



Module Specification

Climate Change: Challenges for the 21st Century

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Part 1: Information

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

Module code: UBGMR-15-2

Level: Level 5

For implementation from: 2022-23

UWE credit rating: 15

ECTS credit rating: 7.5

Faculty: Faculty of Environment & Technology

Department: FET Dept of Geography & Environmental Mgmt

Partner institutions: None

Delivery locations: Frenchay Campus

Field: Geography and Environmental Management

Module type: Standard

Pre-requisites: Environmental Challenges 2021-22

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.

Features: Module Entry requirements: 90 credits at level one

Educational aims: See Learning Outcomes.

In addition to the Learning Outcomes, the educational experience may explore, develop, and practise but not formally discretely assess the following:

In-class discussions of emerging climate change science, and the policies for climate change mitigation and adaptation

Outline syllabus: Part one – climate change and Earth system science;

natural patterns of climate change within the Quaternary geological period;

natural causes of Quaternary climate change: processes and feedbacks in the Earth system;

anthropogenic greenhouse gas emissions and the enhanced greenhouse effect.

Part two – modelling 21st century climate and environmental change

computer-based approaches to modelling future climate and environmental change;

uncertainties in scenarios for future greenhouse gas emissions;

uncertainties in Earth system feedbacks; abrupt climate and environmental change.

Part three – using model projections to identify key climate-related challenges for the 21st century

modelled projections for climate-related hazards for the 21st century (indicative examples: heat waves, wildfires, hurricanes, vector-borne diseases);

adaptation strategies to reduce the vulnerability of at-risk communities;

mitigation strategies (global climate change policy to reduce greenhouse gas emissions and the enhanced greenhouse effect)

Part 3: Teaching and learning methods

Teaching and learning methods: See assessment strategy

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

MO1 Contextualise post-industrial and projected 21st-century atmospheric greenhouse gas concentrations and climate change within geological timescales

MO2 Explain how uncertainties in our understanding of Earth system processes and feedbacks are carried through into projections for 21st century climate change and climate-related hazards

MO3 Critically evaluate models of 21st century climate change and climate change-related hazards

MO4 Demonstrate a critical understanding of the key approaches to climate change related hazard adaptation and mitigation

MO5 Demonstrate critical engagement with academic and policy literature

MO6 Produce coherent written accounts that demonstrate an understanding of climate change science and their 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

Total = 150

Reading list: The reading list for this module can be accessed at [readinglists.uwe.ac.uk](https://uwe.rl.talis.com/index.html) via the following link <https://uwe.rl.talis.com/index.html>

Part 4: Assessment

Assessment strategy: The module is assessed by an individual report, weighted at 100%. The report consists of three sections, each 1,000 words. The purpose of the

report is to:

assess the students' knowledge and understanding at key progression points in the module syllabus: the role of earth system feedbacks in natural climate change; uncertainty in future projections of anthropogenic climate change; critical evaluations of local adaptations versus climate change mitigation to reduce vulnerability in the 21st century.

enable students to reflect on their development as learners in an area of complex, uncertain and rapidly developing academic knowledge;

facilitate a "feed-forward" approach, where students use timely formative feedback to improve their performance in subsequent assignments.

Component A

Element 1 - Individual report. Learning outcomes 1-6.

report consists of three sections, each 1,000 words maximum;

The report will be assessed according to the following criteria:

the level of understanding of the science of climate change and / or climate-related hazards;

the level of engagement with key academic and / or policy literature;

the depth of reflection on the individual's development as a learner in an area of complex, uncertain and rapidly-developing academic knowledge;

clarity, coherence and literacy.

Formative work

Students will have opportunities for individual and group-based formative feedback on their report.

Resit information

Students who fail the module at the first attempt will be required to re-submit an individual report.

Assessment components:

Report - Component A (First Sit)

Description: Individual report (3000 words)

Weighting: 100 %

Final assessment: Yes

Group work: No

Learning outcomes tested: MO1, MO2, MO3, MO4, MO5, MO6

Report - Component A (Resit)

Description: Individual report (3000 words)

Weighting: 100 %

Final assessment: Yes

Group work: No

Learning outcomes tested: MO1, MO2, MO3, MO4, MO5, MO6

Part 5: Contributes towards

This module contributes towards the following programmes of study:

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

Geography [Sep][SW][Frenchay][4yrs] BSc (Hons) 2021-22

Geography {Foundation} [Sep][SW][Frenchay][5yrs] BSc (Hons) 2020-21

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

