

Liverpool John Moores University

Title: MARINE AND FRESHWATER BIOLOGY
Status: Definitive
Code: **5004NATSCI** (112581)
Version Start Date: 01-08-2015

Owning School/Faculty: Natural Sciences & Psychology
Teaching School/Faculty: Natural Sciences & Psychology

Team	Leader
Simone Durr	Y
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Academic Level: FHEQ5 **Credit Value:** 24.00 **Total Delivered Hours:** 55.00
Total Learning Hours: 240 **Private Study:** 185

Delivery Options

Course typically offered: Standard Year Long

Component	Contact Hours
Lecture	25.000
Off Site	12.000
Practical	10.000
Workshop	8.000

Grading Basis: 40 %

Assessment Details

Category	Short Description	Description	Weighting (%)	Exam Duration
Presentation	AS1	Poster	40.0	
Portfolio	AS2	Practical Report Portfolio	60.0	

Aims

To provide a broad-based foundation to major biological, physico-chemical and oceanographic features of the marine and freshwater environment on a world-wide

basis. To introduce marine and freshwater habitat types and their communities and to examine selected habitats in terms of general ecological principles and animal behaviour. To examine the exploitation of marine and freshwater resources and potential sources of damage and threats to marine and freshwater ecosystems. To adopt practical field and laboratory sampling and analysis techniques relevant to the study of marine and freshwater biology.

Learning Outcomes

After completing the module the student should be able to:

- 1 Critically evaluate the differences and similarities in biological and physical terms including oceanography and freshwater flow patterns, between a wide range of marine and freshwater habitat types found in various parts of the world and be aware of plant and animal distribution, zonation, foodwebs, animal behaviour, adaptations and interactions from a global to a micro-scale and taking into account biotic and abiotic impacts but also conservation issues, artificial substrata, species invasions, fisheries, aquaculture, abstraction, impoundments, pollution, global climate change and ocean acidification.
- 2 Utilise field and laboratory equipment to sample, identify and analyse marine and freshwater biological samples presenting the results and critical interpretation in a report portfolio.

Learning Outcomes of Assessments

The assessment item list is assessed via the learning outcomes listed:

Poster	1
Portfolio	2

Outline Syllabus

Introduction to basic limnology and oceanography (global current patterns, causes of surface and subsurface currents, stratification, Coriolis force). Productivity in the marine and freshwater environment (phytoplankton, macroscopic algae, macrophytes, methods of assessing productivity, global patterns of productivity, influence on other organisms).

Intertidal and subtidal biology (influence of tides, waves and other abiotic factors, zonation, concept of indicator species, community patterns, categories of shore types).

Communities of the standing waters (littoral, benthic, limnetic, profundal) and flowing waters (channel, riparian). Characteristics of marine habitat types found in different parts of the world (rocky shores, sandy beaches, coral reefs, mangrove shores, estuaries). Exploitation of marine (e.g. micro algae, fisheries, whales and other marine mammals, aquaculture) and freshwater resources (abstraction, impoundments fisheries). Marine and freshwater pollution. Biofouling. Species invasions. Behaviour of key species in the habitats.

Learning Activities

The module is delivered through lectures, practical work in the field and laboratory (practical, offsite, workshop).

Notes

This module comprises a broad introduction to fundamental aspects of marine and freshwater biology, including basic oceanography, limnology and productivity in the marine and freshwater environment. Different marine and freshwater habitat types found in various parts of the world are introduced, and their biological (e.g. ecology, animal behaviour) and physical characteristics are discussed. The exploitation and conservation of these ecosystems are considered.