Module Specification

Hydrology to Oceanography

Version: 2025-26, v2.0, Approved

Contents

Part 1: Information

Module title: Hydrology to Oceanography

Module code: USSKNA-15-2

Level: Level 5

For implementation from: 2025-26

UWE credit rating: 15

ECTS credit rating: 7.5

College: College of Health, Science & Society

School: CHSS School of Applied Sciences

Partner institutions: None

Field: Applied Sciences

Module type: Module

Pre-requisites: The Earth 2025-26

Excluded combinations: None

Co-requisites: None

Continuing professional development: No

Professional, statutory or regulatory body requirements: None

Part 2: Description

Overview: The Hydrology to Oceanography module introduces students to key principles and practical techniques in hydrology and oceanography, providing an in-depth understanding of aquatic environments. Students will gain hands-on experience with industry-standard field and laboratory techniques, data analysis, and teamwork skills.

Pre-requisite: Students must have passed USSJFB-30-1 The Earth before starting this module.

Features: Not applicable

Educational aims: This module aims to provide students with practical experience of assessing water quality and a basic understanding of key oceanography principals. This module also supports students to develop their data analysis, interpretation and oral communication skills in advance of their research dissertations.

Outline syllabus: The indicative syllabus of this module is as follows:

This module will introduce you to the disciplines of hydrology and oceanography focusing on the underlying principles, sampling techniques and their application to aquatic environments.

Hydrology and water catchment science.
Examination of the water cycle, determining water budgets, water stores, transfers. Water catchments, local and global catchment systems, fluvial systems. Catchment level science. Understanding fresh, estuarine and marine waters.

Contemporary aquatic sampling techniques
Real-time, in-line sensors, sonds, water collection units , techniques for measuring nutrients, chlorophyll, dissolved organic matter (DOM), particulate organic matter (POM), and dissolved oxygen (DO). Seasonal data.

Oceanography:
Introduction to the ocean sciences, chemical oceanography, physical oceanography, biological oceanography and productivity including up and down-welling regions. Understanding ocean circulation, use of drogues residence times, Coriolis force, waves, the properties of seawater. The global oceans and changing climate, climate and oceans.

Skills:
Through this module students will gain practical field and laboratory experience of

aquatic sampling techniques using industry recognised and contemporary methods and instrumentation.

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 fields of hydrology and oceanography from the timetabled interactive sessions.

Interactive lectures will provide context and discussion opportunities with peers and staff and will help guide student-centred learning. Practical sessions will provide opportunities to conduct industry recognised sampling and contemporary sampling and analysis to demonstrate theory discussed in lectures. Tutorial sessions provide opportunities for data handling and interpretation, and discussions with academic staff. Team-working skills will be promoted through group work.

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

MO1 Undertake appropriate field sampling and laboratory analysis of aquatic systems and conduct relevant aquatic data analysis.

MO2 Interpret multivariate aquatic datasets using underlying principles of hydrological and ocean systems and clearly communicate findings.

Hours to be allocated: 150

Contact hours:

Independent study/self-guided study = 114 hours

Face-to-face learning = 36 hours

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/usskna-15-2.html

Part 4: Assessment

Assessment strategy: Assessment: Presentation (20 minutes)
A 10 min presentation (with 10 min Q+A) based around the practical aspects of the module.
The assessment is designed allow the student to research in depth an aspect of the course whilst understanding the broader concepts and context. The assessment is designed to support and assess the student's ability to acquire and analyse a multivariate aquatic dataset and interpret the results. Students will analyse, present and interpret data collected throughout the module. The Q+A will allow students to demonstrate their wider understanding of the topics and how they relate to real world issues in hydrology and oceanography.

Students will submit and receive formative feedback on their draft research questions early in the module which will support the development of the presentation. In addition, there is a PC practical to support students to develop their data analysis and presentation skills, as well as a number of skills workshops specifically focused around the presentation preparation including further opportunities for formative feedback.

Assessment tasks:

Presentation (First Sit)
Description: Presentation with Q+A (20 minutes)
Weighting: 100 %
Final assessment: Yes
Group work: No
Learning outcomes tested: MO1, MO2

Presentation (Resit)
Description: Presentation with Q+A (20 minutes)
Weighting: 100 %
Final assessment: Yes
Group work: No

Learning outcomes tested: MO1, MO2

Part 5: Contributes towards

This module contributes towards the following programmes of study:

Environmental Science {Foundation} [Frenchay] BSc (Hons) 2023-24

Environmental Science {Foundation} [Frenchay] MSci 2023-24

Environmental Science [Frenchay] BSc (Hons) 2024-25

Environmental Science [Frenchay] - WITHDRAWN MSci 2024-25