ACADEMIC YEAR 2023/2024

General information	
Academic subject	**GENERAL BIOLOGY AND ZOOLOGY** (integrated exam of GENERAL AND APPLIED BIOLOGY)
Degree course	Science of Marine Productions and Resources (L38)
Academic Year	I year
European Credit Transfer and Accumulation System (ECTS)	6
Language	Italian
Academic calendar (starting and ending date)	I semester
Attendance	Not mandatory, recommended

Professor/ Lecturer	
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Department and address	Taranto presso Ex II Facoltà di Scienze MM.FF.NN, Via Alcide de Gasperi, (Quartiere Paolo VI) - 74123 Taranto
Virtual headquarters	Microsoft Teams code: cxgg0mc
Tutoring (time and day)	From Monday to Friday from 11:30 to 13:30 exclusively by appointment via email

Syllabus	
Learning Objectives	The course aims to provide students with the basic knowledge of animal biology and marine zoology starting from the concepts of general zoology (animal cytology; fundamental elements of reproductive and developmental biology) up to the anatomical, morphological and functional description of the main animal phyla necessary for the specific and permanent professional training in the field of marine productions. The course also provides the tools for the taxonomic identification and description of the main marine animal taxa of interest in the breeding of edible and inedible marine species.
Course prerequisites	Basic knowledge of animal biology acquired at secondary level studies will facilitate the understanding of many covered topics.
Contents	**Introduction** Characteristics of living organisms. Division into Kingdoms. Definition of animal. **Fundamental principles of animal life** The animal cell: evolution, organization and functioning. Mitosis and meiosis. **Reproduction and development** Asexual and sexual reproduction. Hermaphroditism and gonocorism, sex determination. Amphigonia and parthenogenesis. General features of embryonic development. Levels of animal organization: protostomes and deuterostomes, diblastic and triblastic, symmetry, metamery and body cavity. **Fundaments of morphology and comparative physiology** The integument. Skeletal systems. The movement. Breathing, circulation. Nutrition and digestion. Nervous system and sense organs. **Taxonomy and structural plans of animals** Nomenclature and classification of animals. The animal architecture and bauplan. **Overview of the main marine animal phyla**

U.O. Didattica e servizi agli studenti
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	Generalities, characteristics and phylogeny of the main marine animal phyla: Porifera, Cnidarians, Molluscs, Annelids, Arthropods (Crustaceans), Echinoderms, Chordates (Urochordates, Cephalochordates and Vertebrates: Chondrichthyes, Osteichthyes, Amphibians, Reptiles, Birds, Mammals, with particular reference to aquatic taxa).
Books and bibliography	AT THE STUDENT'S CHOICE BETWEEN: • De Bernardi et al. (2012). Zoologia. Parte Generale. (Idelson-Gnocchi Ed.) • Candia et al. (2016). Zoologia. Parte Sistematica. (Idelson-Gnocchi Ed.) Or • Hickman et al. (2020). Fondamenti di zoologia. (McGraw-Hill Ed.) • Hickman et al. (2020). Diversità animale. (McGraw-Hill Ed.)
Additional materials	During the course students will be provided with further bibliographical references as well as slides, scientific articles and links to marine zoological web sites.

Work schedule			
Total	Lectures	Hands on (Laboratory, working groups, seminars, field trips)	Out-of-class study hours/ Self-study hours
Hours			
150	***60***		***90***
ECTS			
6	***6***		

Teaching strategy	
	Lectures by means of PowerPoint presentations.
Expected learning outcomes	
Knowledge and understanding on:	At the end of the course the student must have acquired the basic knowledge and the fundamental principles of animal life starting from the concepts of general zoology (animal cytology; reproductive and developmental biology) up to the description of the main animal phyla (scientific nomenclature; architectures of the animal phyla; structural, morphological and functional differences of the main marine animal phyla).
Applying knowledge and understanding on:	At the end of the course the student must have acquired basic zoological skills and competences including tools for the recognition and classification of the main marine animal phyla.
Soft skills	• *Making informed judgments and choices* Acquisition of autonomy in the identification and interpretation of methodologically adequate paths to describe the distinctive characteristics of animal phyla treated in the course. • *Communicating knowledge and understanding* Acquisition of zoological terminology and nomenclature useful for an effective presentation of the basic concepts of general zoology and the complexity of animal life; Exchange information and interact with other subjects.

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	• *Capacities to continue learning* Acquisition of the ability to integrate knowledge through the consultation of scientific publications, texts or further resources with a scientific content; Understand and critically discuss the salient aspects of animal biology and marine zoology.

Assessment and feedback	
Methods of assessment	The student's evaluation involves a final oral exam. The General and Applied Biology exam includes the assessment of both educational modules: General Biology and Zoology, as well as Marine Plant Biology. Participation in classes and classroom discussions held throughout the course will also be taken into consideration. The exam entails the presentation of marine animal taxa and related zoological insights, with a specific focus on those relevant to both edible and non-edible marine productions. Further targeted questions concerning the main subject matter from various perspectives and connections to other pertinent themes will allow for the evaluation not only of the acquired knowledge and reasoning abilities of the student but also their skills in communication and solving concrete problems. Expressive capabilities, the use of context-appropriate language, the ability to interlink diverse topics, and the skill of synthesis will all be assessed.
Evaluation criteria	• *Knowledge and understanding:* The student is called to apply the theoretical aspects acquired for the recognition, classification and description of the studied animal phyla also through comparative morphological analyzes of representative models. • *Applied knowledge and understanding*: The student must be able to apply the theoretical knowledge acquired by demonstrating the ability to recognize the main marine animal taxa studied during the course. • *Autonomy of judgment*: The student must be able to autonomously analyze the acquired knowledge and skills demonstrating his ability to identify the morphological and structural characteristics necessary for the identification and taxonomic classification of the studied marine animal phyla. • *Communication skills:* The student must have acquired the ability to communicate the concepts learned using correct zoological terminology and nomenclature, discussing and critically commenting the learned concepts. • *Capacities to continue learning:* *The student must demonstrate that he has acquired the tools to learn the theoretical knowledge of zoology from university books. The student will also be able to enrich his knowledge through in-depth studies, drawing on specific* texts, scientific publications and/or documentaries, or thematic seminars and workshops proposed during the course.

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Criteria for assessment and attribution of the final mark	The exam is graded on a scale of thirty. The exam is considered passed with a score not lower than 18/30. Merely possessing factual knowledge of terms and concepts is not sufficient for passing the exam. The outcomes of the educational modules "General Biology and Zoology" and "Marine Plant Biology" contribute to determining the final grade for the General and Applied Biology exam. The final grade for the General and Applied Biology exam is the result of a collective judgment based on the evaluations obtained in the two modules "General Biology and Zoology" and "Marine Plant Biology." Knowledge, clarity, communication skills, acquired competence, and the depth of understanding are essential elements for assigning the exam grade. Honors (cum laude) are awarded in case of highly positive assessment in both modules of the General Biology and Zoology and are decided unanimously by the Exam Committee.
Additional information	

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