



Module Specification

Marine Ecosystems

Version: 2023-24, v6.0, 19 Jun 2023

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Part 1: Information

Module title: Marine Ecosystems

Module code: USSK55-15-3

Level: Level 6

For implementation from: 2023-24

UWE credit rating: 15

ECTS credit rating: 7.5

Faculty: Faculty of Health & Applied Sciences

Department: HAS Dept of Applied Sciences

Partner institutions: None

Field: Applied Sciences

Module type: Module

Pre-requisites: Life on Earth 2023-24

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: A variety of learning approaches will be used to allow students to develop both field and laboratory techniques in addition to

acquiring contemporary in-depth knowledge in the field of marine ecology from the materials provided and the timetabled interactive sessions. Taught sessions at UWE will utilise TEL where possible, to support a pedagogy of Inductive Learning where the students will engage in facilitated activities such as lectorials, debates, case studies, problem based learning etc.

Lectorials will provide contexts and discussion opportunities with peers and staff and will help guide student-centred learning. Practical sessions will provide opportunities to examine marine organisms to demonstrate biological traits or ecological theory discussed in lectorials. Tutorial sessions provide opportunities for data handling and interpretation, and discussions with academic staff. The module includes work with an emphasis placed on undertaking and learning ecological survey techniques, including identification of marine organisms. Team-working skills will be promoted through group work. Expert opinion will be accessed via site visits and communication with statutory and non-governmental marine organisations.

Support material such as DVDs, relevant texts, internet and electronic resources (e.g. 'TED talks' series), will be signposted to students or made available for use both in formal and informal sessions. Student learning will be supported through the University's E-Learning Environment, Blackboard.

Scheduled learning includes lectorials, tutorials and laboratory practical classes.

Independent learning includes hours engaged with essential reading, assignment preparation and completion etc. These sessions constitute an average time per level.

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](https://uwe.rl.talis.com/modules/ussk55-15-3.html) via the following link <https://uwe.rl.talis.com/modules/ussk55-15-3.html>

Part 4: Assessment

Assessment strategy: Assessment 1 is 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 be described as an assessment for learning and employability.

Assessment 2 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 tasks:**Report (First Sit)**

Description: 2000 word report

Weighting: 50 %

Final assessment: No

Group work: No

Learning outcomes tested: MO2, MO3, MO4

Examination (Online) (First Sit)

Description: Online examination (24 hours)

Weighting: 50 %

Final assessment: Yes

Group work: No

Learning outcomes tested: MO1, MO2

Report (Resit)

Description: 2000 word report

Weighting: 50 %

Final assessment: No

Group work: No

Learning outcomes tested: MO2, MO3, MO4

Examination (Online) (Resit)

Description: Online examination (24 hours)

Weighting: 50 %

Final assessment: Yes

Group work: No

Learning outcomes tested: MO1, MO2

Part 5: Contributes towards

This module contributes towards the following programmes of study:

Integrated Wildlife Conservation {Top-Up} [Frenchay] BSc (Hons) 2023-24

Environmental Science [Sep][FT][Frenchay][3yrs] BSc (Hons) 2021-22

Biological Sciences [Sep][FT][Frenchay][3yrs] BSc (Hons) 2021-22

Wildlife Ecology and Conservation Science [Sep][FT][Frenchay][4yrs] MSci 2021-22

Environmental Science [Sep][FT][Frenchay][4yrs] MSci 2021-22

Biological Sciences [Sep][FT][Frenchay][4yrs] MSci 2021-22

Wildlife Ecology and Conservation Science [Sep][FT][Zoo][3yrs] BSc (Hons) 2021-22

Biological Sciences [Sep][SW][Frenchay][4yrs] BSc (Hons) 2020-21

Biological Sciences [Sep][SW][Frenchay][5yrs] MSci 2020-21

Wildlife Ecology and Conservation Science [Sep][SW][Frenchay][5yrs] MSci 2020-21

Environmental Science [Sep][SW][Frenchay][4yrs] BSc (Hons) 2020-21

Environmental Science {Foundation} [Sep][FT][Frenchay][4yrs] BSc (Hons) 2020-21

Wildlife Ecology and Conservation Science {Foundation} [Sep][FT][Zoo][4yrs] BSc (Hons) 2020-21

Wildlife Ecology and Conservation Science {Foundation} [Sep][FT][Frenchay][5yrs] MSci 2020-21

Environmental Science {Foundation} [Sep][FT][Frenchay][5yrs] MSci 2020-21

Environmental Science [Sep][SW][Frenchay][5yrs] MSci 2020-21

Biological Sciences {Foundation} [Sep][FT][Frenchay][5yrs] MSci 2020-21

Wildlife Ecology and Conservation Science [Sep][SW][Zoo][4yrs] BSc (Hons) 2020-21

Biological Sciences {Foundation} [Sep][FT][Frenchay][4yrs] BSc (Hons) 2020-21

Wildlife Ecology and Conservation Science {Foundation} [Sep][SW][Frenchay][6yrs] MSci 2019-20

Biological Sciences {Foundation} [Sep][SW][Frenchay][5yrs] BSc (Hons) 2019-20

Biological Sciences {Foundation} [Sep][SW][Frenchay][6yrs] MSci 2019-20

Environmental Science {Foundation} [Sep][SW][Frenchay][5yrs] BSc (Hons) 2019-20

Environmental Science {Foundation} [Sep][SW][Frenchay][6yrs] MSci 2019-20

Wildlife Ecology and Conservation Science {Foundation} [Sep][SW][Zoo][5yrs] BSc (Hons) 2019-20