Module Specification

Marine Ecosystems

Version: 2022-23, v5.0, 27 Jul 2022

Contents

Part 1: Information

Module title: Marine Ecosystems

Module code: USSK55-15-3

Level: Level 6

For implementation from: 2022-23

UWE credit rating: 15

ECTS credit rating: 7.5

Faculty: Faculty of Health & Applied Sciences

Department: HAS Dept of Applied Sciences

Partner institutions: None

Delivery locations: Frenchay Campus

Field: Applied Sciences

Module type: Standard

Pre-requisites: Life on Earth 2022-23

Excluded combinations: None

Co-requisites: None

Continuing professional development: No

Professional, statutory or regulatory body requirements: None

Part 2: Description

Overview: Pre-requisites: Students must have taken USSK5C-30-1 Life on Earth or equivalent

Features: Not applicable

Educational aims: See Learning Outcomes

Outline syllabus: Formation of marine ecosystems: The formation and evolution of estuarine and marine ecosystems. Classification of marine divisions. Biological features of the marine environment. Properties and function of estuarine, neritic, oceanic and abyssal ecosystems.

Marine plankton: Classification of marine plankton, marine phytoplankton, zooplankton, meroplankton and holoplankton. Seasonality of phytoplankton communities the 'Match and Mis-match' paradigm. Factors affecting the distribution and abundance of zooplankton. The role of plankton in estuaries. Methods for sampling plankton.

Marine Nekton: Introduction to nektonic organisms. Biology and ecology of fishes and sea mammals. Nekton taxonomy. Fish communities of estuaries. Commercial species and the fishing industry. Environmental Impact of commercial fishing techniques - trawling, long lining and gill nets. By-catches and over fishing.

Marine benthic communities: Types and characteristics of substrata. Classification of benthic communities. The measurement and causation of benthic diversity. Feeding and nutrients - deposit, suspension, filter feeders, bioturbation and biodeposition. The ecology of rocky shores. Factors affecting zonation on shores. Intertidal plants. Factors which influence settlement and colonisation. Introduction to the deep sea and adaptations of deep sea organisms.

Tropical marine ecosystems: Introduction to tropical marine ecosystems. Ecology and importance of sea grass meadows and mangroves. Natural and anthropogenic influences on tropical marine ecosystems and mitigation strategies.

Marine resources: Threats to marine resources at the local and global level. The importance of marine biodiversity and conservation approaches. The potential role of mari-culture in future food security.

Part 3: Teaching and learning methods

Teaching and learning methods: Not applicable

Module Learning outcomes: On successful completion of this module students will achieve the following learning outcomes.

MO1 Review the principles which underlie the formation of marine ecosystems and critically discuss current theories in marine ecology

MO2 Compare the factors that affect diversity and productivity of different marine ecosystems

MO3 Undertake a range of survey and analytical techniques to collect biological and physico-chemical data

MO4 Use a wide range of resources that support marine ecology research methods and problem solving

Hours to be allocated: 150

Contact hours:

Independent study/self-guided study = 82 hours

Face-to-face learning = 68 hours

Total = 150

Reading list: The reading list for this module can be accessed at readinglists.uwe.ac.uk via the following link https://uwe.rl.talis.com/modules/ussk55-15-3.html

Part 4: Assessment

Assessment strategy: The assessment strategy has been designed to support and enhance the development of both subject-based and generic key skills, whilst ensuring that the modules learning outcomes are attained. The focus is on assessments that link directly to employability skills as described below.

The coursework comprises a Field Report which is based on the residential field course. This report requires the detailed recording of a range of environmental

variables whilst in the field, followed by thorough analysis and interpretation of these data. This report includes critical review of the methodology used, comparison to ecological theory and evaluation in respect of published literature and online data. The recording and analysis of field data a vital skill for environmental students. Furthermore, students need to know not just how to undertake a particular field survey but to be aware of the limitations and appropriateness of each method used. This report provides students with an opportunity to develop scientific report writing skills which are in great demand by employers. To further enhance learning, by putting the material into context, findings from the field reports are discussed in the lectorials. Consequently this assessment can described as an assessment for learning and employability.

Component A is an online exam, with a 24-hour window for completion. The exam will provide students with an opportunity to demonstrate both their ability to research, prioritise information and produced a structured, evidence based answer. This assessment links directly to requests from employers as they require graduates proficient at researching and scientific writing under pressure.

Formative feedback is available to students throughout the module through group discussions that occur repeatedly during the residential field course and during tutorials and practical sessions. Students are provided with formative feed-forward prior to the Field Report submission and for their exam through a revision and exam preparation session.

Assessment components:

Examination (Online) - Component A (First Sit)
Description: Examination
Weighting: 50 %
Final assessment: Yes
Group work: No
Learning outcomes tested: MO1, MO2

Report - Component B (First Sit)

Description: 2000 word report
Weighting: 50 %
Final assessment: No
Group work: No
Learning outcomes tested: MO2, MO3, MO4

Report - Component B (Resit)
Description: 2000 word report
Weighting: 50 %
Final assessment: No
Group work: No
Learning outcomes tested:

Examination (Online) - Component A (Resit)
Description: Online examination (24 hours)
Weighting: 50 %
Final assessment: Yes
Group work: No
Learning outcomes tested:

Part 5: Contributes towards

This module contributes towards the following programmes of study:

Integrated Wildlife Conservation {Top-Up} [Sep][FT][Frenchay][1yr] BSc (Hons) 2022-23

Biological Sciences [Sep][FT][Frenchay][3yrs] BSc (Hons) 2020-21

Biological Sciences [Sep][FT][Frenchay][4yrs] MSci 2020-21

Environmental Science [Sep][FT][Frenchay][3yrs] BSc (Hons) 2020-21

Wildlife Ecology and Conservation Science [Sep][FT][Frenchay][4yrs] MSci 2020-21

Environmental Science [Sep][FT][Frenchay][4yrs] MSci 2020-21

Wildlife Ecology and Conservation Science [Sep][FT][Zoo][3yrs] BSc (Hons) 2020-21

Wildlife Ecology and Conservation Science {Foundation} [Sep][FT][Frenchay][5yrs] MSci 2019-20

Biological Sciences {Foundation} [Sep][FT][Frenchay][4yrs] BSc (Hons) 2019-20

Biological Sciences [Sep][SW][Frenchay][4yrs] BSc (Hons) 2019-20

Biological Sciences [Sep][SW][Frenchay][5yrs] MSci 2019-20

Biological Sciences {Foundation} [Sep][FT][Frenchay][5yrs] MSci 2019-20

Wildlife Ecology and Conservation Science [Sep][SW][Frenchay][5yrs] MSci 2019-20

Environmental Science [Sep][SW][Frenchay][4yrs] BSc (Hons) 2019-20

Environmental Science {Foundation} [Sep][FT][Frenchay][4yrs] BSc (Hons) 2019-20

Environmental Science {Foundation} [Sep][FT][Frenchay][5yrs] MSci 2019-20

Environmental Science [Sep][SW][Frenchay][5yrs] MSci 2019-20

Wildlife Ecology and Conservation Science {Foundation} [Sep][FT][Zoo][4yrs] BSc (Hons) 2019-20

Wildlife Ecology and Conservation Science [Sep][SW][Zoo][4yrs] BSc (Hons) 2019-20

Environmental Science {Foundation} [Sep][SW][Frenchay][5yrs] BSc (Hons) 2018-19

Wildlife Ecology and Conservation Science {Foundation} [Sep][SW][Frenchay][6yrs] MSci 2018-19

Biological Sciences {Foundation} [Sep][SW][Frenchay][5yrs] BSc (Hons) 2018-19

Environmental Science {Foundation} [Sep][SW][Frenchay][6yrs] MSci 2018-19

Biological Sciences {Foundation} [Sep][SW][Frenchay][6yrs] MSci 2018-19

Wildlife Ecology and Conservation Science {Foundation} [Sep][SW][Zoo][5yrs] BSc (Hons) 2018-19