Module Descriptor

Title	Global Climate Change Drivers		
Session	2026/27	**Status**	Published
Code	BIOL10030	**SCQF Level**	8
Credit Points	20	**ECTS (European Credit Transfer Scheme)**	10
School	**Health and Life Sciences**		
Module Co-ordinator	Christina Rodriguez		

Summary of Module

Global climate change is defined as the long-term shift in weather patterns across the planet. Since 200 years ago, humans have contributed to the release of carbon dioxide and other greenhouse gases into the atmosphere causing global temperatures to rise. This change in temperature results in long-term changes to the Earth's climate such as warming oceans, melting glaciers, rising sea levels, more frequent and intense heat waves, storms and droughts.

Natural and anthropogenic drivers to climate change are discussed: demographic structure and population; energy supply, demand and efficiency; economic growth, production and consumption trends; industry, transport; agriculture and land use; and waste.

This module covers the Earth's energy balance, the natural carbon cycle and how it is modified by human activities. Different technologies on carbon capture, storage and utilization (CCS and CCU) are studied.

By undertaking this module students will develop a range of 'I am UWS' Graduate Attributes.

Universal – development of critical thinking, ethically and research minded.

Work Ready – an effective problem solver, communicator and ambitious.

Successful – by being autonomous, resilient, and driven

Module Delivery Method	**On-Campus[1]**	**Hybrid[2]**	**Online[3]**	**Work -Based Learning[4]**
	☐	☒	☐	

[1] Where contact hours are synchronous/ live and take place fully on campus. Campus-based learning is focused on providing an interactive learning experience supported by a range of digitally-enabled asynchronous learning opportunities including learning materials, resources, and opportunities provided via the virtual learning environment. On-campus contact hours will be clearly articulated to students.

[2] The module includes a combination of synchronous/ live on-campus and online learning events. These will be supported by a range of digitally-enabled asynchronous learning opportunities including learning materials, resources, and opportunities provided via the virtual learning environment. On-campus and online contact hours will be clearly articulated to students.

[3] Where all learning is solely delivered by web-based or internet-based technologies and the participants can engage in all learning activities through these means. All required contact hours will be clearly articulated to students.

[4] Learning activities where the main location for the learning experience is in the workplace. All required contact hours, whether online or on campus, will be clearly articulated to students

				☐
Campuses for Module Delivery	☐ Ayr ☐ Dumfries	☒ Lanarkshire ☐ London ☐ Paisley	☐ Online / Distance Learning ☐ Other (specify)	
Terms for Module Delivery	Term 1 ☒	Term 2 ☐	Term 3 ☐	
Long-thin Delivery over more than one Term	Term 1 – Term 2 ☐	Term 2 – Term 3 ☐	Term 3 – Term 1 ☐	

Learning Outcomes	
L1	Analyse the different technologies on carbon capture, storage and utilization.
L2	Evaluate the Earth's energy balance and the different radiative agents.
L3	Demonstrate a detailed knowledge of GHG standards and protocols.
L4	Critically evaluate global climate change drivers and its interactions.
L5	

Employability Skills and Personal Development Planning (PDP) Skills	
SCQF Headings	**During completion of this module, there will be an opportunity to achieve core skills in:**
Knowledge and Understanding (K and U)	**SCQF 10** Demonstrate a critical understanding of the global climate change drivers. Demonstrate a knowledge and understanding of the CCS and CCU technologies and different climate forcing agents.
Practice: Applied Knowledge and Understanding	**SCQF 10** Synthesize information and gain a coherent understanding of the different climate change drivers. Use the knowledge gained to develop solutions to practical problems in a routine but unfamiliar context.
Generic Cognitive skills	**SCQF 10** Critically evaluate current research and policy on global climate change.
Communication, ICT and Numeracy Skills	**SCQF 10** Communicate effectively orally and in writing to your peers.
Autonomy, Accountability and Working with Others	**SCQF 10** Working in teams to perform practical work and to research and present information will require time management, organisational skills and an understanding of professional practice.

Prerequisites	**Module Code**	**Module Title**
	Other	

Co-requisites	Module Code	Module Title

Learning and Teaching	
In line with current learning and teaching principles, a 20-credit module includes 200 learning hours, normally including a minimum of 36 contact hours and maximum of 48 contact hours. Delivery of this module will use a hybrid learning approach. Core theory and concepts will be delivered using face to face or recorded lectures, tutorials and discussions. Students will be expected to select, evaluate and discuss relevant scientific literature on a variety of global climate change drivers.	
Learning Activities During completion of this module, the learning activities undertaken to achieve the module learning outcomes are stated below:	**Student Learning Hours** (Note: Learning hours include both contact hours and hours spent on other learning activities)
Lecture / Core Content Delivery	12
Tutorial / Synchronous Support Activity	12
Asynchronous Class Activity	12
Independent Study	164
n/a	
n/a	
TOTAL	200

Indicative Resources
The following materials form essential underpinning for the module content and ultimately for the learning outcomes: Fletcher, William D. and Smith, Craig B. Reaching Net Zero: What It Takes to Solve the Global Climate Crisis. Elsevier. 2020 Reichle, David E. The global carbon cycle and climate change: scaling ecological energetics from organism to the biosphere. Elsevier 2019. Rahimpour, M.R., Farsi, M., Makarem, M.A. Advances in carbon capture: methods, technologies and applications. Duxford Woodhead Publishing. 2020. Online resources from United Nations and Governments.
(N.B. Although reading lists should include current publications, students are advised (particularly for material marked with an asterisk*) to wait until the start of session for confirmation of the most up-to-date material)

Attendance and Engagement Requirements
In line with the Student Attendance and Engagement Procedure, Students are academically engaged if they are attending and participating in all timetabled programme activities including on-campus and online teaching sessions, asynchronous online learning activities, placement, work-based elements, course-related learning resources, and complete assessments and submit these on time. **For the purposes of this module, academic engagement equates to the following:**

Attendance to all online, on-campus classes and laboratory sessions.

Equality and Diversity
The University's Equality, Diversity and Human Rights Procedure can be accessed at the following link: UWS Equality, Diversity and Human Rights Code. In line with current legislation (Equality Act, 2010) and the UWS Equality, Diversity, and Human Rights Code, our modules are accessible and inclusive, with reasonable adjustment for different needs where appropriate. Module materials comply with University guidance on inclusive learning and teaching, and specialist assistive equipment, support provision and adjustment to assessment practice will be made in accordance with UWS policy and regulations. Where modules require practical and/or laboratory based learning or assessment required to meet accrediting body requirements the University will make reasonable adjustment such as adjustable height benches or assistance of a 'buddy' or helper.
(N.B. Every effort will be made by the University to accommodate any equality and diversity issues brought to the attention of the School)

Supplemental Information

Divisional Programme Board	**Biological Sciences Health**
Overall Assessment Results	☐ **Pass / Fail** ☒ **Graded**
Module Eligible for Compensation	☐ **Yes** ☒ **No** **If this module is eligible for compensation, there may be cases where compensation is not permitted due to programme accreditation requirements. Please check the associated programme specification for details.**
School Assessment Board	Biology
Moderator	James Turner
External Examiner	T Temple
Accreditation Details	
Module Appears in CPD catalogue	☐ **Yes** ☒ **No**
Changes / Version Number	1

Assessment (also refer to Assessment Outcomes Grids below)
Assessment 1
Class test (50%)
Assessment 2
Review/ Article/ Critique/ Paper (20%)
Assessment 3
Presentation (30%)
(N.B. (i) Assessment Outcomes Grids for the module (one for each component) can be found below which clearly demonstrate how the learning outcomes of the module will be assessed. (ii) An indicative schedule listing approximate times within the academic calendar when assessment is likely to feature will be provided within the Student Module Handbook.)

Component 1							
Assessment Type	**LO1**	**LO2**	**LO3**	**LO4**	**LO5**	**Weighting of Assessment Element (%)**	**Timetabled Contact Hours**
Class test (written)	☒	☒	☒	☒	☐	50	2

Component 2							
Assessment Type	**LO1**	**LO2**	**LO3**	**LO4**	**LO5**	**Weighting of Assessment Element (%)**	**Timetabled Contact Hours**
Review/ Article/ Critique/ Paper	☒	☒	☐	☐	☐	20	0

Component 3							
Assessment Type	**LO1**	**LO2**	**LO3**	**LO4**	**LO5**	**Weighting of Assessment Element (%)**	**Timetabled Contact Hours**
Presentation	☐	☐	☒	☒	☐	30	0
Combined total for all components						100%	2 hours

Change Control

What	When	Who