



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	EVOLUTIONARY ZOOLOGY		
CODE	14776		
MODULES	Yes		
NUMBER OF MODULES	2		
SCIENTIFIC SECTOR(S)	BIO/05		
HEAD PROFESSOR(S)	MARRONE FEDERICO	Professore Ordinario	Univ. di PALERMO
OTHER PROFESSOR(S)	MARRONE FEDERICO	Professore Ordinario	Univ. di PALERMO
	VECCHIONI LUCA	Ricercatore a tempo determinato	Univ. di PALERMO
CREDITS	12		
PROPAEDEUTICAL SUBJECTS			
MUTUALIZATION			
YEAR	1		
TERM (SEMESTER)	2° semester		
ATTENDANCE	Not mandatory		
EVALUATION	Out of 30		
TEACHER OFFICE HOURS	<p>MARRONE FEDERICO</p> <p>Monday 10:00 11:00 Via Archirafi 18, primo piano, stanza I8</p> <p>Tuesday 15:00 17:00 Sede del Consorzio Universitario, corso Vittorio Emanuele, 92, 93100 Caltanissetta</p> <p>Wednesday 10:00 11:00 Via Archirafi 18, primo piano, stanza I8</p> <p>Friday 10:00 11:00 Via Archirafi 18, primo piano, stanza I8</p> <p>VECCHIONI LUCA</p> <p>Monday 11:00 12:00 Via Archirafi 18 - Primo piano, stanza P1011</p> <p>Wednesday 10:00 11:00 Via Archirafi 18 - Primo piano, stanza P1011</p> <p>Friday 09:00 10:00 Via Archirafi 18 - Primo piano, stanza P1011</p>		

DOCENTE: Prof. FEDERICO MARRONE

PREREQUISITES	Basics of Zoology.
LEARNING OUTCOMES	<p>Knowledge and understanding Acquisition and correct use of the zoological and biogeographical terminology, with a special focus on evolutionary topics. Understanding the evolutionary processes underlying the current pattern of morphological, genetic and behavioural diversity.</p> <p>Applying knowledge and understanding Acquisition of the theoretical and practical knowledge needed for the characterization of different evolutionary processes. Ability to plan research projects dealing with the evolutionary biology and current biodiversity of the taxa. Ability to build and interpret phylogenetic trees based on molecular sequences.</p> <p>Making judgements Understanding and discernment of the evolutionary processes operating at different scales. Description of evolutionary implications derived from various behavioural patterns occurring in intra- and inter-specific communities.</p> <p>Communication Acquisition of a sound technical terminology. Ability of unambiguously express scientific concepts and opinions.</p> <p>Lifelong learning skills Ability to develop and apply original research hypotheses. Development of a learning strategy, which will allow the student to study autonomously.</p>
ASSESSMENT METHODS	The learning is assessed through an interview. The candidate has to properly answer three to six oral questions dealing with all the programme. The assessment aims at evaluating 1) the knowledge and understanding of the subject, and 2) the acquisition of interpretation expertise and independent judgment. The candidate has to show an adequate knowledge, acquisition of interpretative skills, capacity of connecting and processing the arguments, as well as a relevant presentation capacity. The final grade will be expressed in thirtieth and the interview will be judged as "insufficient" when the student will demonstrate difficulty to focus on the proposed topics, a shallow knowledge of the arguments, and limited exposure ability. As the degree of details of the proven knowledge increases, the positivity of the grade will increase proportionally. The maximum score is obtained in case of excellent mastery and critical interpretation of the subject of the course, and a good exposition proved by the use of proper scientific language.
TEACHING METHODS	The class will be based on traditional lectures (96 hours, 12 CFU).

MODULE ANIMAL SYSTEMATICS AND PHILOGENESIS <i>Prof. FEDERICO MARRONE</i>	
SUGGESTED BIBLIOGRAPHY	
L'evoluzione – D.J. Futuyma - 2019 – Zanichelli; ISBN: 9788808166920 / Evolution - D.J. Futuyma & M. Kirkpatrick - 2017 - ISBN : 9781605357409	
Dispense fornite dal docente / Lecture notes provided by the teacher	
AMBIT	50506-Discipline del settore biodiversità e ambiente
INDIVIDUAL STUDY (Hrs)	102
COURSE ACTIVITY (Hrs)	48
EDUCATIONAL OBJECTIVES OF THE MODULE	
The main educational objective of the class is to provide the students the necessary theoretical and practical knowledge to investigate and interpret the current biodiversity patterns from an evolutionary perspective. In particular, the Class will focus on the meaning of key-concepts as species, clades, and characters' evolution, and on the techniques more commonly implemented for carrying on phylogenetic inferences. Moreover, the Class will provide a basic practical knowledge of molecular phylogenetics.	

SYLLABUS

Hrs	Frontal teaching
4	An introduction to systematics & basics of evolutionary biology
8	Systematics, taxa, characters, trees
8	Species and taxa of higher rank
4	Introduction to cladistics
16	Phylogenetic inferences
8	Case studies

**MODULE
EVOLUTION OF BEHAVIOUR**

Prof. LUCA VECCHIONI

SUGGESTED BIBLIOGRAPHY

- Alcock J. 2007. Etologia. Un approccio evolutivo Zanichelli. ISBN 9788808920379
- Alcock J. 2013. Animal Behavior: An Evolutionary Approach. Sinauer Ed. ISBN: 978-0878939664
- Materiale didattico distribuito dal docente/ / lecture notes and other didactic material provided by the teacher

AMBIT	20879-Attività formative affini o integrative
INDIVIDUAL STUDY (Hrs)	102
COURSE ACTIVITY (Hrs)	48

EDUCATIONAL OBJECTIVES OF THE MODULE

What is the animal behaviour? what are the different aspect of behaviour? How to quantify behaviour? What is the contribution of animal behaviour to the evolution of species?

These are some of the questions this course addresses whereas the more specific ones would show an integrated study of theories of animal behaviour and evolution within intra- and interspecific animal interactions.

SYLLABUS

Hrs	Frontal teaching
4	The Timbergen's four questions, an integrated approach for evolutionary behaviour. Evolutionary Stable Theories
10	Evolution of main behaviours including reproduction, foraging, anti-predator behaviour.
10	Interactive behaviours, coevolution, sociobiology
20	Life history theory and behavioural evolution
4	Effects of environmental pressure on behavioural evolution