEMIC YEAR	2022/2023
MASTER'S DEGREE (MSC)	BIODIVERSITY AND ENVIRONMENTAL BIOLOGY
INTEGRATED COURSE	SICILIAN FAUNA AND STUDY METHODS - INTEGRATED COURSE
CODE	22507
MODULES	Yes
NUMBER OF MODULES	3
SCIENTIFIC SECTOR(S)	BIO/05
HEAD PROFESSOR(S)	SARA' MAURIZIO Professore Associato Univ. di PALERMO
OTHER PROFESSOR(S)	MARRONE FEDERICO Professore Ordinario Univ. di PALERMO SARA' MAURIZIO Professore Associato Univ. di PALERMO
CREDITS	9
PROPAEDEUTICAL SUBJECTS	
MUTUALIZATION	
YEAR	2
TERM (SEMESTER)	2° semester
ATTENDANCE	Not mandatory
EVALUATION	Out of 30
TEACHER OFFICE HOURS	**MARRONE FEDERICO** Monday 10:00 11:00 Via Archirafi 18, primo piano, stanza I8 Tuesday 15:00 17:00 Sede del Consorzio Universitario, corso Vittorio Emanuele, 92, 93100 Caltanissetta Wednesday 10:00 11:00 Via Archirafi 18, primo piano, stanza I8 Friday 10:00 11:00 Via Archirafi 18, primo piano, stanza I8 **SARA' MAURIZIO** Monday 08:00 10:00 Sezione Biologia Animale, Via Archirafi 18 stanza del docente Tuesday 08:00 10:00 Sezione Biologia Animale, Via Archirafi 18 stanza del docente Wednesday 12:00 14:00 Sezione Biologia Animale, Via Archirafi 18 stanza del docente

PREREQUISITES	The student must possess advanced notions of Systematic zoology with particular reference to terrestrial vertebrates. Furthermore, he must be familiar with the basic concepts and principles of community and population ecology (competition, predation, niche theory) and of Mendelian and population genetics. The course also refers to different concepts and principles of general and insular Biogeography, therefore it is recommended to attend and take the Biogeography exam of the 1st semester.
LEARNING OUTCOMES	1) Knowledge and understanding: Acquisition of fundamental theoretical and methodological knowledge for the sampling of vertebrate fauna which will allow to apply the most suitable methods according to the context and to derive reliable indices and estimates that allow to obtain information on the status of the vertebrate fauna present in Sicily and on the problems related to its reduction and conservation. Ability to distinguish, correct use and application of concepts and definitions, especially in the specific recognition of Palaeartic and Italian vertebrate species and related issues. 2) Ability to apply knowledge and understanding: The ability to autonomously use the acquired knowledge and process faunal data to describe the state of the environment and identify problems deriving from anthropic impact or natural causes will be developed, using appropriate and updated methods of investigation. The acquisition of advanced bibliographic research tools for identifying an animal community, the main target species and the protection / management problems of the various vertebrate taxa will be taken care of. Ability to analyse and evaluate issues of global interest related to climate change, the invasion of alien species, habitat loss, etc. Application of concepts and definitions, necessary for the preparation of own research projects based on reproductive biology, ecology and conservation of species / communities of Vertebrates or groups / guilds of higher taxonomic rank. 3) Autonomy of judgment: Ability of personal interpretation of data and a conscious assessment of the level of integrity and health of population or species in the context of Palaearctic and Mediterranean ecosystems. Autonomous capacity of framing and analysis of the animal component of an ecosystem, in particular of application and judgment of the dynamic processes in progress; recognition of the causal factors determining the population of target species and therefore of the correct management intervention methods (protection of vulnerable species, reintroduction, repopulation, etc.). 4) Communication skills: Ability to expose the skills acquired in the auto- and synecological context with clarity and language properties and to disseminate them with scientific rigor. Increase of the skills of expression, of verbal and written communication. Improvement of cultural exchanges and the level of debate in the classroom on current issues (e.g. birds and climate change, migration, etc.). Ability to communicate in a clear and unambiguous way of one's knowledge, assessments and conclusions to both specialist and non-specialist interlocutors. Acquisition of interpersonal skills essential to collaborate in multidisciplinary studies in the area. 5) Learning skills. Ability to find and extract salient information from national and international zoological literature and to constantly deepen and update the subject. Ability to undertake further environmental assessment studies with scientific and technical preparation and with a high degree of autonomy, using birds as target species. Demonstration of skills on the elaboration and / or application of original ideas in a research context; Demonstrate the ability to develop learning skills that allow you to continue studying mostly autonomously, in subsequent training courses (masters, doctorates, etc.).
ASSESSMENT METHODS	The assessment includes an oral interview aimed at ascertaining the possession of the skills and knowledge required by the course. During the interview, 3-5 questions will be proposed, both open and semi-structured, designed to test the degree of learning required by the course. The questions will tend to verify: 1) the knowledge acquired regarding the formal contents of the course (theories, concepts, models, tools, species recognition, etc.); 2) processing skills, which concern both the ability to establish connections, understand applications and deduce results based on the models and theories studied, and the ability to provide autonomous judgments regarding the disciplinary contents. Student must be able to place the disciplinary contents within the professional and socio-cultural context of the course of study. 3) the possession of an adequate display capacity, or an adequate and articulated exposure in Italian that demonstrates mastery of the technical language relating to the discipline (e.g. for birds: topography of plumage, migration and phenology models) and in more general terms to the zoological, genetic and biogeographical context. The maximum score is obtained if the examination test ascertains full possession of the following three aspects: a) in-depth knowledge of the discipline, with particular reference to the Sicilian vertebrate fauna, its status and the Italian study and sampling methods, combined with ability of exposure, critical analysis and evaluation of new aspects of the discipline (new study methods, new species reported on the territory, etc.); b) a strong ability to expose the impact of the course contents by putting them in connection with the major themes of Zoology and Conservation Biology (eg crisis of Biodiversity, Evolution, Climate Change,

	etc.). Finally, c) a mastery in the ability to present original ideas, experimental approaches and solutions within the professional and socio-cultural context of the course of study.
TEACHING METHODS	Lectures

MODULE
INLAND WATER FAUNA

Prof. FEDERICO MARRONE

SUGGESTED BIBLIOGRAPHY

Ruffo S., Stoch F. (eds.), 2006. Checklist and distribution of the Italian fauna. Memorie del Museo Civico di Storia Naturale di Verona, 2.Serie, Sezione Scienze della Vita 17, with CD-ROM. (available at: https://faunaitalia.it/documents/CKmap_ENG.pdf). ISBN 88-89230-09-6.

Dispense fornite dal docente / Notes and papers provided by the lecturer

AMBIT	20490-A scelta dello studente
INDIVIDUAL STUDY (Hrs)	51
COURSE ACTIVITY (Hrs)	24

EDUCATIONAL OBJECTIVES OF THE MODULE

The main educational objective of the class is to provide the students the necessary theoretical knowledge to investigate and interpret the diversity patterns of Palearctic inland water biota, with a special focus on Sicily.
In particular, the Class will focus on the sampling and study techniques of the invertebrates of lentic and lotic waters.

SYLLABUS

Hrs	Frontal teaching
2	Introduction
6	Introduction to Sicilian inland water and their biota
8	Inland water invertebrates - characteristics and sampling methods
8	Inland water vertebrates - characteristics and sampling methods

MODULE
TERRESTRIAL FAUNA

Prof. MAURIZIO SARA'

SUGGESTED BIBLIOGRAPHY

Sindaco R. et al. 2009. Atlante degli Anfibi e Rettili d'Italia. II ed. Polistampa ISBN: 978-8859606291
Brichetti P. & G. Fracasso 2018. The birds of Italy vol.1. Anatidae-Alcidae. Ed. Belvedere Latina. ISBN: 8889504609
AA.VV. 2008. Atlante della biodiversità della Sicilia. Vertebrati Terrestri ARPA Sicilia. ISBN: 978-88-95813-02-8
Sarà M. 1998. I mammiferi delle isole del Mediterraneo. L'Epos editore Palermo. ISBN: 9788883021855
Keller V. et al 2020 European Breeding Bird Atlas 2. Distribution, Abundance and ChangeLynx Edicions ISBN: 978-84-16728-38-1
Materiali didattici forniti dal docente / Didactic material provided by the teacher

AMBIT	20490-A scelta dello studente
INDIVIDUAL STUDY (Hrs)	51
COURSE ACTIVITY (Hrs)	24

EDUCATIONAL OBJECTIVES OF THE MODULE

The course aims to provide the tools to know the elements of Sicilian regional fauna and to correctly frame the study of the protection of these animal species and habitats in the debate on the current Biodiversity Crisis. Sicily is a distinct territorial entity that is part of the Italian faunal provinces. The Course describes the faunal taxa of the island, with particular regard to terrestrial vertebrates, the history of their structure and the insular and anthropic determinants that caused their presence or extinction.

SYLLABUS

Hrs	Frontal teaching
8	Framing of the Sicilian vertebrate fauna in the Mediterranean region. Insularity and anthropogenic effect. The history of the population. Extinction and new arrivals.
8	Birds of Sicily, distribution, rarity, ecology and life history
8	Herpetofauna and Mammals of Sicily, distribution, rarity, ecology and life history

MODULE
STUDY METHODS

Prof. MAURIZIO SARA'

SUGGESTED BIBLIOGRAPHY

Fowler J. & Cohen L. 2010 Statistica per ornitologi e naturalisti . Franco Muzzio Editore, ISBN: 978-8874132225
Materiali didattici forniti dal docente / Didactic material provided by the teacher

AMBIT	20490-A scelta dello studente
INDIVIDUAL STUDY (Hrs)	51
COURSE ACTIVITY (Hrs)	24

EDUCATIONAL OBJECTIVES OF THE MODULE

The course aims to provide the tools to investigate in the field the vertebrate fauna of the island. The study methods concern basic theoretical principles and practical activities for the fauna census. Will be treated: traps on the grid and transects (Reptiles, Mammals), EFP and listening stations (Passerines), methods of research and census of diurnal and nocturnal birds of prey.

SYLLABUS

Hrs	Frontal teaching
8	Counting animals: principles and methods of sampling design. basic use of Distance
8	transects and trapping grids, mounting, detectable data and data analysis (biometry, frequency and density. Petersen-Lincoln index.
8	Bird censuses. EFP and listening stations, use of playback. Count of birds in colony. FLT at sea. Car transect and raptor site search