

Basic details

UID	<input type="text"/>	Cohorts covered	Earliest cohort 2020-21	Latest cohort 2021-22
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Long title

New code  New short title

Brief description of module (approx. 600 chars.)

459 characters

Available as a standalone module/ short course?

Statutory details

Credit value	ECTS 5	CATS 10	Non-credit N	HECOS codes	<input type="text"/>
FHEQ level	<input type="text" value="Level 5"/>			<input type="text"/>	<input type="text"/>

Allocation of study hours

	Hours	
Lectures	16	
Group teaching		<i>Incl. seminars, tutorials, problem classes.</i>
Lab/ practical		
Other scheduled	14	<i>Incl. project supervision, fieldwork, external visits.</i>
Independent study	95	<i>Incl. wider reading/ practice, follow-up work, completion of assessments, revisions.</i>
Placement		<i>Incl. work-based learning and study that occurs overseas.</i>
Total hours	125	
ECTS ratio	25.00	

Project/placement activity

Is placement activity allowed?

Module delivery

Delivery mode	<input type="text" value="Taught/ Campus"/>	Other	<input type="text"/>
Delivery term	<input type="text"/>	Other	<input type="text" value="Terms 3"/>

## Ownership

Primary department	Physics
Additional teaching departments	May include guest lectures from other departments if deemed appropriate
Delivery campus	South Kensington

## Collaborative delivery

Collaborative delivery?

External institution	N/A
External department	N/A
External campus	N/A

## Associated staff

Role	CID	Given name	Surname
Module Leader		Helen	Brindley

## Learning and teaching

### Module description

Learning outcomes	<p>On completion of this module, you will be able to:</p> <ol style="list-style-type: none"><li>1) Explain the "greenhouse effect" using simple energy-balance models and what is meant by radiative forcing and feedback and how these relate to global warming</li><li>2) Discuss what controls the response time of the climate to anthropogenic activity and natural variability</li><li>3) Describe the strengths and weaknesses of our current climate-observing system,</li><li>4) Describe how pollution and climate are modelled on different scales, ranging from the local environment to the global Earth system</li><li>5) Explain the relation between energy production, energy consumption, and climate change</li><li>6) Demonstrate an awareness of climate-change mitigation and alternative energy</li><li>7) Explain how environmental monitoring and modelling influence legislation and policy.</li></ol>
Module content	<p>The module contains three sub-topics:</p> <ol style="list-style-type: none"><li>1) Climate Change and Earth Radiation</li><li>2) Energy and the Environment</li><li>3) Measurement, Modelling, and Policy</li></ol>

Learning and Teaching Approach	Students will be taught over a term using a combination of lectures, office hours and directed exercises.
Assessment Strategy	Final exam: 2 hours to probe understanding of learning outcomes, with one compulsory question, plus a further 2 out of 4 optional questions.
Feedback	Problem sheets are provided for all the core material. Full solutions are published online. Office hours (two per week) will be available for students to discuss the lectures and/or problem sheets. General feedback on written examinations for each module is provided in the form of written reports from the examiners for the students.
Reading list	<p>The module is self-contained and no additional books are required to be purchased by the students. Further discussion of material covered by the module can be found in:</p> <p>General:</p> <ul style="list-style-type: none"> <li>•Environmental Physics Sustainable Energy and Climate Change, 3rd Edition, E. Boeker &amp; R. van Grondelle</li> <li>•Climate Change 2013 - The Physical Science Basis, (IPCC), available at: <a href="http://www.ipcc.ch/report/ar5/wg1/">http://www.ipcc.ch/report/ar5/wg1/</a></li> </ul> <p>More specialised areas:</p> <ul style="list-style-type: none"> <li>•The Physics of Atmospheres, by John Houghton (mainly chapters 2-4 &amp; 12)</li> <li>•Atmospheric Science, an introductory survey, J. Wallace and P. Hobbs (Chapters 2 and 6)</li> <li>•Air Pollution and Global Warming: History, Science, and Solutions, 2nd Edition, M. Jacobson</li> <li>•Chemical oceanography and the marine carbon cycle, S. Emerson &amp; J. Hedges</li> </ul>

## Quality assurance

Date of first approval

Date of last revision

Date of this approval

## Office use only

QA Lead

Department staff

Date of collection

Module leader

Date exported

Date imported

Notes/ comments

