

COURSE LAYOUT

1. GENERAL

SCHOOL	Animal Biosciences		
DEPARTMENT	Animal Science		
STUDY LEVEL	Undergraduate		
COURSE CODE	0168	SEMESTER	6 th
COURSE TITLE	Ichthyology - Benthology		
INDEPENDENT TEACHING ACTIVITIES		WEEKLY TEACHING HOURS	ECTS
Theory and laboratory practice		6	6
COURSE TYPE (Foundation course, General knowledge, Scientific area, Developing skills)	Scientific area		
PREREQUISITES			
LANGUAGE	Greek		
IS THE COURSE OFFERED for ERASMUS STUDENTS?	NO		
COURSE WEB PAGE			

2. LEARNING OUTCOMES

Learning Outcomes
<p>Upon the completion of the course, the students will have the ability to:</p> <ul style="list-style-type: none"> • Understand and evaluate physiology adaptations and basic systems of fish and benthic invertebrates • Combine and assess abiotic and biotic factors that interact to form benthic communities • Compare benthic communities and explain differences in terms of synthesis and diversity • Familiarize with measurements of morphometrical characteristics, anatomy and isolation of internal organs and combine morphological characteristics with ethology and fish nutrition. • Combine morphological characteristics of benthic organisms with environmental parameters, as well as feeding and respiration. • Identify, at the species level, finfish and benthic organisms and more specifically species of commercial interest for fisheries and aquaculture • Discover applications of Hydrobiology to Aquaculture and Biotechnology
General Competences
<ul style="list-style-type: none"> • Search, analysis and synthesis of data and information, utilizing modern technologies • Adaptation in various conditions • Independent personality • Teamwork skills • Project planning and management • Consideration for the natural environment • Develop judgement and self-criticism • Promotion of free, creatinal and inductive thought

3. COURSE CONTENT

- Systematics – External morphology of finfish
- Nervous system of finfish
- Fish sensory systems (lateral line, auditory system and sound production, electric and magnetic stimulus detection, taste, olfactory, vision, bioluminescence)
- Muscular system, skeletal system, fish skin
- Finfish swimming (floating, motion)
- Fish respiration (respiratory system, gas exchange, blood, circulatory system) - excretory system - acid-base balance
- Fish reproduction (reproduction system, behavior and types of mating, ontogenesis) – Fish immune system
- Endocrine system (glands, organs, hormones)
- Digestive system (ingestion and swallowing, digestive track, organs and glands of for digestion)
- Trophic classification of fish, feeding behaviour and adaptation
- Ionic and osmotic regulation of fish, benthic invertebrates and various aquatic animal organisms. Estuaries.
- Age and development of fish and benthic invertebrates
- Systematics – External morphology of benthic invertebrates (Mollusca, Crustacea, Echinodermata, Annelida, Cnidaria, Porifera etc.)
- Internal anatomical and morphological characteristics of benthic mollusks and decapod crustaceans
- Benthic communities of low tide zone
- Ecology of intertidal zone and organism adaptation (resistance to water loss, respiration, feeding, etc)
- Meiofauna (environmental characteristics, adaptations, ecology etc)
- Coral reefs. Symbiosis in benthic communities
- Population dynamics of marine organisms. Anthropogenic impact on the ocean (fisheries, aquaculture, pollution)
- Laboratory practical on fish species identification of commercial value for fisheries and aquaculture
- Laboratory practical on anatomical and morphological characteristics of finfish
- Laboratory practical on anatomical and morphological characteristics of benthic mollusks
- Laboratory practical on anatomical and morphological characteristics of decapod crustaceans

4. TEACHING and LEARNING METHODS - Evaluation

TEACHING METHOD	Physical	
USE OF INFORMATICS and COMMUNICATION TECHNOLOGIES	<ul style="list-style-type: none"> • PowerPoint slideshows and video projections during teaching • Teaching activity support through e-class platform • Contact with the students via e-mail 	
TEACHING ORGANISATION (Lectures, individual or group assignments, field trips, individual study et.c.)	Activities	Workload per semester
	Lectures	75
	Laboratory practicals focusing on methodology implementation and case	75

	studies in small student groups	
	Team projects on a case study	
	Field trip/ Personal assignment	
	Total contact hours and training	150
STUDENTS EVALUATION	Written exams	

5. BIBLIOGRAPHY

-Proposed bibliography

1. Biology of Fishes. Bone O. and Moore R.H., Pedio Publications. Eudoxus code: 68402738 (IN GREEK)
2. Ichthyology. Neofitou C. and Neofitou N. University Studio Press. Eudoxus code: 68372912 (IN GREEK)

-Proposed scientific journals

Journal of Fish Biology, Aquaculture, Applied Animal Behaviour Science