



UNIVERSITÀ DEGLI STUDI DI PALERMO

DEPARTMENT	Scienze Agrarie, Alimentari e Forestali
ACADEMIC YEAR	2023/2024
BACHELOR'S DEGREE (BSC)	AGRICULTURAL SCIENCES AND TECHNOLOGIES
SUBJECT	ZOOLOGICAL TAXONOMY AND DEMOGRAPHY LABORATORY
TYPE OF EDUCATIONAL ACTIVITY	F
AMBIT	10861-Altre conoscenze utili per l'inserimento nel mondo del lavoro
CODE	18714
SCIENTIFIC SECTOR(S)	
HEAD PROFESSOR(S)	CUSUMANO ANTONINO Professore Associato Univ. di PALERMO
OTHER PROFESSOR(S)	
CREDITS	3
INDIVIDUAL STUDY (Hrs)	45
COURSE ACTIVITY (Hrs)	30
PROPAEDEUTICAL SUBJECTS	
MUTUALIZATION	
YEAR	1
TERM (SEMESTER)	2° semester
ATTENDANCE	Not mandatory
EVALUATION	Pass/Fail
TEACHER OFFICE HOURS	<p>CUSUMANO ANTONINO</p> <p>Tuesday 14:00 16:00 Stanza dott. Cusumano, Consorzio Universitario di Caltanissetta, Caltanissetta</p> <p>Wednesday 10:00 12:00 Stanza dott. Cusumano, Dipartimento di Scienze Agrarie e Forestali, Edificio 5 ingresso A, primo piano, Palermo</p> <p>Thursday 10:00 12:00 Stanza dott. Cusumano, Dipartimento di Scienze Agrarie e Forestali, Edificio 5 ingresso A, primo piano, Palermo</p>

DOCENTE: Prof. ANTONINO CUSUMANO

PREREQUISITES	None
LEARNING OUTCOMES	<p>Knowledge: The course aims at acquiring basic and methodological knowledge related to animal taxonomy and demography.</p> <p>Understanding: Understanding of the tools for the classification and study of population dynamics.</p> <p>Ability to apply knowledge: Ability to recognize animal species through the use of systematic keys. Ability to understand the relationships between species and the environment. Ability to independently use the knowledge acquired for the application of environmentally friendly management of agro-ecosystems.</p> <p>Autonomy of judgment: Ability to recognize taxonomic entities and assess their level of impact on the environment, with particular reference to the agricultural field.</p> <p>Communication skills: Ability to express the acquired skills with clarity and language properties and to disseminate them with exact definitions and concepts. Ability to communicate knowledge even to non-experts and to support agronomical interventions with low environmental impact and maintenance of biodiversity.</p> <p>Learning skills: Ability to update knowledge independently through the retrieval of scientific publications and an in-depth study of the subject. Ability to process and apply theoretical aspects of scientific research in the field of systematic and applied zoology. Ability to continue autonomously the study career (1st level masters, 2nd level masters, etc.) in the fields of zoological systematics and applied demography.</p>
ASSESSMENT METHODS	Verification of suitability through an optional written test and oral final exam. The suitability is achieved when the student shows knowledge and understanding of the topics at least in general terms and reaches minimal application skills in order to solve concrete cases
EDUCATIONAL OBJECTIVES	The course aims to teach to the students the main taxonomic knowledge on the different phyla and on the main evolutionary dynamics that led to the current classification of animal species. It also aims to provide the tools necessary for the study of the demography of animal populations through methods for the detection and analysis of their dynamics, with particular emphasis on agricultural pest species. The practical's objectives are: to strengthen the knowledge acquired during the lectures through the observation of some taxa and their recognition; to acquire the methods of sampling and observation of animal populations; to acquire the main preparation methods e conservation of zoological material; to understand the importance of implementing integrated pest management programmes that take into account protection of biodiversity
TEACHING METHODS	Frontal hours, laboratory practicals
SUGGESTED BIBLIOGRAPHY	<ul style="list-style-type: none">- Hickman et al., Diversita' animale (15a Ed.). McGraw-Hill ISBN:9788838615405- Chelazzi G. e Santini G., Ecologia. Ed. Giunti ISBN: 9788809058309- Fondamenti di Zoologia Hickman et al, (15a Ed.). McGraw-Hill. ISBN: 9788838667428- AA.VV. Zoologia. Ed. Idelson-Gnocchi. ISBN:9788822410009

SYLLABUS

Hrs	Frontal teaching
1	Introduction to the course. The living organisms and their environment.
3	Classification and phylogeny. Main phylogenetic concepts. Phylogenetic trees. Taxonomy concepts including classical, cladistic, phenetic-numerical classification methods. Linnaeus and the Systema Naturae.
3	Systematic concept and taxon. The binomial nomenclature and its rules. Species concept, subspecies and population.
2	Evolution and speciation. The theories and scientific foundations of evolution. Darwin's theory. Reproductive isolation barriers. Natural selection and genetic drift.
4	Taxonomic groups and their main characteristics. Protozoa. Porifera. Cnidaria. Ctenophora. Platyhelminthes. Rotifers. Nematodes. Clams. Annelids. Arthropods. Chordata.
1	Ecology concepts: biosphere, ecosystems, food chains and energy flow.
2	Populations: parameters, growth curves, limitation and regulation factors. Species with strategy r and species with strategy k. Population dynamics.
Hrs	Workshops
2	Evaluation of population thresholds and their variation over time.
2	Population monitoring and sampling methodologies.
2	Examples of animal taxa classification using dichotomous keys.
3	Sampling techniques and study of populations in the field. Entomological collection and preparations. Microscopic preparations.
2	Optical microscope: handling and observation of the preparations.
3	Observation and identification of animal organisms