

University of  
**Kent**

# Sustainability in Languages

## Cultures of Sustainability

### LANG5001

Dr William Rowlandson and Dr Tobias Heinrich

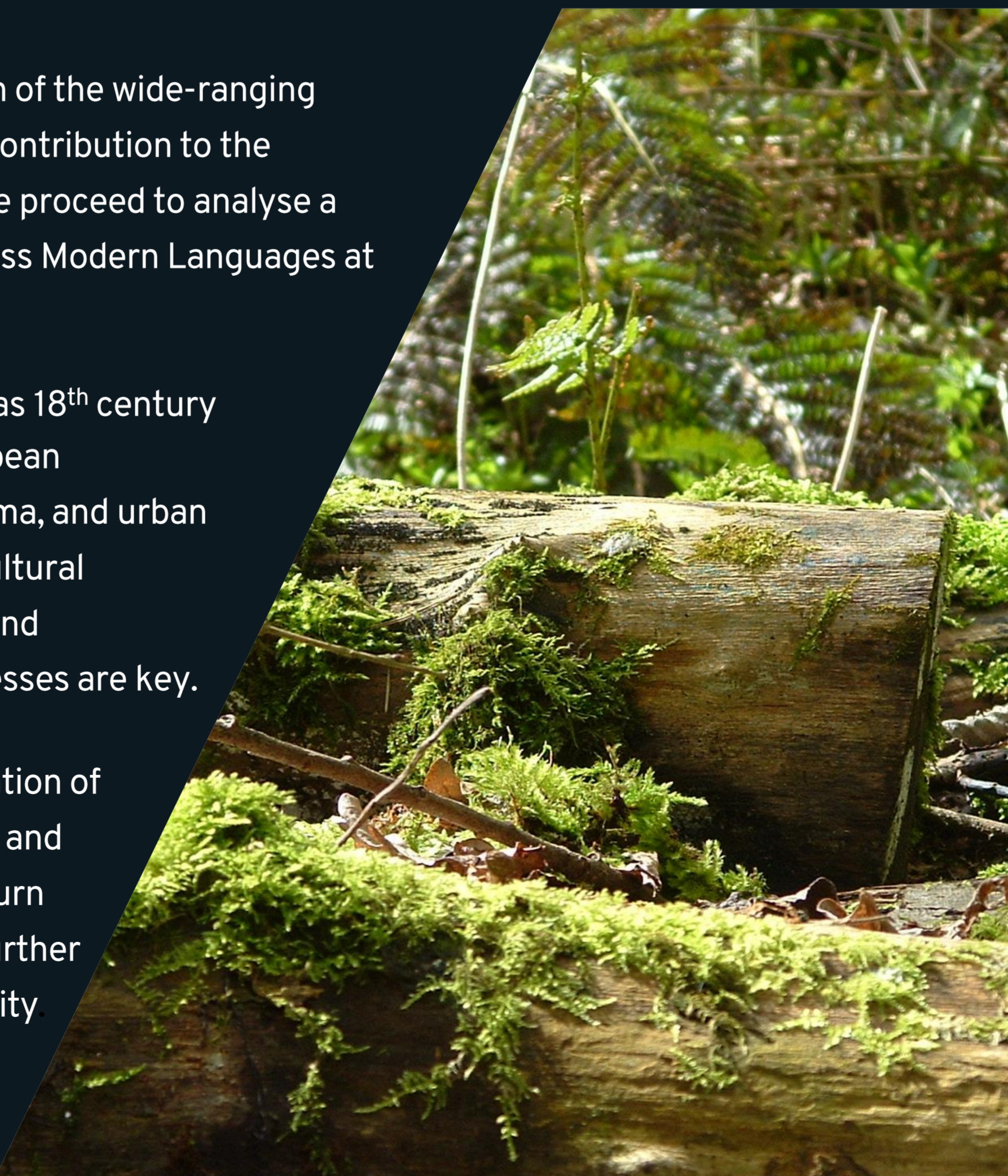


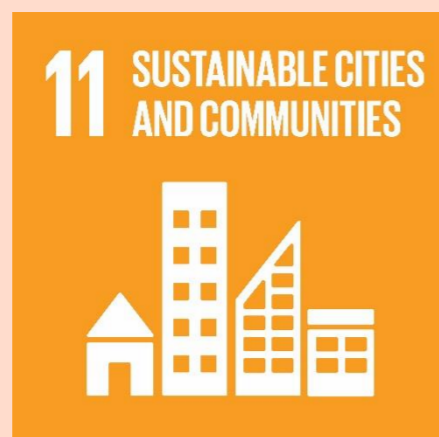
While the concept of sustainability has its roots in the natural sciences, it is becoming evident that theories and practices of sustainability are of relevance in social and cultural studies as much as biophysical relationships.

The module begins with an examination of the wide-ranging definitions of sustainability and of the contribution to the discourse from Humanities subjects. We proceed to analyse a diverse range of case studies from across Modern Languages at Kent

The case studies including topics such as 18<sup>th</sup> century forest management in Germany, Caribbean postcolonial literature, Italian eco-cinema, and urban organic agriculture in Cuba highlight cultural practices ranging across time periods and geographies in which sustainable processes are key.

The module concludes with a consideration of how the case studies illustrate theories and practices of sustainability, and how in turn they may be considered catalysts for further engagement in questions of sustainability





# Sustainability in Graphic Design

## Live brief for Enhancement Week Stage 1 and 2

Dr Kate McLean and Becky Upson

One of the aims of the Graphic Design programme is to nurture a generation of curious, empathic, and caring graphic designers who cleverly connect the unexpected to create original work to be experienced across a range of media and locations. This underpins one function of graphic design which is to communicate messages that permit the recipient to process, assimilate and understand them. On this brief from the University Sustainability Officer in conjunction with Estates was as follows:

### No Mow May Communications

Goal – To produce a series of posters that can be used across campus to communicate the University's actions around grassland management, particularly around No Mow May, in support of biodiversity. It is important that we communicate these messages to our audiences, including students and staff that walk past daily, community members that visit the site, as well as those that may not be sure about what we are doing and are concerned as to why the grass is not being cut.

The end result is a poster for use across the University of Kent campus and a live brief portfolio piece for Stage 2 student, Molly Sims, following a challenging, community-based brief.





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# Sustainability in English

## Writing the Climate Crisis: Encounters with the Anthropocene ENGL8007

**Dr Matthew White**

What is the Anthropocene? What does it mean to have our geological era renamed specifically for the impact that humans have had globally on the planet? This module digs deep into the history of our modern world by asking questions like: where did the Anthropocene first emerge? When might it be said to have begun? Why does it matter?

By reading, interrogating, and using poetry, prose, fiction, and other media, this module will look at how writers, and creatives from across the globe and through history (from the medieval to the present), interpret and respond creatively to environmental breakdown.

Covering theoretical ground that frames climate crises and their associated ecological catastrophes as a consequence of colonialism and capitalism, the module will include discussions of how resource extraction, fossil-fuel use, and the spread of industrialisation have seen the exploitation of people, non-human animals, and land, creating a global 'eco-apartheid' based on lines of race, class, gender, and ethnicity

It will explore how the human-made environment is changing our world but is also having an identifiable impact (detectable across all five continents) on human physiology, psychology and mental health. It looks at how the arts have interpreted climate crises, and how climate crises have shaped the arts.



# Sustainability in Computing

## Climate and computing workshop

Dr Dominic Orchard

Software is everywhere, underpinning the fabric of society: our transport, energy, financial, and social systems. Developing a sustainability mindset in our computer scientists is therefore key to helping them leverage their skills to support the transition to net zero. Software is also at the heart of climate modelling, monitoring and forecasting, where computational models comprise large, complex numerical simulations. Thus there is a pressing need for multi-disciplinary work to support climate science and solutions. Computational modelling is key to climate science. But models are becoming increasingly complex as we seek to understand our world in more depth and model it at higher fidelity

Within the School of Computing, Dr Dominic Orchard, has been running an annual focused workshop on the role computer science has to play in addressing the climate crisis and how better software leads to better climate research. This draws on his work in the Programming Languages and Systems for Science laboratory at Kent and his co-directorship of the Institute of Computing for Climate Science at the University of Cambridge.

During the workshop students hear from a member of the University's Sustainability team about the global challenges of climate change in order to provide the context to exploring the role of computer science in contributing to solutions.

The **Institute of Computing for Climate Science** studies and supports the role of software engineering, computer science, artificial intelligence, and data science within climate science.



8 DECENT WORK AND ECONOMIC GROWTH



12 RESPONSIBLE CONSUMPTION AND PRODUCTION



13 CLIMATE ACTION



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# Sustainability in Economics

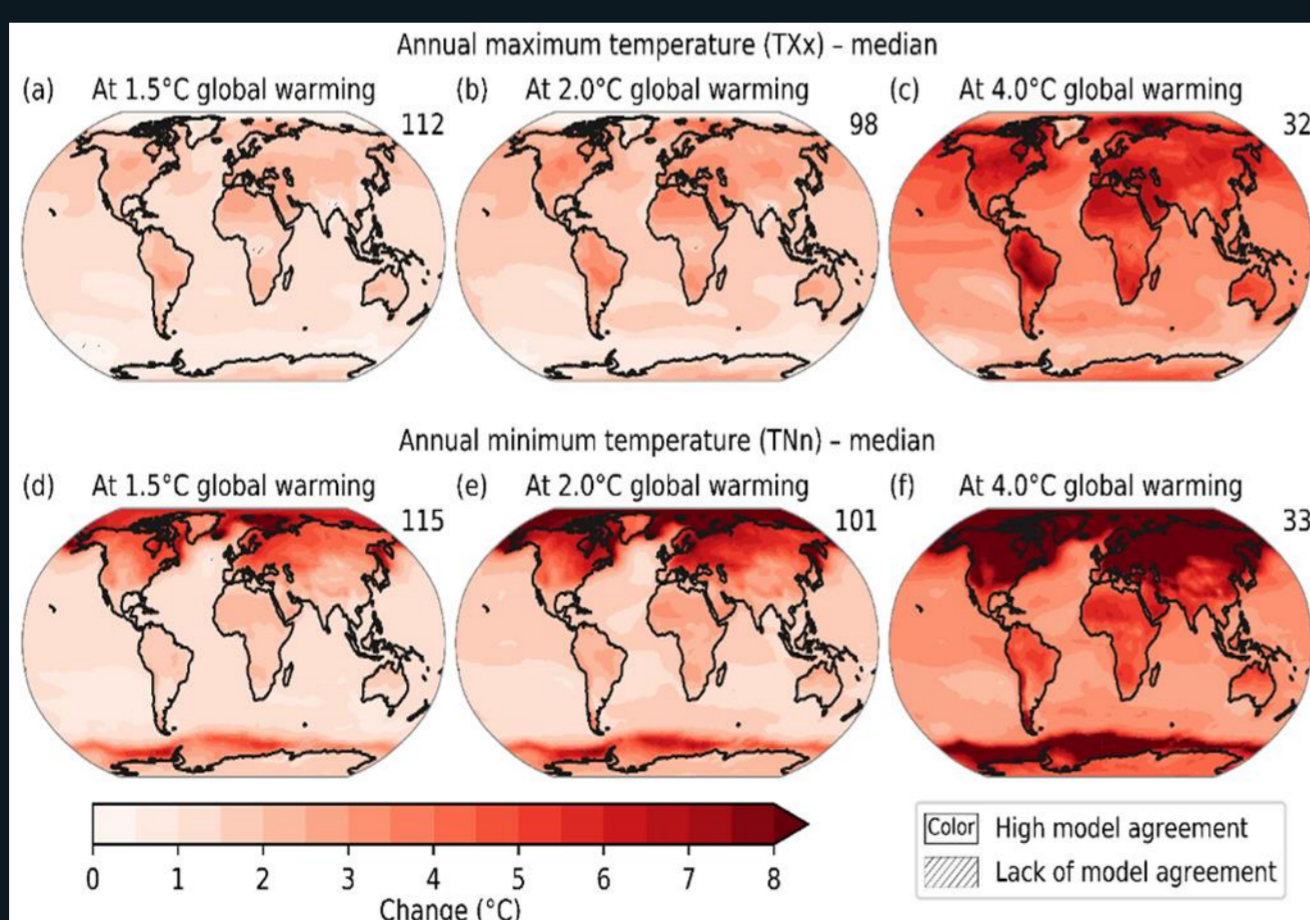
## Applied Environmental Economics ECON6310

Dr Iain Fraser

This module applies various aspects of environmental economic theory in combination with mathematical and statistical methods to provide students with an understanding of the link between economic theory and policy application. It introduces students to fundamental key skills used by environmental economists in the application of economics to real world environmental issues.

A key objective of the module is to help students develop an ability to apply economic thinking to environmental problems. The module will consider various aspects of environmental economics including why pollution occurs and how policy can be designed and implemented to deal with it, how to place economic value on the environment and the application of economics to resource management and climate change.

The main focus will be on how economic theory is applied to real world environmental issues and how this can be demonstrated using EXCEL. Therefore, it continues the development of students' use of information technology within a structured environment. This module will provide students with an enhanced understanding of how economic theory can be translated into practical policy advice.



The module introduces students to a variety of environmental economic practical issues. Alongside formal lectures, computer workshops and seminars are designed to develop academic research skills and the ability to communicate ideas both verbally and in writing.

## Why do Economists care about this?



# Sustainability in Philosophy

## Environmental Ethics and Climate Change PHIL6666

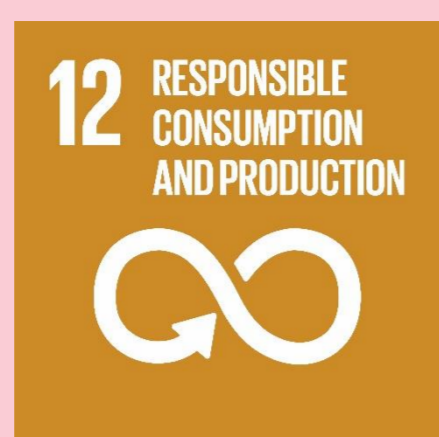
Dr Edward Kanterian

Manmade global warming and the destruction of the environment are two of the greatest present dangers to humanity. Their factual basis has been subjected to rigorous scientific investigation (synthesised in the IPCC reports). There are, however, many normative questions which cannot be answered by science alone. They require an input from the humanities, most especially from philosophy.

Such questions include: To whom does the Earth and its atmosphere belong? Whose duty is it to prevent global warming? What is more important, preventing global warming or establishing social justice? Which political and economic system are best for sustainability? Who is to bear the costs of climate change? How might victims of climate displacement be compensated? Do we owe anything to yet unborn humans? What theory of justice is required to answer such questions? And do we owe anything to animals and plants?

This module introduces students to key issues in environmental ethics and the ethics of climate change. The course is divided into a theoretical and a practical part. The theoretical part focuses on the main theories of ethics, value, justice, rights and duties. The practical part looks at applications of these theories, investigating the existing ethical approaches to the environment, before looking in more detail at the challenges of environmental destruction and climate change.





# Sustainability in Chemistry

## Chemistry and the Environment CHEM3710

### Dr Aaron Berko

This module considers the impact of chemical science on the environment. It introduces important concepts such as pollution, climate change, and effects of chemical disasters on the environment. It also discusses doing chemistry in a sustainable way by introducing the 12 principles of Green Chemistry.

Five of these principles focus on undertaking chemical science in a sustainable way while the others focus on pollution prevention.



**The five areas of green chemistry focusing on sustainability are:**

**Preventing Waste:** This principle focuses on the prevention of waste which in chemical science are often hazardous to the environment.

**Atom Economy:** Synthetic methods should be designed to maximize incorporation of all materials used in the process into the final product.

**Use of renewable feedstock:** A raw material or feedstock should be renewable rather than depleting whenever technically and economically practicable.

**Catalysis:** A primary goal of green chemistry is the minimization or preferably the elimination of waste in the manufacture of chemicals and allied products: “prevention is better than cure”. This necessitates a paradigm shift in the concept of efficiency in organic synthesis, from one that is focused on chemical yield to one that assigns value to minimization of waste. Catalysts increase selectivity, increase the rate of chemical reactions, and reduce waste.

**Reduce Derivatives:** Unnecessary derivatization (use of blocking groups, protection/deprotection, temporary modification of physical/chemical processes) should be minimized or avoided, if possible, because such steps require additional reagents and can generate waste.



# Sustainability on Campus

## Using the campus as a space for learning and teaching

### Kent Community Oasis Garden



The Kent COG project (Kent Community Oasis Garden) is a partnership project run by the University of Kent and East Kent Mind working to create a sustainability and wellbeing hub centred on growing food and developing a partnership response to mental health challenges that young adults are facing.



This makes it a unique space for an exploration of a wide range of social and environmental topics and for academics to use the campus as a living lab for research

The site has been used for several different learning and teaching projects already, including:

- MSc Ethnobotany, micro research project on the effects of reciprocal, therapeutic gardening on people and the landscape
- BA Politics and International Relations, community gardens as a counterculture space for improving society
- BSc Spatial and Interior Design, understanding sustainability cultures, solving problems at the garden through design





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## Carbon Literacy Project

# Sustainability in StudyPlus Carbon Literacy



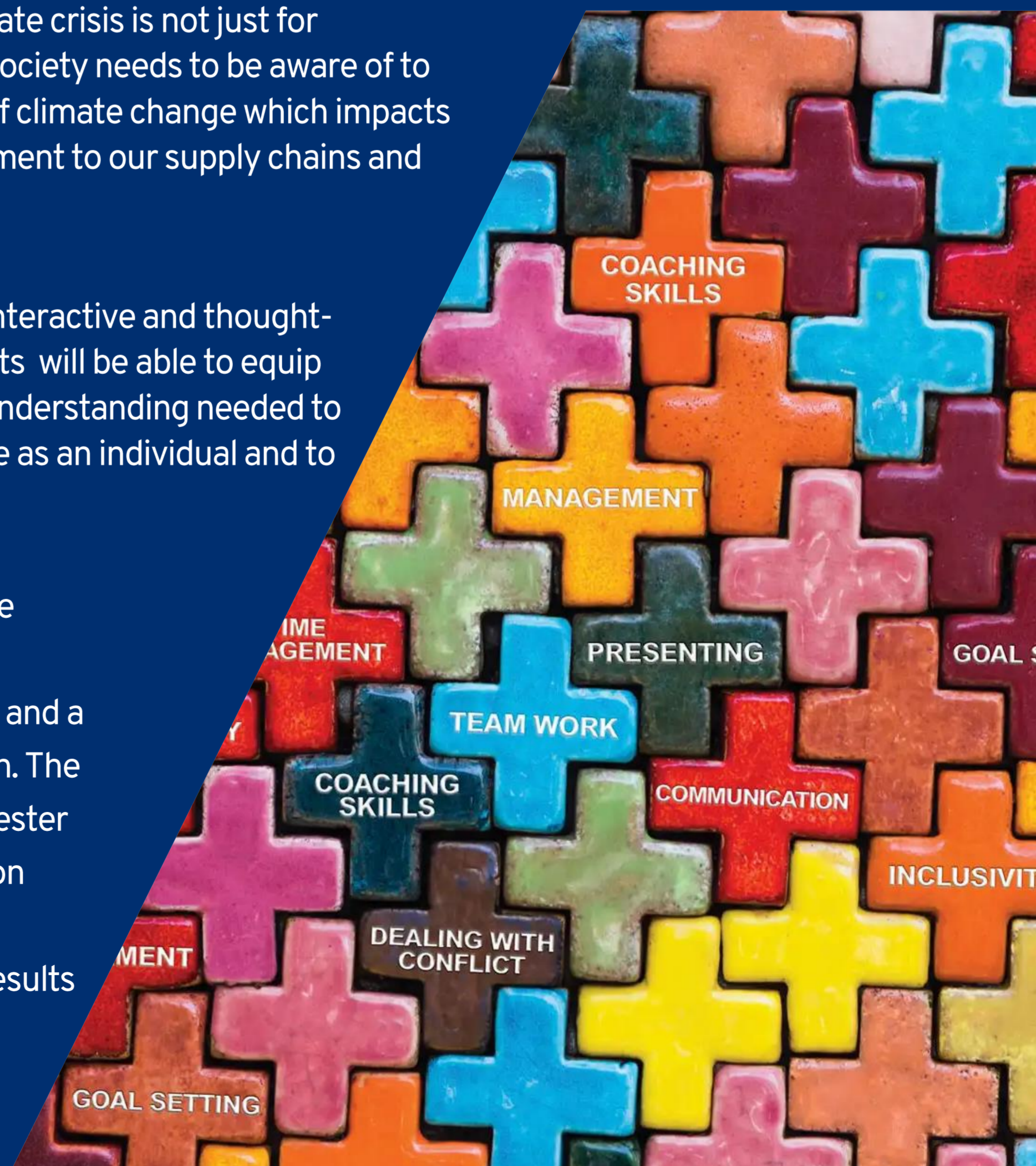
Dr Catherine Morris and Emily Mason

This course offered through the StudyPlus programme allows learners to develop their knowledge of climate change and understanding of how countries, businesses and individuals are addressing the worldwide climate crisis. This accredited Carbon Literacy Training at the University of Kent is open and free to all students and on successful completion of the course they will receive official carbon literate certification from the carbon literacy Project.

Understanding and acting on the climate crisis is not just for environment students. Every part of society needs to be aware of to understand and mitigate the effects of climate change which impacts everything from our physical environment to our supply chains and how we plan for the future.

Carbon literacy training is engaging, interactive and thought-provoking way to learn and participants will be able to equip themselves with the knowledge and understanding needed to make a positive change for the climate as an individual and to positively influence those around you.

This one-day course is delivered by the University's Sustainability team with approximately 1 hour of self pre-study and a face-to-face interactive taught session. The course has been developed by Manchester Metropolitan University in collaboration with the Carbon Literacy Trust, and successful completion of the course results in certification.





# Sustainability in Internationalisation Global Online Learning (GLO)

*Internationalise your classroom in a sustainable way with Global Learning Online (GLO).*

Global Learning Online (GLO) offers a climate-friendly, accessible and affordable way to bring diverse global perspectives into your teaching.

Virtual study projects provide students with collaborative, cross-cultural learning experiences without the need to travel abroad, reducing the University's carbon footprint and ensuring global exchange opportunities are accessible to all.

By introducing a virtual exchange project into your curriculum, you can provide students with opportunities to enhance their digital, intercultural and global citizenship skills.

## What our students say.....

"I found this experience very useful to understand certain topics from a different perspective. Moreover, we get to know new approaches and solutions to the same problems. I found the experience mind-opening."

From virtual exchanges with partner universities and organisations to bespoke projects for your module, you can choose from a range of virtual mobility opportunities, including buddy schemes, cultural immersion activities, intercultural engagement programmes and virtual exchanges. Students can even learn about how to take action on Sustainable Development Goals!



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8 DECENT WORK AND ECONOMIC GROWTH



11 SUSTAINABLE CITIES AND COMMUNITIES



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# Sustainability in Maths

## Sustainability lecture series

### School of Mathematics, Statistics & Actuarial Sciences

The role that mathematics plays is essential: every phenomena on Earth is subject to mathematics, which is the only language we can use to describe them. Moreover, mankind must factor mathematics into any approach it takes in addressing said challenges. Climate change, protecting biodiversity, tackling pollution, controlling epidemics, ocean sustainability, averting natural disasters (volcanoes, earthquakes, tsunamis), and manmade disasters (fires) are all subject to equations. In short, the sustainability of planet Earth depends on mathematical science.

In 2022 SMASS launched its Sustainability series of lectures aimed at exploring the various ways in which the disciplines of maths are being used to understand and to address global challenges.

The series began with a talk from Louise Pryor, President of the Institute and Faculty of Actuaries (IFoA), titled "Can Actuaries save the world?"

The world has begun to unite in an attempt to prevent the climate emergency turning into climate catastrophe.....

Come and listen to how the actuarial profession is embracing this challenge.

*Sustainability series event flyer*

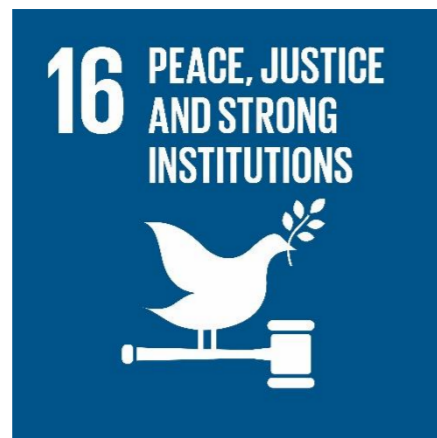
Subsequent talks in the series:

Dr Thomas Winyard, former SMSAS Lecturer in Mathematics, "Solitons: How studying Tsunamis lead to levitation".

Dr Eleni Matechou, SMSAS Senior Lecturer in Statistics "Environmental, ingested, ancient: how DNA-based surveys are changing the way we monitor biodiversity".

Dr Melania Nica, former SMSAS Senior Lecturer in Actuarial Science "Catastrophe Insurance"





# Sustainability in Law

## Environmental Law Theory and Practice (LAWS5850)

Dr Andreas Kotsakis

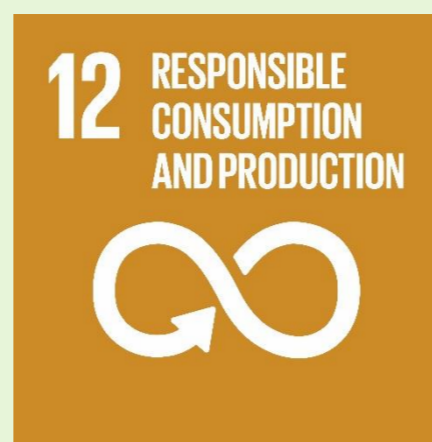
In a rapidly decaying and overheating world, classical legal values, forms, norms, and mechanisms are confronted with a series of complex environmental crises. Faced with the realisation that incremental legal reform and reactive legislative responses are proving insufficient for the scale of the problem, law is forced to turn to foundational questions regarding the relations between law, politics, science, economics, justice, and society across different jurisdictions and cultures. This module traces such fundamental questions in a series of case studies from around the world.



Many of these problems admit scientific, economic and administrative responses as readily as legal ones. However, the underlying premise is that, alongside other disciplines, law has an essential part to play in the protection of the environment. The overall objective of the module is to provide an exposition of Environmental Law which seeks to assess the functioning of the law alongside the environmental problems that it seeks to address.

Environmental Law seeks to examine and assess laws, of widely different kinds, from a uniquely environmental perspective. Taking the broadest possible view, it must be asked what legal mechanism is best used to restrict emissions causing deterioration in the quality of the three environmental media of water, air and land and how the law can provide appropriate redress for environmental harm





# Sustainability in Business

## ASPIRE – Business Start-Up Journey

### Ideas Hack

Students participating in the 15-week business start-up journey through ASPIRE (Accelerator Space for Innovation and Enterprise) are supported through all areas of starting a business, teaching students skills that are required to be a successful entrepreneur through interactive workshops and classes delivered by ASPIRE’s entrepreneurs in residence.



The Business Start-Up Journey has sustainability at its heart. It seeks to create awareness in student entrepreneurs not just of the responsibility of business to be sustainable, but of the opportunities which sustainability offers business. The Sustainable Development Goals are used as the foundation for the programme, from idea development sessions – inspiring students to build business around solving these global challenges – to understanding how finance and investment impact on communities.

On Saturday 29 October, student took part in an ideas hack to help them think about sustainability in their business ideas.

A huge number of everyday items and solutions around us have been adopted from nature. From pens, fabrics, microprocessors to trains, planes, principals of graphic design and entire ecosystems are mapped by businesses to make or improve their products and services.



To fully understand this amazing potential, we went to the wood! Not just some wood but, The Ancient Brotherhood Wood surrounding The University campus. The ancient woodland is a unique and irreplaceable habitat which covers less than 2% of the land area of the UK. Here students heard from a member of the sustainability team talk about the problems of product obsolescence, unsustainable materials and circular economy. They were than asked to take a walk in the woods and reflect on their ideas to ask does this product or idea help or is it part of the problem. Is there anything I can change to reduce the impact?