



Module Specification

Atmosphere and Climate

Version: 2025-26, v3.0, Approved

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Part 1: Information

Module title: Atmosphere and Climate

Module code: USSKN4-15-2

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: In this module students will focus on studying the Earth's atmosphere and its central role in climate change.

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

Features: Not applicable

Educational aims: Key graduate skills are developed in this module including data collection and analysis including GIS. Chemistry analytical skills including spectroscopy, chromatography and mass spectrometry are also developed.

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

Atmosphere Structure, Dynamics and Mixing

The structure and dynamics of the Earth's atmosphere, weather systems and atmospheric composition. Earth surface-atmosphere interactions, atmospheric chemistry and pollution.

Global Climate

Detailed study of the radiative forcing atmospheric species, and Earth system processes that contribute to climate change.

Palaeoclimate

Earth history, Palaeoclimate records, climate proxies and geochemical methods.

Climate predictions

Global Climate models (GCMs), climate feedbacks, risks, tipping points and future scenarios.

Part 3: Teaching and learning methods

Teaching and learning methods: Experiential learning will be achieved through laboratory practicals, group fieldwork and computer workshops. This will incorporate a diverse range of chromatographic and spectroscopic methods.

Specifically students will gain experience and develop skills in the following areas:

Air sampling techniques

Air pollution monitoring

Approaches for both the characterisation and quantification of atmospheric species.

Palaeoclimate methods, calculations and proxies

An introduction to climate modelling.

Mapping atmospheric species.

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

MO1 Discuss the physical and chemical characteristics of the atmosphere and understand the key processes linked with changing climate and global environmental change.

MO2 Describe and compare the use of contemporary analytical and modelling techniques utilised in climate science and gain practical experience in a range of analytical techniques for measuring and evaluating atmospheric samples.

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](https://uwe.rl.talis.com/modules/usskn4-15-2.html) via the following link <https://uwe.rl.talis.com/modules/usskn4-15-2.html>

Part 4: Assessment

Assessment strategy: Assessment: Portfolio

Air Quality Portfolio.

Students will submit an urban air quality report (1500 words) along with the results of air analysis laboratory sessions and air quality and climate science short quizzes undertaken post lecture. This assessment covers the diverse range of theory and practical skills used in atmospheric science from monitoring to modelling.

Assessment tasks:

Portfolio (First Sit)

Description: Air quality portfolio (1500 words)

Weighting: 100 %

Final assessment: Yes

Group work: No

Learning outcomes tested: MO1, MO2

Portfolio (Resit)

Description: Air quality portfolio (1500 words).

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