Module Specification

Climate Change: Challenges for the 21st Century

Version: 2025-26, v2.0, 19 Feb 2025

Contents

Part 1: Information

Module title: Climate Change: Challenges for the 21st Century

Module code: UBGMRR-15-2

Level: Level 5

For implementation from: 2025-26

UWE credit rating: 15

ECTS credit rating: 7.5

College: College of Arts, Technology and Environment

School: CATE School of Architecture and Environment

Partner institutions: None

Field: Geography and Environmental Management

Module type: Module

Pre-requisites: Environmental Challenges 2024-25

Excluded combinations: None

Co-requisites: None

Continuing professional development: No

Professional, statutory or regulatory body requirements: None

Part 2: Description

Overview: This module examines the enhanced greenhouse effect and climate change for the 21st century. The syllabus begins by examining natural causes of climate change during Earth's recent history in order to contextualise projections for the 21st century. Next, students examine how computer models are used to project future climate and environmental change and to identify climate-related hazards. Finally, examples of climate-related hazards are used to evaluate the adaptation and mitigation challenges for human society for the 21st century. As part of the module students will also have an opportunity to reflect on their development as a learner in the field of climate science and change.

Features: Not applicable

Educational aims: This module builds on introductory climate change content at Level 4. The key theme underpinning this module relates to climate change being a wicked problem facing society in the 21st century. Throughout the module a diverse range of topics and issues will be explored highlighting different dimensions of the wicked nature of climate change. Students will need to explore cross-cutting themes such as uncertainty, contested and/or incomplete knowledge, natural variability and interconnected social-economic and geopolitical issues, using case studies to support their assessment.

Outline syllabus: Key topic areas on the module include:

Natural patterns and drivers of of climate change within the Quaternary geological period.

Anthropogenic greenhouse gas emissions and the enhanced greenhouse effect.

Computer-based approaches to modelling future climate and environmental change

Uncertainties in scenarios for future greenhouse gas emissions

How internal feedback mechanisms influence our climate.

Key tipping points within the earth system that may result in abrupt change.

Examples of incomplete and/or contested knowledge about how our earth system is changing.

How climate change is resulting more frequent and intense extreme weather events and the challenges associated with extreme event attribution.

Mitigation and adaption strategies for responding to climate change and extreme weather events.

Examples of where socio-economic and geopolitical challenges are intertwined with climate change.

Part 3: Teaching and learning methods

Teaching and learning methods: The module will be delivered through a series of interactive lectorials and workshops. In each of the timetabled sessions students will be introduced to a topic area and relevant case studies which highlight how climate change is a wicked problem for the 21st century. Activities will be built into these sessions to engage students in the topic of discussion. Indicative topics are listed above. In these workshops formative feedback will also be available for students as they produce their assessed reports.

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

MO1 Demonstrate a critical understanding of earth system processes and how climate change is changing the planetary system.

MO2 Explain using case studies how climate change is a wicked problem for the 21st century.

MO3 Produce coherent written accounts that demonstrate an understanding of climate change science and their personal and professional development as a learner in this field.

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/ubgmrr-15-2.html

Part 4: Assessment

Assessment strategy: The module is assessed by an individual report which consists of two broad sections.

Students will need to produce a report which demonstrates knowledge and understanding of key earth system processes and highlights how climate change is a wicked problem for the 21st century. Students will be expected to integrate case studies which exemplify their arguments. Further students will be expected to draw upon relevant academic and policy literature, as well as secondary datasets to support their work.

Students will also produce a reflective essay which allows them to reflect on their personal and professional development over the course of the module and as learners in the field of climate change and the associated uncertainty, incomplete and contested knowledge. Students will be expected to refer to their programmes graduate attributes and other relevant benchmarks in their reflection.

Throughout the module formative feed-forward opportunities will be built into the curriculum to support students in the development of their report.

Assessment tasks:

Report (First Sit)
Description: Individual report (3500 words)
Weighting: 100 %
Final assessment: Yes
Group work: No
Learning outcomes tested: MO1, MO2, MO3

Report (Resit)
Description: Individual report (3500 words)
Weighting: 100 %

Final assessment: Yes

Group work: No

Learning outcomes tested: MO1, MO2, MO3

Part 5: Contributes towards

This module contributes towards the following programmes of study:

Geography [Frenchay] BSc (Hons) 2024-25

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

Geography [Frenchay] BSc (Hons) 2024-25

Environmental Management {Apprenticeship-UWE}[Frenchay] BSc (Hons) 2022-23