



Module Descriptor

Title	Global Climate change drivers		
Session	2024/25	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			
<p>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.</p> <p>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.</p> <p>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.</p> <p>By undertaking this module students will develop a range of 'I am UWS' Graduate Attributes.</p> <p>Universal – development of critical thinking, ethically and research minded.</p> <p>Work Ready – an effective problem solver, communicator and ambitious.</p> <p>Successful – by being autonomous, resilient, and driven</p>			

Module Delivery Method	On-Campus¹ <input type="checkbox"/>	Hybrid² <input checked="" type="checkbox"/>	Online³ <input type="checkbox"/>	Work -Based Learning⁴ <input type="checkbox"/>
Campuses for Module Delivery	<input type="checkbox"/> Ayr <input type="checkbox"/> Dumfries	<input checked="" type="checkbox"/> Lanarkshire <input type="checkbox"/> London <input type="checkbox"/> Paisley	<input type="checkbox"/> Online / Distance Learning <input type="checkbox"/> Other (specify)	
Terms for Module Delivery	Term 1 <input checked="" type="checkbox"/>	Term 2 <input type="checkbox"/>	Term 3 <input type="checkbox"/>	
Long-thin Delivery over more than one Term	Term 1 – Term 2 <input type="checkbox"/>	Term 2 – Term 3 <input type="checkbox"/>	Term 3 – Term 1 <input type="checkbox"/>	

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

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

	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.	
Learning Activities	Student Learning Hours
During completion of this module, the learning activities undertaken to achieve the module learning outcomes are stated below:	(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
Please select	
Please select	
TOTAL	200

Indicative Resources
<p>The following materials form essential underpinning for the module content and ultimately for the learning outcomes:</p> <p>Fletcher, William D. and Smith, Craig B. Reaching Net Zero: What It Takes to Solve the Global Climate Crisis. Elsevier. 2020</p> <p>Reichle, David E. The global carbon cycle and climate change: scaling ecological energetics from organism to the biosphere. Elsevier 2019.</p> <p>Rahimpour, M.R., Farsi, M., Makarem, M.A. Advances in carbon capture: methods, technologies and applications. Duxford Woodhead Publishing. 2020.</p>

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 regularly attending and participating in timetabled on-campus and online teaching sessions, asynchronous online learning activities, 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](#).

(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	<input type="checkbox"/> Pass / Fail <input checked="" type="checkbox"/> Graded
Module Eligible for Compensation	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> 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	Biological Sciences and Health
Moderator	James Turner
External Examiner	TBC
Accreditation Details	
Module Appears in CPD catalogue	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Changes / Version Number	1

Assessment (also refer to Assessment Outcomes Grids below)

Assessment 1

Class test (50%)

Assessment 2

Project work (50%)

Assessment 3

(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)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	50	2

Component 2

Assessment Type	LO1	LO2	LO3	LO4	LO5	Weighting of Assessment Element (%)	Timetabled Contact Hours
Review/article/ Critiques/Paper	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	20	0

Component 3

Assessment Type	LO1	LO2	LO3	LO4	LO5	Weighting of Assessment Element (%)	Timetabled Contact Hours
Presentation	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	30	0
Combined total for all components						100%	2 hours

Change Control

What	When	Who