



## **Module Specification**

### **Marine Ecosystems**

Version: 2021-22, v3.0, 10 Jun 2022

#### **Contents**

<b>Module Specification .....</b>	<b>1</b>
<b>Part 1: Information .....</b>	<b>2</b>
<b>Part 2: Description .....</b>	<b>2</b>
<b>Part 3: Teaching and learning methods .....</b>	<b>3</b>
<b>Part 4: Assessment.....</b>	<b>5</b>
<b>Part 5: Contributes towards .....</b>	<b>7</b>

## Part 1: Information

**Module title:** Marine Ecosystems

**Module code:** USSK55-15-3

**Level:** Level 6

**For implementation from:** 2021-22

**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 2021-22

**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

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

**MO3** Critically discuss current theories in marine ecology

**MO4** Undertake a range of survey and analytical techniques to collect biological and physico-chemical data

**MO5** 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 = 117 hours

Face-to-face learning = 33 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:** 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 Report based on real world data. This report requires the detailed and thorough data analysis and interpretation of a range of environmental variables. 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 reports are discussed in the lectorials. Consequently this assessment can be described as an assessment for learning and employability.

Component A is an online exam, to be completed within a 24 hour window. This assessment will provide students with an opportunity to demonstrate both their ability to research, prioritise information and produce 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 Report submission and for their exam through a revision and exam preparation session, and through support materials supplied through Blackboard.

#### **Assessment components:**

##### **Examination (Online) - Component A (First Sit)**

Description: Examination

Weighting: 50 %

Final assessment: Yes

Group work: No

Learning outcomes tested: MO1, MO2, MO3

##### **Report - Component B (First Sit)**

Description: 2000 word report

Weighting: 50 %

Final assessment: No

Group work: No

Learning outcomes tested: MO2, MO4, MO5

##### **Examination (Online) - Component A (Resit)**

Description: Online examination (24 hours)

Weighting: 50 %

Final assessment: Yes

Group work: No

Learning outcomes tested:

**Report - Component B (Resit)**

Description: 2000 word report

Weighting: 50 %

Final assessment: No

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)  
2021-22

Biological Sciences [Sep][FT][Frenchay][3yrs] BSc (Hons) 2019-20

Wildlife Ecology and Conservation Science [Sep][FT][Zoo][3yrs] BSc (Hons) 2019-20

Biological Sciences [Sep][FT][Frenchay][4yrs] MSci 2019-20

Wildlife Ecology and Conservation Science [Sep][FT][Frenchay][4yrs] MSci 2019-20

Environmental Science [Sep][FT][Frenchay][3yrs] BSc (Hons) 2019-20

Environmental Science [Sep][FT][Frenchay][4yrs] MSci 2019-20

Biological Sciences [Sep][SW][Frenchay][4yrs] BSc (Hons) 2018-19

Biological Sciences [Sep][SW][Frenchay][5yrs] MSci 2018-19

Environmental Science [Sep][SW][Frenchay][4yrs] BSc (Hons) 2018-19

Environmental Science {Foundation} [Sep][FT][Frenchay][4yrs] BSc (Hons) 2018-19

Wildlife Ecology and Conservation Science [Sep][SW][Zoo][4yrs] BSc (Hons) 2018-19

Wildlife Ecology and Conservation Science {Foundation} [Sep][FT][Zoo][4yrs] BSc (Hons) 2018-19

Biological Sciences {Foundation} [Sep][FT][Frenchay][5yrs] MSci 2018-19

Wildlife Ecology and Conservation Science [Sep][SW][Frenchay][5yrs] MSci 2018-19

Wildlife Ecology and Conservation Science {Foundation} [Sep][FT][Frenchay][5yrs] MSci 2018-19

Biological Sciences {Foundation} [Sep][FT][Frenchay][4yrs] BSc (Hons) 2018-19

Environmental Science {Foundation} [Sep][FT][Frenchay][5yrs] MSci 2018-19

Environmental Science [Sep][SW][Frenchay][5yrs] MSci 2018-19