

PLANNING AND APPROVING A NEW CLIMATE CHANGE DEGREE

Designing and progressing an undergraduate degree around climate change entails multiple decisions on how interdisciplinarity is implemented and what skills should be prioritised. This reflects the need to balance advocacy and definable skills that will be necessary to deliver rapid climate change mitigation and adaptation.

The Natural Resources Institute at the University of Greenwich has developed a new climate change degree programme, building upon academics' involvement with authoring reports for the Intergovernmental Panel on Climate Change (IPCC), as well as direct involvement with populations vulnerable to climate impacts in the global South.

However, much of University of Greenwich research expertise (e.g. insect behaviour and physiology) reflects disciplines whose connection to climate change is tangible, but may not be as obvious as in other subjects. As such, a core focus in developing the new degree was to assess the teaching and research expertise across the institute, in order to identify which broad competencies and topics could be integrated into clear thematic areas and support the scaffolding of topics in defined modules.

The programme rationale aimed to build climate literacy and appropriate skills amongst

impending entrants in the workforce and the electorate. The main learning outcomes for achieving this is understanding and assessing the bottom-up implications of high-level mitigation and adaptation requirements, their scale and urgency, and the role of different actors, from governments to individuals. Subjects include climate risk assessment, carbon accounting, scenario development, law and equity, and advanced GIS.

The subjects offered are organised narratives that connect foundational principles, such as basic meteorological principles, to subjects that are more applied, e.g. climate change and food security. There is a concerted effort across the programme to represent relevant pillars of sustainability within the context of both climate change mitigation and adaptation. For example, the module on climate risk assessment includes aspects on climate economics, whilst the module on carbon accounting includes elements of environmental science.

KEY HIGHLIGHTS

- **A strong overarching narrative** is essential when designing a climate change degree programme that is interdisciplinary both within, and amongst, modules.
- **Emphasising the importance of skills** alongside climate advocacy becomes more credible when as much of the delivery team as possible is involved in module design.
- **A diverse disciplinary background** in (external and internal) approval panel members is essential in helping identifying gaps or possible modification.

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Subject alignment sometimes had to contend with constraints in available expertise, for example much of the social science content is presented through the lens of climate justice and indigenous rights. Supported by our staff background and experience, the reality of climate impacts on specific regions and populations is a central theme throughout the programme.

More generally, compulsory modules are designed with an explicit interdisciplinary remit, whereas optional modules (e.g. water resource management) are more focused on a single topic. The first

year of teaching includes significant content shared with adjacent programmes, including increasing climate content in such modules. The second year of teaching focuses on peer and student-lead learning through problem-based learning, including students working in collaborative teams to individually identify impact case studies and propose adaptation plans, transitioning to an increasing disciplinary focus in the final year. A major objective in the programme design was to support system thinking, with processes at small scale in one module revisited at larger scale in others.

For the programme approval process, the main challenge was evidencing a coherent narrative for a very interdisciplinary programme, placing added value on clear module descriptions with learning outcomes that visibly map to broader programme aims. This was overcome by tracing the skills and expertise across the entire department and identifying links between specific module learning outcomes, skills and broad programme aims as student's progress through the programme. This allows for module content to be built around topics that resonate with, and build upon, what has gone before.

KEY FACTS ABOUT THE INSTITUTION

Institution name	University of Greenwich
Location	Medway, UK
Number of students (total for institution)	18,944
Number of staff (total for institution)	1630
Campus type	Split

KEY FACTS ABOUT THE CASE STUDY

University or department led:	Department (Natural Resources Institute)
Number of staff engaged:	3 primarily, 12 providing comment and support
Number of students engaged:	3 (final year students from previous year)
Credit-bearing:	Full honours BSc
Mandatory or optional:	Full honours BSc with mandatory and elective elements
External partners:	External Panel Member from University Surrey
Engagement approach used:	Mostly social media, including publicity in local and national media.

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More info: www.gre.ac.uk/undergraduate-courses/engsci/climate-change-bsc

HOW TO CITE THIS PAPER

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