

# IMPERIAL

## Grantham Institute

### **Sustainable Futures: A Global Climate Summer School**

*Explore the science, technology and business strategies essential for becoming a climate changemaker*

**21 July to 1 August 2025 at Imperial College London**



#### **IMPERIAL COLLEGE LONDON AND THE GRANTHAM INSTITUTE – CLIMATE CHANGE AND THE ENVIRONMENT**

Consistently rated amongst the world's best universities (1<sup>st</sup> in Europe and 2<sup>nd</sup> in World, QS World University Rankings 2024), Imperial College London is a science-based institution with an international reputation for excellence in teaching and research. Imperial attracts over 22,000 students and 8,000 staff of the highest international quality from over 126 different countries.

Since its foundation in 1907, Imperial's contributions to society have included the discovery of penicillin, the development of holography and the foundations of fibre optics. This commitment to the application of research for the benefit of all continues today, with current areas of focus including interdisciplinary collaborations to improve global health, tackle climate change, develop sustainable sources of energy, address security challenges, develop data management and analysis technologies for supporting data driven research, and tackling problems at molecular scale.



#### **The Grantham Institute – Climate Change and the Environment**

The [Grantham Institute](https://www.granthaminstitute.org/), established in 2007 by the Grantham Foundation for the Protection of the Environment, is the hub for climate change and the environment at Imperial College London. Our mission is to lead on world-class research, policy, training and innovation that supports effective action on climate change.

The Grantham Institute promotes interdisciplinary working to meet some of the greatest challenges faced by society. We bring together climate and global environmental change expertise from across the University and work with external stakeholders as we drive forward discovery, convert innovations into applications, train future leaders and communicate academic knowledge to businesses, industry and policymakers to help shape their decisions.

[Research](#) at the Grantham Institute focuses on understanding our planetary environment, how the human-environment interacts with the natural world, and how the translation of research to inform policy and innovation can help create a sustainable, resilient, healthy future for the planet. Within this framework, researchers from the Grantham Institute and from across Imperial contribute to the IPCC Working Groups and Assessment Reports, as well as provide evidence-backed information, which often appears in the media. The Grantham also engages with the policy community and a wide range of stakeholders to ensure the best available evidence on climate science and solutions can inform decisions on climate action. [Undaunted](#), our climate innovation initiative, acts as a hub for the UK's climate innovation community, creating new routes into green entrepreneurship and supporting the acceleration of startups and SMEs tackling climate change. As part of this summer school, you will be exposed to this community and gain insight from the work that is undertaken through the Grantham Institute.

## **SUMMER SCHOOL OVERVIEW**

Climate change is rapidly affecting our world. Individuals, governments and industry must all work together to adapt their approach, limiting climate impacts and succeeding in a climate resilient future.

The programme has been designed for undergraduate students who are keen to explore and understand the interlinked nature of climate change, deepening their understanding of key areas and preparing them to become green leaders of the future in their preferred industry.

During the summer school, students will hear from leading Imperial experts, take part in professional development workshops, collaborate with their fellow cohort on innovative solutions, learn from London's climate initiatives and organisations leading in sustainability, and enjoy visits to some of London's best-known landmarks.

Topics covered include:

- The Science of Climate Change
- Mitigation, Adaptation and the Impact of Climate Change
- Climate Policy, Governance and Regulations
- Climate Finance
- Engineering Approaches to Climate
- Climate Innovation
- Climate Change Communication and Engagement

### **Team learning through scenario-based group project:**

Students will be working in small teams on a scenario-based group project, using their learnings throughout the two weeks to present on either:

- i. New Climate Innovation
- ii. Net-Zero Strategy

Supervised by Imperial academics throughout the programme, students will present the project findings to a panel of experts on the last day of the programme.

### **Learning objectives:**

On completion of this summer school, students will be able to:

- Explain the science behind climate change and the scientific content, outcomes and resulting policies of the Intergovernmental Panel on Climate Change (IPCC)
- Evaluate the ways in which society needs to adapt and mitigate the effects of climate change for the future
- Analyse environmental policies and regulation and appraise the role of government and regulatory bodies in promoting sustainability
- Explain how corporate strategies on climate change risk and opportunities are formed
- Identify the role of technology, innovation and entrepreneurship in the transition to a low-carbon future.

From taking part in this summer school, students will have:

- Developed valuable professional skills in teamwork, communication and presentation
- Experienced team-based learning through a group project
- Practiced and improved their English language.

In addition, students will have an opportunity to make new friends, get to know student ambassadors from Imperial College London through social activities and discuss opportunities for future study and experience what it is like to study in a world class university.

### **Visit to London Businesses**



As part of this summer school, students will have the opportunity to visit organisations and hear about their sustainability strategies. This will include the Natural History Museum, where you will also hear from researchers working on climate and environmental science projects.

### **PROGRAMME STRUCTURE AND FORMAT**

Sixty contact hours will be spread over two weeks covering lectures, workshops, tutorials, project work, social activities and relevant visit. Classes will be delivered on weekdays.

Students will be allocated in small groups for Project work which will be completed through team-based learning with supervision. A final project will be presented in groups to a panel of experts on the last day of the programme. A prize will be awarded to the team with the best project.

The entire programme will be taught in English.

## **SESSIONS DESCRIPTION**

### **Climate Fresk Workshop**

This interactive learning experience will allow you to collaboratively explore climate science through structured activities. You will cover various climate topics, mapping cause-and-effect relationships between different environmental elements, and create a visual representation of climate change systems. The session aims to spark meaningful discussions about climate implications and potential actions.

### **Science of Climate Change**

The session will provide you with a basic understanding of the science behind climate change. You will understand and be able to convey why the science unequivocally points to a changing climate, and why humans are the main cause for that. You will explore the tools used to monitor the climate and how future climate projections are made.

### **Mitigation**

On day three, you will discuss key climate change mitigation concepts and potential strategies. You will consider which socioeconomic activities are the main sources of greenhouse gas emissions, what science says about how deeply these emissions should be limited, and which options we have available to reduce them. This session will include exploring carbon budgets and pathways to achieve the target of net zero emissions.

### **Adaptation and Impact**

Now that you have covered the topic of limiting the magnitude of climate change, you will consider that climate change impacts have already occurred, and further impacts are inevitable irrespective of our best mitigation efforts. This session focuses on the actions we can take in the near term to prepare for and reduce the impacts of climate change. You will review the key realised and potential impacts of climate change across a range of key sectors and understand their linkages.

### **Climate Policy, Regulations and Governance**

You will explore how scientific evidence of climate change has influenced and impacted global climate policy and governance, starting from the establishment of the United Nations Framework Convention on Climate Change down to the current state of play. You will consider the role governance has in climate mitigation and adaptation and how governance will be an important component of the future low-carbon world.

### **Climate Finance, Risks and Opportunities**

This session will introduce you to green finance, investments, risks and opportunities. You will explore climate finance matters, such as the rationale for risk management and how scenario analysis is used as a tool for financial institutions.

### **Engineering Approaches**

Engineering solutions are key in addressing climate change challenges. On this day, you will be exposed to different system approaches, such as Life Cycle Assessments and Process Science Engineering.

## Climate Innovation

Imperial has a strong innovation ecosystem, included the climate innovation initiative, [Undaunted](#). During this session, you will be exposed to the entrepreneurship journey and some of the exciting climate innovations that are being developed. You will discuss the role of climate innovation in meeting the challenges and the interaction between innovation, policy and regulation and society.

## Communication and Engagement

Now that you have developed your knowledge of various factors around climate change, how will you share this? Today, we will focus on how to effectively communicate when discussing climate change and how you can engage with others on this important topic, considering the different audiences that you may be exposed to.

## ENTRY REQUIREMENTS

All students are expected to be studying an undergraduate degree, preferably in the final two years of their undergraduate studies, in any subject discipline.

### English requirements:

All students are required to have a good command of English, and if it is not their first language, they will need to satisfy the College requirement as follows:

- a minimum score of IELTS (Academic Test) 6.5 overall (with no less than 6.0 in any element) or equivalent.
- TOEFL (iBT) 92 overall (minimum 20 in all elements)

Students will be asked to bring along their computer for project work.

## TEACHING FACULTY

The programme is taught by a multi-disciplinary teaching faculty from the Grantham Institute and other departments of Imperial College London. It is co-directed by:



**Anne Houston**, Director of Training, Grantham Institute – Climate Change and the Environment

Anne is responsible for the education programmes at the Grantham Institute, which include the Masters in Climate Change, Management and Finance, Masters in Cleantech Innovation and the NERC funded PhD training programme. She has worked in climate education since 2016, based at the University of Melbourne prior to joining Imperial. Before this, Anne focused on international collaboration and policy in technological science and engineering to accelerate research, translation and innovation, as well as fostering collaborations between academia, industry and government.

## **CERTIFICATION**

Students will receive an Imperial College London certificate on successful completion of the summer school and a prize will be awarded to the best project team. Each student will also receive a document for their project marks.

## PROVISIONAL SCHEDULE

TO BE UPDATED WITH OUR SUMMER SCHOOL FROM SPREADSHEET



## LOCATION

The summer school will take place at Imperial College London's South Kensington Campus, located amongst many famous [attractions](#) in London.

The culture triangle: neighbour to three of London's most prestigious (and free) museums. Right next door, the Science Museum. Across the road, the Victoria & Albert Museum, and around the corner? The Natural History Museum. From Neolithic to the latest scientific breakthroughs, experience it all just minutes from Imperial's doorstep.

The campus is also next to the famous Royal Albert Hall, one of London's most iconic music venues, established in 1871, host to the BBC Proms and countless world-famous international artists.

In addition, the beautiful Hyde Park and the famous Harrods Department Store are just a short walk from the campus.



Organised by the Professional Development and Summer Programmes Unit of the Institute of Extended Learning, in collaboration with the Grantham Institute – Climate Change and the Environment at Imperial College London.



## FEEDBACK FROM PAST SUMMER SCHOOLS' STUDENTS

- *"I really have learned a lot through the programme. Thanks to all professors and supervisors"* - student from Shanghai Jiaotong University
- *"High quality teaching, useful knowledge and full support"* - student from Shanghai Jiaotong University
- *"It was also wonderful to listen and discuss opinions with the professors"* – student from Zhejiang University
- *"It's indeed a wonderful experience, learning knowledge and coming across with so many excellent teachers and classmates"* -student from Zhejiang University
- *"The project gave me the opportunity to meet many great students and professors. This has greatly broadened my horizons and expanded my knowledge beyond my undergraduate studies."* – student from Xi'an Jiaotong-Liverpool University
- *"Many thanks for this valuable experience. I have benefited greatly from being exposed to cutting-edge knowledge and trying to work on a project with students from different schools and disciplines. I will always cherish this memory."* -student from Nanjing Audit University
- *"It's a fantastic opportunity to experience the research atmosphere at Imperial College London. It is exhilarating to meet so many outstanding staff and professors talking like friends to us. It was also a valuable experience working with my teammates, who doesn't actually know each other before, but come together tighter after this programme. And my passion towards IC has never become so high like now."* – student from University of Nottingham Ningbo China.