# Planetary Health

at

# The University of Edinburgh

Showcasing innovative learning, excellent teaching
and exciting research groups dedicated to
improving the health of people and planet
by understanding climate change
and climate change mitigation and adaptation.

THE UNIVERSITY *of* EDINBURGH

**Social Responsibility and Sustainability**

# The health of people and the planet are intricately entwined.

Global environmental changes impact on both human and ecosystem health. Sometimes these changes are natural and cyclical, and sometimes they are made or exacerbated by human activity.

Climate change and the global environmental changes it creates are the most serious threat to both human and ecosystem health today.

An increase in greenhouse gas emissions as a result of human activity has caused the earth's atmosphere to trap heat, leading to global warming.

These changes to our climate cause the earth's land and sea to warm, and also increase the likelihood of extreme weather events which can cause floods or droughts.

There are many ways climate change can impact on the health of people and the planet, from making food scarcer to find or harder to grow, to pollution of the air and water living things need to survive.

There are two main responses to climate change:

**Mitigation**: reducing emissions of heat-trapping greenhouse gases, and stabalising the levels of these gases already in the atomsphere.

**Adaptation:** helping people and ecosystems adapt to current or expected changes to the climate.

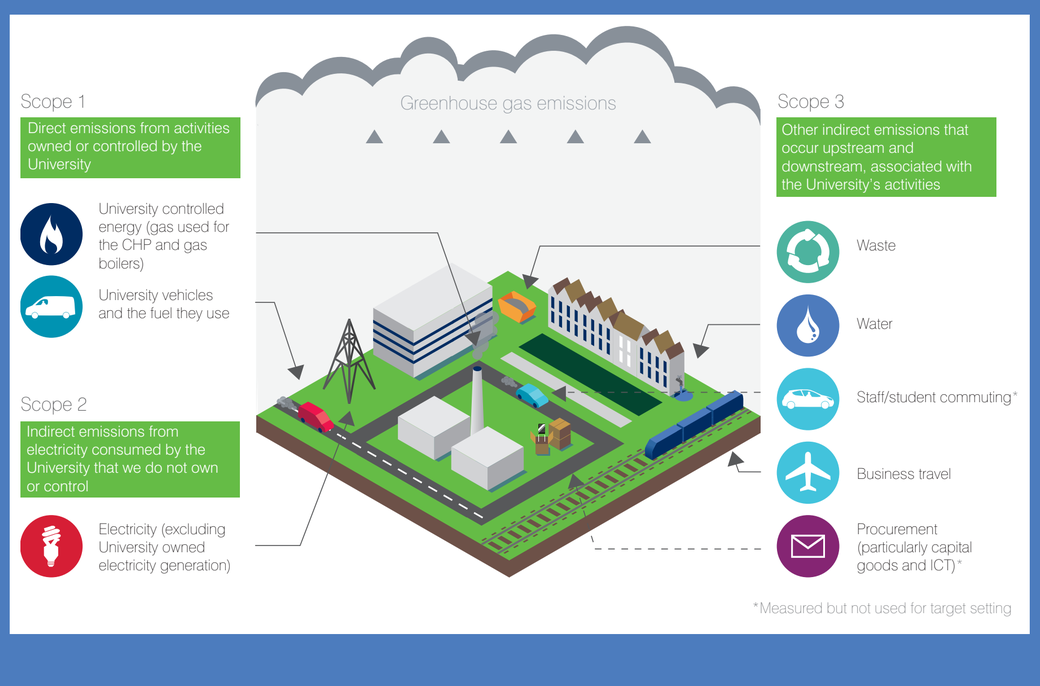
# We’re committed to improving the health of people and the planet.

The University of Edinburgh is committed to understanding, mitigating and adapting to climate change, and improving planetary health for people and ecosystems.

We’re doing this by taking a whole-institution approach:

- conducting climate change research in mitigation and adaptation;
- reducing the carbon emissions of our activies and our estate in order to be zero carbon by 2040;
- ensuring as many students as possible have opportunities to learn about climate change, regardless of their degree of study.

We’ve set out our amibitious targets in our Climate Strategy, published in 2016.




1. We will reduce our emissions of carbon per £ million turnover by 50% from a 2007/8 baseline year by 2025

2. We will return our carbon emissions to 2007/08 baseline year levels by 2025

3. We will reduce our emissions of carbon per £ million turnover by 50% from a 2007/8 baseline year by 2025

This exhibition highlights just some of the exciting research, innovative learning and excellent teaching on the subject of climate change mitigation and adaptation in order to improve the health of people and planet.

# 1. Energy systems

## The Institute for Energy Systems (IES)

### Delivering world-leading research in low carbon energy systems, technology and policy.

“We have academic expertise in resource modelling and measurement, hydrodynamics, aerodynamics, computational fluid dynamics, thermodynamics, electromagnetics, power electronics, control, power systems analysis and life-cycle analysis.

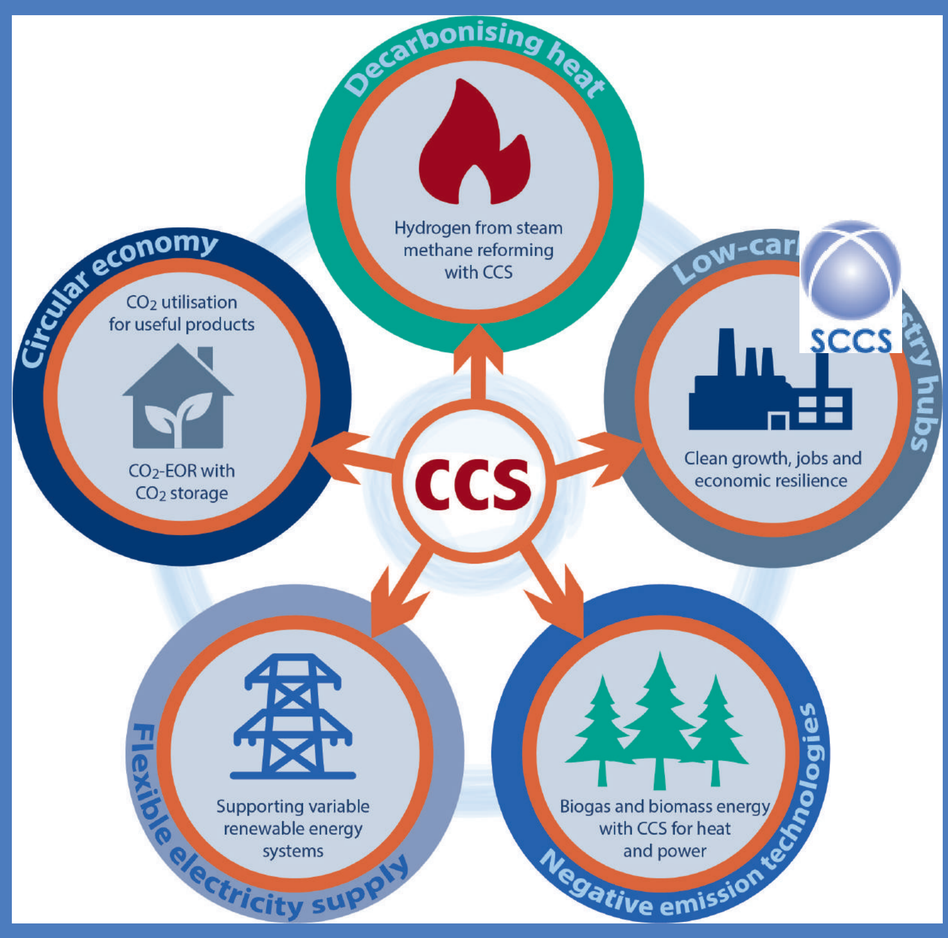
We have also developed unique world class test facilities for wave and tidal energy, in particular the FloWave Combined Wave and Current Test Tank. Staff play a central role in marine renewable research at both at national and international level; we host the EPSRC-funded SuperGen UK Centre for Marine Energy Research, and are the founder and chair of the Ocean Energy Group within the European Energy Research Alliance.”

www.eng.ed.ac.uk/research/institutes/ies

## Scottish Carbon Capture & Storage (SCCS)

### The largest Carbon Capture & Storage (CCS) research group in the UK, linking academia, industry and government.

“Our world-class scientists and other professional staff are spearheading moves to improve the efficiency and economics of CCS alongside other work, such as policy and public engagement, to support its deployment worldwide. Our growing research partnership works with industry, government and academic partners worldwide to unlock the potential of CCS. Our track record includes research collaborations, joint projects with industry, knowledge exchange, international projects and a world-leading education programme, including the world’s first free MOOC on climate change and CCS.




The University of Edinburgh developed the world’s first open online course exploring CCS technology as a long-term solution to protecting the atmosphere from an excess of carbon dioxide.

www.sccs.org.uk

# 2. Innovation & policy

## Edinburgh Centre for Carbon Innovation (ECCI)

A powerhouse for our thriving zero carbon future.


“ECCI accelerates our move to a zero carbon society by bringing people together and creating a hub of knowledge and expertise to kick-start new ideas and deliver groundbreaking projects.

- We join forces with leading national and international organisations to deliver ambitious projects and grow low carbon businesses.
- We work at the cutting edge of public policy, business and research to turn talk into action.
- We’re the leading low carbon hub for Scotland and beyond, driving cross-sector collaboration and effective action for a zero carbon world.
- We inspire people and ideas through award-winning, low carbon events and work space in our central Edinburgh base.”

edinburghcentre.org

## ClimateXChange

Scotland’s centre of expertise connecting climate change research and policy.

“We provide independent advice, research and analysis to support the Scottish Government as it develops and implements policies on adapting to the changing climate and the transition to a low carbon society.

“Our members have wide-ranging expertise on how we can reduce the greenhouse gas emissions that cause climate change, how different sectors can adapt to Scotland’s changing climate, and how to create climate change policies that are fair and make the most of Scotland’s assets.”

www.climatexchange.org.uk

# 3. Climate & society

## Global Environment & Society Academy (GESA)

A collaborative network of academics seeking to tackle global environmental challenges through teaching, research and outreach.

“We do this by:

- building a vibrant global community of talented people at the forefront of addressing issues arising from environmental change
- inspiring the next generation of environmentalists engaged in academia, industry, civil society or policy making arenas
- supporting an alumni network that builds lifelong connections and creates internship and employment opportunities for students and graduates”

www.ed.ac.uk/global-environment-society

## Energy & Society Research Group

A network of University of Edinburgh social scientists who research the multidisciplinary global challenges posed by energy transitions.

“Transforming our energy systems in response to the climate disruption and environmental degradation associated with mass consumption of fossil fuels means transforming our social, political and economic institutions and ways of life.

“Our work aims to support and study such transformational change. Our research analyses the irreducibly social and technical qualities of energy systems, and the global challenges to be faced in making clean, sustainable, equitable and reliable systems. We work to inform government planning and policy decisions, and we develop and use participatory methodologies and good practice principles for engaging with communities. Our work brings social science insights to business, public and community partners across the world.”

ENERGY AND SOCIETY
POWERING GLOBAL IMPACT THROUGH SOCIAL SCIENCE

www.ed.ac.uk/energy-society

## Edinburgh Environmental Humanities Network

A hub for environmentally-themed research in the arts and humanities in Scotland and beyond.

“We believe the current environmental crisis is best understood as a collection of diverse but mutually-reinforcing political, economic, philosophical, ethical, relational, and spiritual crises. The Environmental Humanities can compliment responses to environmental problems in the hard sciences by examining the social bases for climate change, biodiversity loss, and marine desertification, addressing the values which underpin environmental decision-making, and exploring more ethical ways of imagining, narrating, and inhabiting environments global.”

“Future Fossil” by Franklin Ginn and Jacob Barber

www.environmentalhumanities.ed.ac.uk

# 4. Living Lab projects

Treating the University as a Living Lab means using our own academic and student research capabilities to solve issues relating to our infrastructure and practices. The following projects were undertaken by students interested in how The University of Edinburgh could improve climate adaptation.

## Carbon Finance in practice

### Proposing a range of ‘best practice’ solutions to make buildings at the University of Edinburgh more ‘climate ready’.

A group of MSc Carbon Finance students, acting as consultants for the University, identified and analysed a range of case studies for traditional buildings, as well as for green and blue infrastructure and communications. Recommendations for the project included tangible options for the University to pursue, based on mutiple sustainability criteria and including a cost benefit analysis. Their research will inform further development of the University climate change adaptation strategy and estates design guidance, ensuring that our buildings and their contexts provide for staff and student health and wellbeing and support biodiversity.

## Improving campus ecosystem health

### Student trial of the Scottish Wildlife Trust’s “Natural Capital Standard for Green Infrastructure” aiming to improve ecosystem health on campus.

This postgraduate student placement project tested the benefits of using the Natural Capital Standard to assess University spaces, such as Pollock Halls. Scottish Wildlife Trust developed the tool to ensure that green (and blue) spaces are integral to building developments due to the many benefits for climate change adaptation, health, wellbeing and biodiversity.

As the first trial of the standard, this project also involved critical review of the tool itself and its usability, and will feed into work being undertaken by the Edinburgh Living Landscape Partnership, which aims to place nature at the heart of the city.

## Climate change adaptation in higher education

### Students on the “Case studies in Sustainable Development” course conducted a survey of climate change adaptation strategies and action.

Students focused on risks to the University campuses such as flooding, overheating and loss of biodiversity. Innovative solutions included water squares, rooftop farming, sheepscaping and comprehensive retrofit of existing buildings.

The University is considering their findings as part of a current collaboration with Historic Environment Scotland to improve adaptation on campus.

# 5. Teaching

The University offers a number of degrees and courses to develop students' knowledge, skills and experience in order to enable them to contribute effectively to tackling global challenges, whether in Scotland or worldwide.

## MSc Carbon Management

### A landmark collaboration between the Schools of Geosciences, Economics and the Business School to provide students with expertise in the business, policy, economics and science of tackling climate change.

Celebrating its 10th anniversary this year, the award-winning MSc in Carbon Management now offers both on-campus and online programmes. Together they boast over 400 'Carbon Masters' working in more then 60 nations. The online MSc in Carbon Management was created to increase accessibility for students with major work and family commitments, and especially those in low-income nations.

## Sustainability and Social Responsibility course

### A ground-breaking collaboration between the School of Geosciences and the School of Education, this University-wide online course examines sustainability through an interdisciplinary lens.

The Sustainability and Social Responsibility course is designed to be accessible to every student of the University, whether on-campus or studying at distance. It already draws students ranging from year one undergraduate right through to online distance Masters students. Its vision is to further extend uptake to the >200,000 University of Edinburgh alumni around the world.

## MSc Global Environment, Politics and Society

### A truly interdisciplinary degree, combining environmental politics and environmental sociology with normative philosophy.

This degree provides a uniquely comprehensive social scientific perspective on global environmental issues such as climate change, sustainable development, energy, and biodiversity. The majority of graduates go on to career posts, PhD projects or internships related to the GEPS programme. Every year since the MSc programme began, students have been selected by Clinton Global Initiative University to take part in a global conference, chosen on the basis of projects they designed to address environment and development challenges.

# 5. Teaching

## MSc Environment and Development

An exciting postgraduate programme that explores the inter-dependencies between environmental concerns and development pressures.

The programme attracts students from a variety of countries - from Peru to Sri Lanka to China, from a variety of disciplines (social science, humanities, engineering and natural sciences) and a variety of career stages - with and without work experience.


## LLM in Global Environment and Climate Change Law

Helping students develop the skills required to analyse the activity of international and supranational legal and political institutions, national governments, NGOs and businesses in the private sector, which are working in environmental protection and natural resources management.

This degree develops the specialist legalist knowledge and skills to tackle the environmental challenges facing the world today.

"… one of the highlights is that we really focussed on international and EU climate change law which you don't really learn about in traditional Law Schools."

– Louise Fournier, LLM Graduate 2017


## MSc Global Challenges

The challenge of how seven billion can live well on one planet can only be understood and tackled effectively by taking multiple perspectives and drawing on a range of disciplines.

Our programme is a collaboration between the University's Global Academies - global networks of experts from over 25 academic disciplines developing innovative solutions for the world's most challenging problems.

The Global Development Academy, the Global Environment and Society Academy and the Global Health Academy supported by the Global Justice Academy come together for this programme to help students develop the broad perspective, in-depth knowledge, and professional skills needed to enhance their career working for a more equitable and just world. Students gain crucial understanding at global, national and local levels of how development, health and environmental issues are connected.

Taught entirely online, this part-time programme is specifically designed so students from across the world can study while they work.

# 6. Alumni commitments

Planetary Health isn't just about large scale activities...
It is also about individual commitments.

To promote the concept of planetary health and to generate knowledge and action, the University asked its **global network of alumni** to consider making simple, achievable pledges, including avoiding excess plastic packaging, eating local, seasonable food, and using active travel.

Below are three alumni making personal commitments to planetary health and encouraging others in their region to do the same.

## Chile: a community of cyclists

On Sunday 6th May 2018, the University of Edinburgh Alumni Chile's cycling club organised its first mass cycle to the top of San Cristobal Hill in Santiago.

The club was formed by Gabriel Gonzalez Mandiola, MSc Advanced Sustainable Design 2008, who says its ethos is to "motivate sustainable transportation, mobility and healthy gatherings" and is "open to the alumni community living in Chile and their families".

## USA: reducing waste in Colorado

The alumni club in Colorado have dedicated themselves to cycling or walking instead of driving, sourcing local food, ditching disposable cups, air drying their clothes, and turning down the thermostat. They plan to use their social media channels to spread the word, hold events in local restaurants, and organise a cycle tour.
In making this pledge, organiser Laura Getts, MA(Hons) International Relations 2010, points out that Colorado is two degrees warmer than it was 30 years ago. For a state that relies upon regular snowfall to support many livelihoods, this is a major threat.


## China: circular fashion

The over-consumption of clothes puts huge pressure on natural resources and accounts for vast swathes of landfill. Combined with the plastic used in packaging, fashion is at the front line of planetary health.

Shanghai alumni, led by Club representative Lingyin Fan, MSc Ecological Economics 2015, have pledged to collaborate with social enterprises to host workshops and raise awareness around sustainable fashion. They will encourage people to buy less and buy smarter, reuse and recycle clothes, and organise clothes swap events and social media groups for members.

**Alumni? Make a pledge at http://www.wearedonation.com/businesses/the-university-of-edinburgh/**

# Thank you.

The Department for Social Responsibility and Sustainability would like to thank everyone who contributed to this exhibition.

For every story featured there were many more to choose from, as well as examples of how the University is reducing the climate and health impact of its own operations.

For more information on the University's Climate Strategy, or any other aspect of sustainability, visit www.sustainability.ed.ac.uk.

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