Trinity College Dublin
Coláiste na Tríonóide, Baile Átha Cliath
The University of Dublin

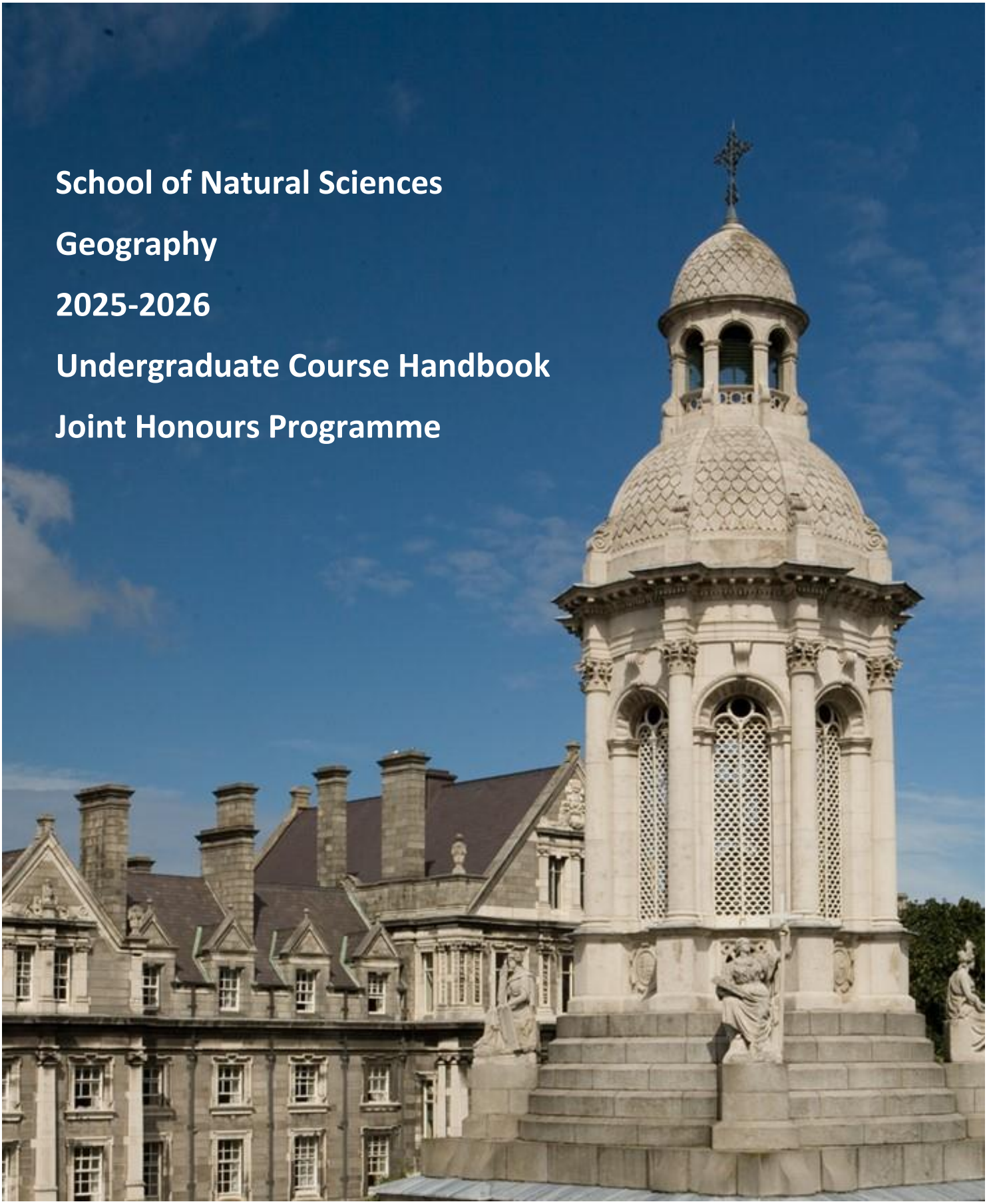
School of Natural Sciences

Geography

2025-2026

Undergraduate Course Handbook

Joint Honours Programme



IMPORTANT NOTE: The details contained in this booklet are subject to change. In the event of any conflict or inconsistency between the General Regulations published in the University Calendar and information contained in this course handbook, the provisions of the General Regulations will prevail.

Table of Contents

1. Welcome from the Head of Geography

Dear all, as we look ahead to a new academic year, a very warm welcome to you all on behalf of all staff and students at Trinity Geography! As I write this welcome note, the world we are living in and the planet we call home is increasingly characterised by instability, the product of both fast and slow violence that wends its way across diverse places, landscapes and spatial scales. Every day we are confronted in media, social media, and within the communities we live, with the never-ending and splintered outcomes of a polycrisis in environmental, societal, economic, and political systems: from storms, floods and uncontrollable fires to reactionary political shifts at domestic and global scales, from housing crises and widening urban inequalities, anti-migration politics, to the revanchist attacks on bodily autonomy and the rights of gender minorities. The impacts of this polycrisis are immediate, while its roots are both deep and relational. To acquire the critical skills to understand, and act, on these shits, it seems that there has never been a more appropriate time to delve into the study of Geography.

Geography is unique in offering a way of thinking about complex human-environment systems at different scales, from global to local, from milliseconds to millennia. It is an integrative subject with an international outlook and openness to interdisciplinary collaboration – and this requires a high degree of collaborative spirit, empathy, and collegiality.

Within Trinity, there have also been many new developments, including a number of climate change related initiatives alongside many new research initiatives in Geography towards achieving just transitions into a more socially, economically, and politically equitable future. You name it, Geographers are sure to be contributing to the discussions around all those topics and more in and beyond Trinity, making the links between local and global processes. We are uniquely placed to know and understand what that means and what actions are needed to understand, act, and, ultimately, meet those challenges through recognising the connectivity between human and physical/environmental systems and their variability across space and time.

Trinity Geography is currently placed in the top 100 Geography Departments globally. We aim most of all to challenge students intellectually, to foster and maintain world-class research and teaching in a supportive and collegial atmosphere. We teach and research across the discipline from development theory to glacial modelling, and from environmental and climate change to the workings of urban governance, Geopolitical restructuring, political economy and social geographies of identity, place and belonging. Our research and publications feed into global academic networks, policymaking think tanks, and organisations that put our thinking into practice. We communicate via journals, books, research films, and many other platforms in our digitally connected world. Whether the challenge is international development, urban regeneration, globalisation, climate change, sea level rise, or flooding, as geographers, we recognise that solutions can only be place specific. New technologies are continuously offering novel ways of interrogating the spatially diverse human-environment relations that are the focus of our discipline.

It is perhaps not surprising that geographers are in high demand within the employment sector: you will find our graduates within public, private, educational, as well as charitable sectors, as leaders in

multi-national organisations or as individual actors or entrepreneurs. They are known for their critical analytical interdisciplinary skills and knowledge, precisely what is required by those who make it their ambition to address critical societal challenges in a world that is rapidly changing.

We are very proud of our students, our dedicated team of staff, and the programmes that bring us together. Our modules form critical elements of the College's Sustainability and E3 (Environment, Engineering, Emerging Technologies) visions and we concentrate on providing high quality education through research-led teaching delivered by staff who are leaders in their respective fields.

In this handbook, you find an introduction to our staff and a description of all the modules we plan to deliver into the coming academic year, as well as critical information around assessment and progression through Geography.

Note that our modules contribute to both the Joint Honours and Science pathways into the subject, so please **always check with your programme / course office on the credit requirements for your chosen pathway and check with them on the regulations that are intended to ensure its effective implementation.** You will find a wealth of information on Trinity College's website, and we are in the process of updating our Geography webpage, so keep a close eye on that, too. We are delighted that you are considering or continuing studying with us in Geography in Trinity. We hope that you find the information in this handbook useful, and that you enjoy your time in Geography.

Dr Cian O'Callaghan, Head of Geography

Geography and the School of Natural Sciences

Geography at Trinity can be studied through the School of Natural Sciences (other disciplines in the School are Botany, Geology and Zoology) or through the Joint Honours Programme via the Arts, Humanities and Social Sciences. Natural Sciences is one of the largest schools in the Faculty of Engineering, Mathematics and Science and conducts research, and Geography is taught via the 'Geography and Geoscience' programme. The Faculty of Arts, Humanities, and Social Sciences, encompasses a wide suite of subjects that can be studied alongside Geography with the option of majoring in Geography. The School currently is home to 49 academic staff, 31 professional support staff, 35 research staff and manages seven undergraduate and four taught master's degree programmes. In addition, the school supports over 70 postgraduate research students spread throughout the four disciplines. As such, the School of Natural Sciences is one of few truly trans- and/or multi-disciplinary schools within College, incorporating and advancing a wide array of expertise across several diverse fields.

Learning Outcomes

On successful completion of your Geography degree, you will be able to:

- Discuss Geographical theories, concepts, methods and processes.
- Demonstrate a detailed knowledge of one or more specialised areas in Geography by, for example, being able to identify, analyse and resolve problems. Some of this geographical knowledge will be at the current boundaries of research.

- Apply this knowledge and comprehension in a manner that indicates a thorough and informed approach to your work, and have competences typically demonstrated through devising and sustaining arguments and formulating and solving problems.
- Use a number of specialised skills and tools, such as spatial data analysis and statistical techniques, which you can use selectively to address complex problems, or to conduct closely guided research.
- Devise data gathering experiments, and to gather and interpret relevant data to inform independent judgements which include reflection on relevant social, scientific or ethical issues.
- Communicate information, ideas, problems and solutions to both specialist and non-specialist audiences.
- Undertake further study with a high degree of autonomy.

Graduate Attributes

The Trinity Graduate Attributes represent the qualities, skills and behaviours that you will have the opportunity to develop as a Trinity student over your entire university experience, in other words, not only in the classroom, but also through engagement in co- and extra-curricular activities (such as summer work placements, internships, or volunteering).

The four Trinity Graduate Attributes are:

- To Think Independently
- To Act Responsibly
- To Develop Continuously
- To Communicate Effectively

Why are the Graduate Attributes important?

The Trinity Graduate Attributes will enhance your personal, professional and intellectual development. They will also help to prepare you for lifelong learning and for the challenges of living and working in an increasingly complex and changing world.

The Graduate Attributes will enhance your employability. Whilst your degree remains fundamental, also being able to demonstrate these Graduate Attributes will help you to differentiate yourself as they encapsulate the kinds of transversal skills and abilities, which employers are looking for.

How will I develop these Graduate Attributes?

Many of the Graduate Attributes are 'slow learned', in other words, you will develop them over the four or five years of your programme of study.

They are embedded in the curriculum and in assessments, for example, through undertaking independent research for your final year project, giving presentations and engaging in group work.

You will also develop them through the co-curricular and extra-curricular activities. If you help to run a club or society you will be improving your leadership skills, or if you play a sport you are building your communication and team-work skills.

2. The Undergraduate Degree Programmes

Geography at Trinity may be studied via one of two routes (see also 'Geography and the School of Natural Sciences' above). **For any administrative information around your course structure and credit requirements, please contact the respective course or programme office**:

1. The Joint Honours Moderatorship. Students can take Geography with another subject from the Arts, Humanities and Social Sciences and opt to specialise in Geography in the final two years. Further information can be found at https://www.tcd.ie/tjh/
   A Joint Honours degree allows different pathways. If you decide to study Geography via Joint Honours, it is your responsibility to carefully study your pathway and liaise with the Joint Honours office (joint.honours@tcd.ie) in relation to any question or issue about it.
   2. Geography and Geoscience (TR062). During the first two years students study a common programme but can choose to specialise in Geography in the final two years. (Please see the TR062 handbook for details of this programme). Further information can be found at https://www.tcd.ie/courses/undergraduate/courses/science/

Foundation Scholarship Examination in Geography

The Scholarship examination in Geography (Joint Honours) will consist of a total of three papers. Paper one is a 3 hour paper. Paper two is a 1.5 hour paper and Paper 3 is a 2 hour paper.

The first paper will examine the subjects covered in the Freshman 'Spaceship Earth' and 'Anthropocene' courses. The second paper will deal with more general topics within the discipline of Geography. The third paper is labelled as a 'Special Topics in Geography' paper and will consist of a specific theme or topic selected by the Head of Geography in consultation with staff members each year.

The Foundation Scholarship examination papers in Geography are constructed in such a way as to test the depth and breadth of the candidates' overall understanding of the discipline.

The first three-hour paper is specifically designed to allow candidates to demonstrate a superior appreciation of the course- based material of the junior freshman programme. In the second 1.5-hour paper candidates will have an opportunity to demonstrate their ability to synthesise knowledge and appraise, critically, the broader issues; thus allowing them to integrate disparate elements in the intellectual discourses within the discipline of Geography. In this regard, candidates are required to write two essays selected from an unseen list of broadly themed topics within Geography which will change from year to year.

The third and final paper will consist of a specially selected cross-cutting theme, which will be changed each year. The students will be presented with an outline of the theme and associated readings. The exam will involve the selection of two essay questions from a choice of six questions drawn from the theme as outlined. Students will be advised by the Head of Geography and an appointed representative on how their chosen pathway corresponds to the number of exams they will need to undertake in geography. This will be done in a way that ensures students undertake the required amount of hours of exams so as to fulfil the requirements of the degree programme.

Foundation Scholarship exam

Students should note the following: If students have dropped Geography or are taking it as a minor subject, or are minoring in it and taking 3 papers in their other subject, they should sit Paper 3; When students are studying their two subjects equally or where they have opted to take two papers in both their major and minor, they should sit Papers 1 and 2; Where students have gone towards a Single Honours or have majored in Geography and opted for the 3/1 paper structure, they should sit Papers 1, 2, and 3.

Erasmus/Study Abroad

Students may study abroad in their Junior Sophister year.

IMPORTANT NOTE for exchange students carrying out dissertation/capstone projects in Geography:

If you wish to embark on study abroad and wish to (and are eligible to, given your Programme pathway) carry out your capstone / dissertation project in Geography, **you must ensure that you contact the Geography Office (geog@tcd.ie) as soon as you know that you may be away** and ask to be enrolled 'remotely' on the module that allows you to be allocated a supervisor for your final year project while you are away. This will also provide you with access to information for the necessary dissertation/capstone preparation you should embark on.

All students wishing to study abroad must agree a Teaching Contract with Geography's Study Abroad Co-ordinator, Dr Mark Hennessy – mhnnessy@tcd.ie

Students to be nominated for an Erasmus exchange and mobility grant will be selected on the basis of their overall Junior Fresh grade and a 600-word statement relating to their suitability for an exchange, to be submitted to the Study Abroad Coordinator by the last day of Michaelmas term in their Senior Fresh year.

For details of the Department's exchange partnerships see the College website.

Modules and ECTS for Erasmus/Study Abroad students

You must ensure you have completed your module choice form correctly. Students who are away for one semester only, must ensure that their module information and ECTS are correct for Trinity modules at the usual time:

1. For a full year abroad, email the Geography Office to ensure you are exempted from any compulsory modules.
2. For a student away for either Semester 1 or Semester 2 only, check your my.tcd.ie student account. Contact the Geography Office if your module codes or ECTS for your home semester are incorrect.

This information generates your end of year Coursework and Examination requirements.

3. Course Structure and Module Outlines

The Geography programmes at Trinity have a modular structure that combines compulsory and optional elements, thereby giving you more module choice as you progress with your studies. Please note that your specific programme structure may vary and **you must check carefully the credit requirements and modules that are available to you via your programme office**.

For information and guidance regarding your choice of Pathway in the Joint Honours programme go to:

https://www.tcd.ie/tjh/currentstudents/year1/pathways/

Every element of the teaching programme at Trinity is associated with a credit value.

The credits used in this book are equivalent to the European Credit Transfer and Accumulation System (ECTS). This is a student-centred system that is based upon the workload required to achieve the programme objectives. One year of study comprises work totalling 60 credits (equivalent to 60 ECTS).

++ One ECTS credit is equivalent to approximately 25 hours of student input ++

Note: Student input does not correlate with the number of contact hours (i.e. how long you will spend in lectures, seminars and practical sessions). Instead it measures YOUR input and includes not only your attendance at lectures etc. but also the time taken for completing assessment tasks and individual study including assigned reading, revision and examinations. Working outside of class is a vital element of your studies at Trinity and to meet the credit requirements it will sometimes be necessary to work outside of term time or the regular (5-day) working week. Module descriptions include illustrative breakdowns of input time to assist you in planning your work. These breakdowns are guides and precise input hours will inevitably vary between individuals.

Semesters and Module Teaching Blocks

Teaching is delivered in two semesters with week seven of each semester a "Study Week". Taught modules valued at 10 ECTS normally run for the entire length of a semester while this may vary for 5 ECTS modules, which may be half a semester in length.

Check the module descriptions for timetable information and guidance on required student input.

Students who register after the beginning of a Geography module (e.g. by transferring in after the start of the module) may miss examinations and course work. If this happens the student will be expected to take missed parts of the module at the Supplemental Session.

Please note that the "Study Week" is not a holiday! You are expected to undertake academic work during this period in each semester and at times this will include field excursions.

Modules will have online material including notes, reading lists and assessment details ready for you in the first week of the teaching semester. You should check your module pages on Blackboard regularly for updates and information relating to your modules. Module related queries not addressed in this handbook or on your module information on Blackboard should be directed to the respective module coordinator.

General enquiries not covered within this booklet, on the website or on Blackboard should be directed to the relevant course coordinator and copied to the Geography office (geog@tcd.ie):

For Joint Honours (JH): Dr Federico Cugurullo – cugurulf@tcd.ie

For TR062 Geography and Geoscience: Dr Margaret Jackson - margaret.jackson@tcd.ie

For Erasmus/Exchange, Dr Mark Hennessy - mhnnessy@tcd.ie

Programme Overview Academic Year 2025/26

	MODULE	Semester	ECTS Credits
Year 1 (JF)	GGU11926 Human Geography: Society & Space	1&2	10
	GSU11003 The Anthropocene	2	10
	GSU11001 Spaceship Earth: An Introduction to Earth System Science	1	10
Year 2 (SF)	GGU22006 Physical Geography: Dynamic Earth	2	10
	GGU22008 History and Philosophy of Geography	1	5
	GGU22009 Introduction to Geospatial data and GIS	2	5
	GGU22300 Academic Writing for Geographers	1&2	10
	GGU22925 Human Geography: Changing Worlds	1	10
Year 3 (JS)	GGU33002 Residential Field Course 1	1	10
	GGU33003 Residential Field Course 2	2	10
	GGU33011 Earth's Climate: Past, Present, and Future	2	5
	GGU33014 Research Frontiers in Geography	1	5
	GGU33915 Globalisation and Geopolitics	2	5
	GGU33928 Advanced Research Methods in Geography	2	5
	GGU33931 Environmental Governance 1	2	5
	GGU33933 Geographical Information, Data and Tools	1	5
	GGU33937 Urban Economic Structure and Regeneration	1	5
	GGU33939 Exploring the Sustainable City	1	5
	GGU33019 Economy, Finance & Space	2	5
	GGU33020 Research Skills and Data Analysis in Geomorphology 1	1	5
	GGU33021 Research Skills and Data Analysis in Geomorphology 2	2	5
Year 4 (SS)	GGU44930 Geography Dissertation	1&2	20
	GGU44977 Environmental Governance 2	2	5
	GGU44933 Geographical Information Systems (GIS): Data & Tools	1	5
	GGU44936 Globalisation & African Development	2	5
	GGU44968 Historical Geography	2	10
	GGU44976 Glaciers and Glaciation	1	5
	GGU44978 Finance and Climate Justice	1	10
	GGU44979 Living on the Edge: Estuaries and Coasts	2	5
	GGU44901 Natural Hazards	1	5
	GGU44903 Carbon and Climate: How The Carbon Cycle Controls Our World	1	5
	GGU44902 Karst: Earth's Limestone Landscapes	2	5

NB: This programme may be subject to change. S1 and S2 indicates the Semester a module is provisionally timetabled for.

Please note that some modules may have limited capacity and will be allocated on a first come basis.

JUNIOR FRESHMAN

JH Students must take all three introductory modules in Geography:	
Semester 1	**Semester 2**
CORE MODULES (30 Credits; 15 per semester)	
GSU11001: Spaceship Earth: Introduction to Earth System Science (10 Credits)	**GSU11003:** The Anthropocene: Constructing the Human Planet (10 Credits)
GGU11926: Human Geography: Society and Space (10 Credits)	

GSU11001 Spaceship Earth: An Introduction to Earth System Science 10 ECTS

Module Co-Ordinator: Dr Robin Edwards (robin.edwards@tcd.ie**)**

Outline: More than 8 billion people now inhabit the Earth and no corner of the planet is unaffected by human activity. The rise of our species has been fuelled by our ability to access planetary storehouses of energy and employ this to manipulate the environments around us. The global-scale of human impacts has led some to suggest we are entering a new era of Earth history - the Anthropocene. Dealing with the effects of environmental and climate change is one of the most significant challenges that our species faces in the 21st century.

This module provides a foundation for understanding global environmental issues by considering the Earth as an interconnected system in which matter and energy are exchanged between the Geosphere, Biosphere, Atmosphere, Hydrosphere and Anthroposphere. It considers the life-support systems of 'Spaceship Earth' and aims to provide a theoretical basis for evaluating the role of humans as agents of climate and environmental change.

Learning Outcomes: On successful completion of this module students will be able to:

- Outline the fundamental concepts of Earth Systems Science with reference to its major subsystems: Geosphere, Biosphere, Atmosphere, Hydrosphere and Anthroposphere
- Illustrate how material and energy are cycled through the Earth system
- Describe the links between biotic and abiotic systems and their role in maintaining a habitable planet
- Apply an Earth Systems approach to describe the phenomena of environmental and climate change
- Discriminate between 'weather' and 'climate' and situate concerns about current climate change in a longer-term (geological) context
- Identify how human activities modify Earth System function
- Apply core concepts in geography and geoscience to real-world examples

Assessment: End of semester examination: 50% of module mark. The exam format will be closed book, in-person, fifty multiple choice questions drawn from across the lecture course.

Coursework: 50% of module mark. In-course activities and associated MCQ quizzes. Details and mark breakdowns will be published in Blackboard.

GSU11003 The Anthropocene 10 ECTS

Module Co-ordinator: Dr Rory Rowan (rowanro@tcd.ie**)**

Outline: The 'Anthropocene' is a term that has become widely used since Nobel Prize Laureate Paul Crutzen and Eugene Stoermer began popularizing it in 2000. They argued that humans had so dramatically transformed the planet that it was time to pronounce a new geological epoch: the Anthropocene—or, 'the human age.'

Whether the Anthropocene is officially accepted as the designation of a new geological epoch or not, the term has sparked debates and discussions across the natural sciences, social sciences, arts and humanities. The interdisciplinary interest in the Anthropocene demonstrates that the term is more than simply a geological or physical phenomenon; it has complex social, cultural, political, and economic dimensions.

From plastic-filled oceans to species extinction, there is little doubt that human activities are making their mark on the planet. The staggering scale and profound consequences of human activities on the environment raise a series of questions we will consider together. What are the underlying drivers of these environmentally damaging activities? Do we all bear equal responsibility? Who is being affected most? Are solutions to be found in technological engineering or do we need more radical social, cultural and political transformations? Why has action on the environment been so ineffective to date, and where can we identify signs of hope for a better future? This module covers these questions and more by engaging ideas and perspectives from the natural sciences, social sciences, arts and humanities.

Learning Outcomes: At the end of this module students are expected to be able to:

- Understand and explain the scientific and cultural significance of the Anthropocene
- Critically engage with key debates over the Anthropocene that span the natural sciences, social sciences, arts and humanities
- Identify the major ethical and political questions facing humanity in a time of ecological uncertainty and environmental degradation
- Connect the Anthropocene with current events and everyday life, particularly as relates to urban sustainability.
- Critical reflect on the production of scientific knowledge, including the importance of the social, historical and institutional context, contested processes of consensus building, and the ways in which science is mediated, both with regard to the Anthropocene and more widely
- Developed their reading skills and capacity to synthesize and build arguments through involvement in group seminars
- Developed their writing skills through writing assignments

Assessment:

The assessment will consist of a single 2-hour examination to be held during the Spring examination period. The date for the exam is yet be determined but students will be informed of this in class, via Blackboard and via the Course Coordinator, as well as through the Examinations Office.

Students will be expected to answer two questions: one question relevant to the first section of the module (the Anthropocene) and one question from either the second section (the Ancient Anthropocene) or the third section (the Urbanocene). Each of the two questions answered will be worth 50% of the module mark.

Students eligible can sit the examination in the reassessment session.

Module Breakdown: Contact Hours (Lectures = 20 hours; Seminars = 16 hours); Additional Input (Lecture/Seminar Preparation = 80hrs; Coursework preparation = 85hrs) TOTAL = 201hrs.

Key texts:

Class readings are given each week but the assigned text for the module as the whole is: Lewis, S., & Maslin, M. (2018). *The Human Planet: How We Created the Anthropocene.* Penguin Random House.

Module Breakdown: Each student has 9 hours of lectures and 5 hours of seminars.

GGU11926 Human Geography: Society & Space 10 ECTS

Module Co-ordinator: Dr Cian O'Callaghan (ocallac8@tcd.ie**)**

Outline: This module aims to provide you with an insight into what it means to "think geographically". Through contemporary and historical examples, it will provide you with an understanding of the development of the discipline of Geography, its philosophical bases and methodological practices. It will introduce you to a number of the key elements of human geography with which you will deal in greater depth in later years.

The module spans both Semester 1 (Michaelmas) and Semester 2 (Hilary). It is divided into four sections. The first half of the module will cover sections 1 and 2, while the second half of the module will cover sections 3 and 4.

The overarching aim of sections 1 and 2 is to understand a geographical view of the world and to critically consider the relationships between the historic evolution of the discipline of Geography and the multiplicity of modern approaches. While the overarching aim of sections 3 and 4 is to introduce urbanisation and globalisation as key components of human geography which connects together many different global concerns.

Section 1: The geographical tradition

The first section of the module will introduce you to the discipline of Geography. It will do so in two ways:

I. Through the critical exploration of the evolution of the discipline of geography within the development of rational scientific modes of enquiry and beyond.
II. Through introducing and examining a series of core concepts in Geography.

Section 2: An introduction to "thinking geographically"

The second section of the module takes this further by examining the approach of "thinking geographically. In particular, the section uses a reflection and analysis of the geographical dimensions

of three contemporary events currently shaping the world: Brexit, (anti)globalisation, and the migrant crisis. Through the module we will be asking: how are these events geographical and how can geographical methods be used to understand them?

Section 3: Global urbanisation and its problems

The section of the module will explore global urbanism and its problems and use cities and urbanisation as a lens to further explore what it means to "think geographically". It will again do so in two ways:

I. Through the analysis of the evolution towards an urban condition, we will explore how urbanisation occurs, why urbanisation is a global phenomenon and recognise the forces underlying the growth of urban settlements.
II. Through a reflection and analysis of a series of thematic urban problems or challenges, we will seek to address how the spatial form of the urban influences and organises human life in profound ways.

Section 4: A critical exploration of the issues of governance, economy and space in the context of globalisation

This is to equip you with theoretical insights that help you to understand the underlying reasons for spatial inequalities resulting from economic globalisation. This is supplemented with a range of case studies that illustrate the impact of global forces on local areas.

The central aim of this part of the course is to introduce students to the intertwined nature of the contemporary economy at different scales.

Learning Outcomes: On successful completion of this module students will be able to:

- Describe the evolution of the discipline with respect to the philosophical bases which have contributed to its development, the range and changing character of methodological approaches and the foci of geographical enquiry;
- Demonstrate a knowledge of contemporary approaches to the study of human geography;
- Display an ability to use an approach to "thinking geographically" to analyse current events;
- To develop an ability to identify and engage critically with relevant debates within human geography through an in-depth analysis of relevant literature.
- Identify how urbanisation occurs, why urbanisation is a global phenomenon and recognise the forces underlying the growth of urban settlements;
- Describe the impact of urbanisation and globalisation on different parts of the world;
- Apply approaches in urban geography to analyse key urban problems and challenges.
- Discuss why economic globalisation may result in spatial inequalities at various scales.

Assessment: Continuous assessment (100%).

Module Breakdown: The 10-credit module comprises 250 hours of student workload, of which only a minority comprises direct contact with staff (lectures and tutorials).

Lectures 40 hours; tutorials 4 hours; tutorial preparation 40 hours; essays and projects 86 hours; other reading 80 hours.

Key texts: In addition to material presented during lectures or in tutorials, the following texts are considered to be key reading:

Section 1 & 2

- Boyle, M. (2015) *Human Geography: A concise Introduction* (Wiley-Blackwell, Chichester).
- Dicken, P. (2014) *Global Shift (7th Edition)*. London: Sage.
- Gilmartin, M., Wood, P.B, O'Callaghan, C. (2018) Borders, Mobility and Belonging in the Era of Brexit and Trump. (Policy Press, Bristol)
- Johnson, R., & Sideway, J.D. (2015) *Geography and Geographers: Anglo American Geography since 1945 (seventh edition)* (Routledge, London, 2015)
- Jones, M., Jones, R., Woods, M., Whitehead, M., Dixon, D., & Hannah, M. (2014). *An introduction to political geography: space, place and politics*. (Routledge: London)
- Mitchell, D. (2000) *Cultural geography: A critical introduction* (Blackwell: London).
- Sparke, M. (2012) *Introducing globalization: Ties, tensions, and uneven integration*. (John Wiley & Sons)

Section 3

- Brady, J., & McManus, R. (2018). Marino at 100: A garden suburb of lasting influence. *Irish Geography*, *51*(1), 1-24.
- Cugurullo, F. (2016). Urban eco-modernisation and the policy context of new eco-city projects: Where Masdar City fails and why. *Urban Studies*, *53*(11), 2417-2433
- Edwards, C., & Imrie, R. *The short guide to urban policy*. (Policy Press, Bristol, 2015).
- Gandy, M. (2003). *Concrete and clay: reworking nature in New York City*. MIT Press.
- Hall, P. (1988). *Cities of tomorrow: An intellectual history of urban planning and design since 1880*. John Wiley & Sons.

- Jonas, A. E., McCann, E., & Thomas, M. *Urban geography: a critical introduction*. John Wiley & Sons, Chichester, 2015).
- Kitchin, R., Coletta, C., & Heaphy, L. (2018). Actually existing smart Dublin: Exploring smart city development in history and context. In *Inside smart cities* (pp. 83-101). Routledge.
- Madden, D., & Marcuse, P. (2016). In defense of housing. *The politics of crisis*. London. Verso.

Section 4

- Coe, N,M., P. F. Kelly, and H. W. C. Yeung (2019) *Economic Geography: A Contemporary Introduction (3rd Edition)*. Wiley-Blackwell.
- Dicken, P. (2014) *Global Shift (7th Edition)*. London: Sage.
- MacKinnon, D. and A. Cumbers (2018) *An Introduction to Economic Geography: Globalisation, Uneven Development and Place (2nd edition)*. London: Routledge.
- *Sassen*, S. (1991) *The Global City*: *New York, London, Tokyo*. Princeton-New Jersey: Princeton University Press.
- Sokol, M. (2011) *Economic Geographies of Globalisation: A short Introduction*. Cheltenham: Edward Elgar.

SENIOR FRESHMAN

Semester 1	Semester 2
CORE MODULES (20 credits, 10 per semester)	
GGU22925: Human Geography Changing Worlds (10 Credits)	GGU22006: Physical Geography: Dynamic Earth (10 Credits)
GEOGRAPHY MAJOR CORE MODULES (20 credits, 10 per semester)	
GGU22008: History and Philosophy of Geography (5 Credits)	GGU22009: Introduction to Geospatial data and GIS (5 Credits)
GGU22300: Academic Writing for Geographers (10 Credits)	
OPTIONAL MODULES	
GGU22008: History and Philosophy of Geography (5 Credits)	GGU22009: Introduction to Geospatial data and GIS (5 Credits)

GGU22925 Human Geography: Changing Worlds 10 ECTS

Module Co-ordinator: Dr Martin Sokol (SOKOLM@tcd.ie)

Outline: This module introduces students to a number of key issues within contemporary human geography and exposes them to a range of methodological approaches and research techniques.

The overarching theme of the module is the way in which historical, cultural, environmental, political and economic geographies are changing under the force of globalisation.

Specific areas covered include an examination of globalisation from a historical perspective; approaches, methods and sources in historical geography; emergence of global environmentalism in a changing world; the creation of 'third world' and the impact of globalisation on the developing world; and political and economic aspects of globalisation.

The module will cover:

Section 1 - Approaches and methods in historical geography: This section of the module introduces the diversity of approaches and methods employed in historical geography. Historical geography has traditionally been concerned with the evolution of landscapes and patterns of areal differentiation

over time. Since the 1980s historical geography has been open to theoretical and methodological innovation. This section gives an introduction to the more traditional and modern approaches to the use of historical methods in geographical studies.

Section 2 - Emerging Environmental Movements: Interactions between humans and the environment are of central concern for geographers. These interactions may create positive or negative outcomes (or in some cases both) across time and space and are often geopolitically motivated. This section will address how human geography approaches the uneven and contested relationships that exist between humans and their environments in an increasingly globalised world.

Section 3 - Geographies of development: Most of humanity lives in the so-called "developing world". This section of the module explores how the Third World was created historically and the mechanism through which it is reproduced. Attention will also be paid to the impact of "free" market policies in the developing world.

Section 4 - Economic geographies of globalisation: This section of the module will cover issues related to contemporary economic globalisation; governance of globalisation; multi-national corporations; global finance; global financial and economic crisis; geographies of transition economies; and policy challenges in the age of globalisation.

Learning Outcomes: On successful completion of this module students will be able to:

- Identify important topics and themes in contemporary human geography;
- Appraise some of the major current debates in human geography;

Assessment: Examination (60%); course work (40%)

Module Breakdown: Contact hours (Lectures and seminars = 22 hrs); Additional Input (Lecture-related reading and individual study = 140hrs; Course work preparation = 48hrs; Revision/Examination = 40 hrs). TOTAL = 250hrs.

Key texts:

Section 1

- Baker, A.R.H. (2003) *Geography and History: Bridging the Divide*. Cambridge: Cambridge University Press.
- Graham, B. J., & Nash, C. (2000) *Modern Historical Geographies*. Harlow: Prentice Hall.

Section 2

- Doyle, T., McEachern, D. & MacGregor, S. (2016) *Environment and Politics (4th edition)*. London: Routledge.
- Dryzek, J. & Schlosberg, D. (2005) *Debating the Earth: the environmental politics reader*. Oxford: Oxford University Press.

Section 3

- Willis, K. (2020) *Theories and Practices of Development* (3rd edition). London: Routledge

Section 4

- Sokol, M. (2011) *Economic Geographies of Globalisation: A Short Introduction*. Cheltenham: Edward Elgar.

GGU22006 Physical Geography: Dynamic Earth 10 ECTS

Module Co-ordinator: Dr Pete Akers (pete.akers@tcd.ie)

Outline: Outline: Physical geography is an exciting scientific discipline that examines the Earth and how it functions. Geographers contribute to scientific efforts to understand the emergence of truly globally significant human–environmental linkages by investigating and modelling long-term changes to Earth surface process and dynamics. This type of knowledge is critical in allowing humans to live sustainably on planet Earth.

In this module you study a wide variety of landscapes to understand the processes that shape our planet's features and why they vary spatially. An underlying theme is to examine how aspects of physical geography affect human lives and, in turn, how people impact the dynamics of the physical landscape. Learning in this module is a combination of in-class lectures and at-home directed Google Earth activities where you explore, examine, and measure real world landscapes. The module builds upon previous geographic ideas introduced in JF Spaceship Earth and Anthropocene, but is accessible to a broad scientific audience. For those continuing on with a geography or geoscience sophister degree, the concepts covered in this module will provide a firm foundation for more advanced later modules.

Learning Outcomes: On successful completion of this module, students should be able to:

- Critically evaluate the influence of topography, climate, and humans on a variability of landforms and landscapes.
- Explain the theories underlying how and why specific landforms vary over space and time.
- Evaluate the complex and reciprocal relationships between physical and human aspects of environments and landscapes.
- Assess the relative importance of infrequent/extreme versus frequent/moderate events in driving landform change.
- Discuss the potential application of geographical concepts, techniques and expertise as a means of addressing a range of issues facing the Earth and its people at a global and local scale.
- Explain the importance and relevance of physical systems and landforms to the future of human society.

Assessment: 2-hour examination (60%) and continuous assessment of activities (40%)

Module Breakdown: The module is taught through lectures (40 hours), reading and work on activities (196 hours)

Key Texts:

- Holden, J. (2017) *An Introduction to Physical Geography and the Environment*, Pearson

GGU22008 History and Philosophy of Geography 5 ECTS

Module Co-ordinator: Dr Mark Hennessy (mhnnessy@tcd.ie)

Module Outline: This module is divided into 8 sections:

A. The classical world. 1. Hecataeus, Eratosthenes and the early Greek geographers. 2. Ptolemey, Strabo, Pliny the Elder and other geographers from the period of the Roman empire.

B. Geography in the age of Enlightenment. Focus on Alexander von Humboldt.

C. Geography in the age of Victorian exploration. The relationship between empire and geography is a key theme in this section.

D. French Geography in the late nineteenth and early twentieth century. The contrasting ideological context of the Vidalian school and the work of Élisée Recus is considered. The influence of German geographers such as Von Humboldt, Ritter and Ratzel on this tradition is also considered.

E. The "Quantitative Revolution". Developments in geography in the late 1950s, '60s and '70s are examined and are contrasted with Hartshorne's earlier outline of the scope and methods of geography.

F. Radical and Marxist Geography. The development of critical approaches in geography is traced with a particular focus on the works of William Bunge and David Harvey.

G. Feminism and Geography. The influence of Feminist perspectives on research and writing in geography is traced and set within the wider context of the introduction of radical and anti-systemic ideologies to the practice of geography.

H. Postmodernism and Geography. This section explores how the philosophical, methodological and ideological innovations associated with Postmodernism have influenced the practice of geography.

Learning Outcomes:
On successful completion of this module you will be able to:

- Demonstrate a knowledge of how the discipline of Geography has changed from Classical times to the present
- Have a critical awareness of how intellectual and disciplinary change is related to broader patterns of historical change
- Evaluate debates regarding the scope and purpose of the discipline of Geography
- Compare different approaches to the study of the Geography

Key Texts:

- Peet, R. (1998). *Modern Geographical Thought*. Oxford: Oxford University Press.
- Stoddart, D. R. (1987) *On Geography*. Oxford: Oxford University Press.
- Dueck, D. (2012) *Geography in Classical Antiquity*. Cambridge: Cambridge University Press.

Method of assessment: 50% Exam; 50% continuous assessment

GGU22009 Introduction to Geospatial data and GIS 5 ECTS

Module Co-ordinator: Dr John Connolly (john.connolly@tcd.ie)

Outline: Digital mapping technologies, earth observation and ever-increasing computing power have led to what some call a 'geospatial revolution'. While mapping and the acquisition of images and remotely acquired environmental data used to be a specialist skillset, much of these data are freely via the web-based applications. Commercial companies as well as governments are investing heavily in this type of technology and academic researchers are using geospatial data within wide-ranging fields of research. Cartography, Mapping and geospatial science, always a key component of the Geographers' toolkit, has thus taken a monumental leap forward – but this comes with enormous challenges and responsibilities that can only be met by graduates that have the appropriate skills to evaluate and understand the basic principles of this technology and its uses. This module provides students with the basic level of understanding required for an appreciation of the *principles* that underpin mapping, cartography and GIS. This module walks students through the history of mapping in Ireland and onto the practical elements of cartography, finishing with a practical introduction to GIS using Google Earth. The module is the foundation for sophister modules in GIS (GGU33933) and remote sensing (GGU44933). These sophister modules provide a more in-depth introduction to and use of remote sensing, image processing and GIS.

Learning Outcomes: On successful completion of this module, students should be able to:

- Appreciate different ways of representing geo-spatial data and mapping information.
- Appreciate the importance of accuracy and precision in relation to mapping.
- Understand the meaning and importance of spatial resolution and different types of spatial data (raster/vector, digital/manual)
- Assess the appropriateness of different geospatial data representations for different purposes.
- Critically reflect on, and assess, the use of GIS applications for a variety of purposes (in the human and physical environment)
- Confidently and critically deploy a number of basic, but key, geospatial data presentation methods.

Assessment: 100% continuous assessment

Module Breakdown: The module is taught through lectures, practical classes, reading and work on assignments.

GGU22300 Academic Writing for Geographers 10 ECTS

Module Co-ordinator Dr Pete Akers (Pete.Akers@tcd.ie)

Outline: This module aims to support and develop the academic writing of students in preparation for their sophister modules and future careers. Students in this module will gain experience in reading academic literature on the theme of resilience in geography and synthesizing their own responses to this literature through guided activities and writing. This module is designed to give students frequent and personal feedback on their writing with the expectation that students will continually grow in writing confidence and skill over the term. Students will build a writing portfolio over the course of this module that collects their accumulated writings and critiques to serve as a reference for their experiences and growth. Throughout this module, students will also read and evaluate the writing of their peers to gain addition experience in the writing styles and techniques of others. Assessments throughout this module will focus on student effort in their writing, their responses to critical feedback in revised writing, and their engagement and support in the classroom, including with peer evaluations.

Learning Outcomes: On successful completion of this module students will be able to:

- Succinctly summarize and critique existing academic geography literature.
- State, explain, and defend their independent analyses on geographic topics through written work.
- Constructively critique their own written work and that of their peers and revise their work according to received critiques.
- Present a writing portfolio showing their growth over the course of the module.

Assessment: Course work, including literature review (20%), an analytical essay (10%), peer review and revision (20%), and a final portfolio (50%).

Module Breakdown: Contact Hours = 33 hr; preparation for course and review = 67 hr; preparation and completion of assessments = 150 hr. TOTAL = 250 hrs.

JUNIOR SOPHISTER

Semester 1	Semester 2
CORE MODULES (20 Credits)*	
*GGU33933: Geographical Information Systems: Data and Tools (RS/GIS) (5 Credits)	**GGU33928: Advanced Research Methods in Geography (5 Credits)
Students Majoring in Geography It is Compulsory to take either/or	
*GGU33002: Residential Field Course 1 (10 credits)	*GGU33003: Residential Field Course 2 (10 credits)
OPTIONAL MODULES	
GGU33939: Exploring the Sustainable City (5 Credits)	GGU33915: Globalisation and Geopolitics (5 Credits)
# GGU33014 Research Frontiers in Geography (5 Credits)	GGU33011 Earth's Climate: Past, Present and Future (5 ECTS)
GGU33020 Research Skills and Data Analysis in Geomorphology 1 (5 credits)	GGU33021 Research Skills and Data Analysis in Geomorphology 2 (5 credits)
GGU33937: Urban Economic Structure and Regeneration (5 credits)	GGU33931: Environmental Governance 1 (5 Credits)
	GGU33019 Economy, Finance & Space (5 Credits)
Trinity Elective (5 credits)	Trinity Elective (5 credits)

*Modules are compulsory for students intending to Major in Geography in Senior Sophister

**If you wish (and are eligible) to undertake a capstone/dissertation in Geography,you must take Advanced Research Methods 1. For students on exchange abroad, please see relevant section above in this handbook.

#This module is highly recommended to anyone wishing to consider carrying out a capstone/dissertation project in Geography.

GGU33933 Geographical Information Systems: Data and Tools 5 ECTS

Module Co-ordinator: Dr John Connolly (john.connolly@tcd.ie)

Pre-requisites: None

Note: Places on this module are limited by computer laboratory spaces available (currently 28). It is highly recommended that students purchase a windows-based laptop/PC for working in Geography. In the 3rd and 4th year ArcGIS Pro will be used and this **only** runs on PC (i.e. **it does not work on Macs**). ArcGIS Pro **is** available on campus computers.

Outline: This module explores how to identify, create, manage and use geographic data and geographical information systems (GIS). The aim is to teach students about how data is constructed, used, found, and utilised by geographic researchers within ESRI's ArcGIS Pro environment. The module will enable students to: interpret maps; find and evaluate data; organise, manipulate and analyse data; create projects and maps using GIS; identify how geographic data construction and analysis differs from typical quantitative approaches. This module **is a prerequisite to GGU44933**.

Learning Outcomes: On successful completion of this module students will be able to:

- Explain the concepts and theories that underpin GIS and outline their application to the real world;
- Enable students to identify, create, manage and use geographic data and a GIS
- Demonstrate technical proficiency in the use of an industry standard GIS software package;
- Apply GIS technologies in for geospatial problem-solving in Geography;
- Design, implement and present the results from a project using GIS technologies.

Assessment: 100% continuous assessment **Module Breakdown:** Contact Hours (Lectures & Practical's = 33hrs); Additional Input (Reading and course assignments = 93hrs). TOTAL = 125hrs.

Key Texts:

- Longley et al. (2011) *Geographic Information Systems & Science.* 3rd Edition. Wiley: NJ
- Heywood et al. (2011) *An Introduction to Geographical Information Systems.* 4th Edition. Prentice Hall: NJ

GGU33928 Advanced Research Methods in Geography 5 ECTS

Module Co-ordinator: Professor Iris Möller (moelleri@tcd.ie)

Pre-requisites: None

Outline: The objective of this module is to develop further the research skills of students, in order that they will be well-equipped to plan and carry out an independent research project, which they may be required or opt to do in the form of a dissertation going from their JS to SS year. The module focuses on approaches to solving geographic problems, through topics such as conducting literature reviews, research project design, and presentation skills, and how to address questions of ethics, integrity, professionalism, philosophy in research. In addition to classes, students on this module are also expected to attend research seminars in the School, and more broadly in College, in particular (although not exclusively) those of relevance to Geography.

The assessment for this module comprises several components, including critical literature reviews of key research areas relating to Geography, and the writing and presentation of a research proposal. For dissertation preparation regulations specific to Erasmus students, see page 5.

Learning Outcomes: On successful completion of this module students will be able to:

- Develop a research plan for a Geography dissertation;
- Communicate geographic ideas and results effectively in written and oral form;
- Evaluate the strengths and weaknesses of complementary and competing methodological approaches and research techniques commonly used by geographers;
- Develop a basis for informed opinions about the important intellectual and methodological debates in Geography.

Assessment: Course work (100%)

Module Breakdown: Contact Hours (Lectures = 12hrs); Additional Input (Reading, including weekly assignments = 62hrs; Proposal Reading and Writing = 48 hrs; Presentations = 3 hrs). TOTAL = 125 hrs

Key Texts:

- Clifford, N. & Valentine, G. (2003) *Key methods in geography*. London: Sage
- Cloke, P., Crang, P. & Goodwin, M. (2004) *Practising Human Geography* Arnold: London
- Knight, P.G. & Parsons, A.J. (2013) *How to do your Dissertation in Geography and Related Disciplines*
- Montello, D. R. & Sutton, P.C. (2006) *An Introduction to Scientific Research Methods in Geography*

GGU33002 Residential Field Course 1 10 ECTS

Module Co-ordinator: Dr Mary Bourke (bourkem4@tcd.ie**)**

Pre-requisites: None

Note: You must select **EITHER** GGU33002 **OR** GGU33003 (you may not select both).

This module will run during Reading Week in Semester 1. Note that the airfare cost is not included in the field trip cost and must be covered by the student

Outline: This field trip will introduce students to specific examples that illustrate the interplay between human society and the environment in an overseas location (e.g., Mallorca). During the trip, key themes will be explored on set days, with student introduced to specific geographical research skills that will allow them to gain confidence in carrying out their own independent geographical research project. These skills include a range of transferrable skills (team working, project framing, planning, execution, and data analysis) alongside specific human and physical geography data acquisition methods and techniques, such as may be required for capstone projects. Prior to departure, students will be issued with background materials to familiarise themselves with the geographical setting and its human and physical environmental past and present. Detailed information on travel and accommodation will be issued prior to the trip. Students are expected to attend briefing sessions prior to travel as requested. These sessions will provide information on the general field setting, the logistics, ethical, and health and safety considerations of taking part. Several module themes will be introduced that will be explored further during the trip.

Learning Outcomes: On successful completion of this module students will be able to:

- Critically and responsibly engage with a number of geographical (societal and environmental) challenges explored during the trip
- Confidently deploy a number of key human geography research methods
- Confidently deploy a number of key physical geography research methods
- Draw on specific examples at the field site to explore the interconnectedness between the physical and human environment
- Critically reflect on, and assess, ethical and health and safety risks involved in conducting geographical research projects
- Clearly and concisely communicate the findings of field based geographical research

Assessment: Course work: field project plan and write up (100%)

Module Breakdown: Contact Hours: 5 days in the field and lab, 2 x travel days; (55 hours)

Independent Study (preparation for course and review of materials): 20+ hours (3 briefing sessions of 1 hour each; 20 hours independent research and reading (preparation for assessment, incl. completion of assessment): 60 hours (TOTAL = 218+)

GGU33003 Residential Field Course 2 10 ECTS

Module Co-ordinator Dr Bourke (bourkem4@tcd.ie)
Pre-requisites: None

Note: You must select **EITHER** GGU33003 **OR** GGU33002 (you may not select both).

This module will run during Reading Week in Semester 2. Food and travel costs to and from the Field Course must be covered by the student.

Outline: This field trip will introduce students to specific examples that illustrate the interplay between human society and the environment in an Irish setting. During the trip, key themes will be explored on set days, with student introduced to specific geographical research skills that will allow them to gain confidence in carrying out their own independent geographical research project. These skills include a range of transferrable skills (team working, project framing, planning, execution, and data analysis) alongside specific human and physical geography data acquisition methods and techniques, such as may be required for capstone projects. Prior to departure, students will be issued with background materials to familiarise themselves with the geographical setting and its human and physical environmental past and present. Detailed information on travel and accommodation will be issued prior to the trip. Students are expected to attend briefing sessions as requested in which the general field setting, and several themes will be introduced that will be explored in depth during the trip. These sessions will also take students through the logistics, ethical, and health and safety considerations of taking part.

Learning Outcomes: On successful completion of this module students will be able to:

- Critically and responsibly engage with a number of geographical (societal and environmental) challenges explored during the trip
- Confidently deploy a number of key human geography research methods

- Confidently deploy a number of key physical geography research methods
- Draw on specific examples at the field site to explore the interconnectedness between the physical and human environment
- Critically reflect on, and assess, ethical and health and safety risks involved in conducting geographical research projects
- Clearly and concisely communicate the findings of field based geographical research

Assessment: Course work: field project plan and write up (100%)

Module Breakdown: Contact Hours: 5 days in the field and lab, 2 x travel days; (55 hours) Independent Study (preparation for course and review of materials): 20+ hours (3 briefing sessions of 1 hour each; 20 hours independent research and reading Independent Study (preparation for assessment, incl. completion of assessment): 60 hours (TOTAL = 218+)

GGU33011 Earth's Climate: Past, Present, and Future 5 ECTS

Module Co-ordinator: Dr Margaret Jackson (margaret.jackson@tcd.ie**)**
Prerequisites: None

Outline:

In this module we will investigate Earth's climate system, how it operates, and how it changes over time (and why). In doing so we will explore not only the climate we observe today, but also how climate has changed in the past. With this understanding in hand, we will go on to examine projections for future climate change and what impact these potential changes may have on our lives and communities. This module will use readings, activities, and discussion to explore the mechanisms that influence climate over time, in the past, present, and future.

Learning outcomes: On successful completion of this module students will:

- Describe what is meant by the term 'greenhouse effect'.
- Understand how Earth's climate system operates today.
- Discuss natural climate variability and the potential mechanisms that impact this variability through time..
- Understand how Earth's climate has changed through time, and the evidence used to reconstruct past change.
- Understand how Earth's climate has changed through time, and the evidence used to reconstruct past change
- Evaluate the evidence for 'anthropogenic' climate change.
- Understand future climate projections, such as those written by the IPCC, and how they are produced
- Evaluate how quantitative climate science relates to and impacts societal response.

Graduate Attributes: levels of attainment

- To act responsibly - Introduced
- To think independently - Enhanced
- To develop continuously - Introduced
- To communicate effectively – Enhanced

Assessment: Continuous Assessment (100%).

Module Breakdown:

Contact hours: 22 hours of lecture and discussion (2 x1 hr meetings week).

Independent Study (preparation for course and review of materials):

44 hours.

Independent Study (preparation for assessment, incl. completion of assessment):

59 hours.

Key Texts: Primary reference text: Ruddiman, W., *Earth's Climate - Past and Future*, 3rd Ed.

Additional topical material (shorter items, news articles, research journal articles) will be made available to students on Blackboard.

Module Pre-requisite: None. Available to TR062; TR060 Env Sci / Botany; JH Geography;

GGU33014 Research Frontiers in Geography 5 ECTS

Module Co-ordinator: Prof. Anna Davies (daviesa@tcd.ie) Dr Margaret Jackson (Margaret.jackson@tcd.ie)

This module is highly recommended to anyone wishing to consider carrying out a capstone project in Geography.

Pre-requisites: none

Outline: The aim of this module is to help students refine their ability to understand and interpret research from across geography. It is also designed to assist students in developing evidence-based opinions about this research and finally, to assist them in identifying how they can help to push research frontiers through their own research. Following introductory lectures on the research process, including publication and presentation, the module will comprise a series of invited talks with speakers presenting a recently published paper/chapter/report and then take questions from the class with respect to the research process and findings. Students will critically analyse each presentation with respect to the core elements of the research process: problem identification, existing state of knowledge, methodology, results, and conclusions to form Part I of their Research Frontiers workbook. They will be required to read the published paper and provide a synopsis of the differences between the oral presentation and written publication. Part II provides space for students to reflect on the different styles of presentation they have encountered and identify successful communication strategies.

Learning outcomes: On successful completion of this module students will:

- Comprehend and report on research presented both orally and in primary literature.

- Identify the aims and/or hypotheses in research studies and identify the research methods employed to address them.
- Interpret results of research in the context of the wider subject area.
- Interpret representations of data and results in the context of the research presented.
- Assess and evaluate the conclusions of the research presented.
- Summarise scientific studies in language and style suitable for consumption by a wide audience
- Critically reflect on the benefits and limitations of research communication approaches

Graduate Attributes: levels of attainment

- To act responsibly - Enhanced
- To think independently - Enhanced
- To develop continuously - Enhanced
- To communicate effectively - Enhanced

Module Breakdown: The module is taught primarily through weekly presentations and seminars with independent learning and assessment preparation

- 4 Introductory lectures (weeks 1-2) = 4 hours
- 12 presentations and seminars (weeks 3-9) = 12 hours
- Research Frontiers workbook Part I (formative assessment) (weeks 4-10) = 48 hours
- Research Frontiers workbook Part II (summative assessment) (weeks 10-11) = 61 hours

Key Texts:

- Gomez, B. and Jones, J.P. (2010) *Research methods in Geography: A critical introduction*. Wiley: London
- Hoggart, K., Lees, L. and Davies, (2014) A.R. *Researching Human Geography*
- Montello, D. and Sutton, P. (2013*) An introduction to scientific research methods in geography & environmental studies*. Sage: London
- Strunk, W. and White, E.B. (2000) *The Elements of Style*. Pearson

GGU33915 Globalisation and Geopolitics 5 ECTS

Module Co-ordinator: Professor Pádraig Carmody (carmodyp@tcd.ie)

Type: Optional (JH)

Pre-requisites: None

Outline:

It is now frequently said that the world is experiencing a "poly-crisis": climate change and disruption, conflict, poverty, political instability and others. How do we explain the emergence of intersecting crises? This module explores this issue by examining the interactions and intersections between geopolitics and globalisation. Globalisation and geopolitics are being reconfigured by the changing nature of domestic and international politics and other meta-trends such as the rise of emerging powers. This module examines the nature and impacts of globalisation and geopolitics around the world with special attention to the nature and drivers of increased interconnection, climate change, conflict, and "shadow globalisation", amongst others. Particular emphasis is placed the systemic nature of global crises, the rise of BRICS (Brazil, Russia, India, China and South Africa) and their international relations in the developing world. It also explores current resistance to the globalisation and geopolitics through social movements both in the developed and developing world.

Learning Outcomes:

On successful completion of this module students will be able to:

- Analyse the relationships between economic forces, spatial development and the role of the state at different scales of analysis in the developed and developing worlds;
- Judge and critique different perspectives on the nature of the globalisation and geopolitics;
- Discuss critically the relationship between different types of globalisation and the influence of emerging powers;
- Understand geopolitical drivers of conflict;
- Critically evaluate alternatives to globalisation and current models and modalities of geopolitics.

Assessment: 2-hour examination (50%) Answer 2Q/6. Three short response papers (50%).

Module Breakdown: Contact Hours (Lectures = 21 hrs); Additional Input (Essay = 32hrs; Other reading = 38 hrs; Revision and Examination = 33hrs). TOTAL = 125hrs.

- **Some Suggested Texts:** Harvey, D. (2011) *The Enigma of Capital*. London: Profile Books.
- Parr, A. (2014) *The Wrath of Capital: Neoliberalism and Climate Change Politics*. New York, NY: Columbia University Press.
- Farell, H. and A. Newman (2023) Underground Empire: How the US weaponised the world economy. London: Allen and Lane.
- Hung, HF. (2022) *The Clash of Empires*. Cambridge: Cambridge University Press.
- Stunkel, 0. (2016) *Post-Western World*. Cambridge: Polity.
- Agnew, J. (2018) *Globalisation and Sovereignty: Beyond the Territorial Trap* (2nd edition). London: Rowman and Littlefield.

GGU33931 Environmental Governance 1 5 ECTS

Module Co-ordinator: Dr Rory Rowan (rowanro@tcd.ie)

Pre-requisites: None

Outline: The "environment" emerged as a new object of concern in the 1960s. Since then, and largely through the work of citizens, scientists, environmental justice movements, and NGOs, many different environmental problems have been raised - from chemical contamination to climate change, from oil spills to plastic-filled oceans. Despite growing awareness of these many forms of environmental degradation, the political and societal response has been far from adequate. How can we explain this? One starting point is to interrogate the contested history and development of environmental politics since the 1960s. What we learn from such an approach is that there have been radically different ways of framing environmental problems, giving rise to radically different proposals on how to address these problems. This historically informed understanding thus invites us to consider how re-framing current environmental problems may help us to orientate society towards a more just and sustainable future. This module will introduce students to the emergence of environmental politics as a unique field of policy-making, scientific production, and conflict since the 1960s. It will discuss key texts, writers and thinkers, whose work has been instrumental in shaping how we think about the environment, as well as how private, public and civil society actors have responded to environmental problems in recent times.

Learning Outcomes: On successful completion of this module students will be able to:

- Understand the key developments and debates within modern environmentalism over the past fifty years;
- Identify and discuss the key thinkers and texts that have shaped modern environmental thinking;
- Debate the nature and impact of different environmental policies and initiatives at local, national and global scales;
- Use the critical analytic skills developed through the module to better examine a range of sources including documentary films, government reports, academic papers, and more.

Assessment: 100% Continuous assessment.

Module Breakdown: Contact Hours (Lectures = 20 hours); Additional Input (Lecture Preparation = 60hrs; Coursework preparation = 85hrs; examination preparation = 85 hours) TOTAL = 250hrs.

Key Texts:

- Cronon, W. (ed.) (1996) *Uncommon Ground: Toward Reinventing Nature*. New York: Norton.
- Dawson, A. (2024) *Environmentalism from Below: How Global People's Movements ate Leading the Fight for or Planet.* New York: Haymarket Books.
- Dryzek, J. S. (2013) *The Politics of the Earth: Environmental Discourses.* Oxford: Oxford University Press.
- Merchant, C. (1990) *The Death of Nature*: *Women*, *Ecology, and the Scientific Revolution*. HarperCollins.
- Nixon, R. (2011) *Slow Violence and the Environmentalism of the Poor*. Cambridge, MA: Harvard University Press.
- Smith, N. (2010) *Uneven Development: Nature, Capital and Production of Space*. Athens, GA: University of Georgia Press.

GGU33937 Urban Economic Structure & Regeneration 5 ECTS

Module Co-ordinator: Dr Cian O'Callaghan (ocallac8@tcd.ie)

Type: Optional (NS, JH)

Pre-requisites: None

Outline: This module introduces you to some key themes, concepts, and debates in urban geography. In particular it will focus on the concept of urban regeneration. The module first considers the historic development of urbanisation, the transition to urban-based economies, and the development of urban studies. It then focusses specifically on the urban impacts of globalisation, in particular how cities in the developed world have managed the shift from industrialism to post-industrialism. Finally, the module examines regeneration from a number of perspectives. Particular attention will be given to the circular nature of processes of urban growth and decline and how regeneration efforts include and exclude particular social groups and identities.

Learning Outcomes: On successful completion of this module students will be able to:

- Demonstrate a thorough understanding of the processes underlying changing urban economic form and the concurrent shift in the cultural life of cities
- Have a detailed knowledge of the varied character of urban regeneration policies, their function and effectiveness.
- Demonstrate a knowledge of key concepts in urban geography and be able to apply them to real world situations

Assessment: Blog post + additional component (50%) & 2-hour examination (50%) answering 2 questions from 4.

Module Breakdown: Lectures (20 hrs), Fieldtrip (2 hrs), Additional inputs (Reading, exam revision, blog post preparation – 103hrs). Total 125 hrs.

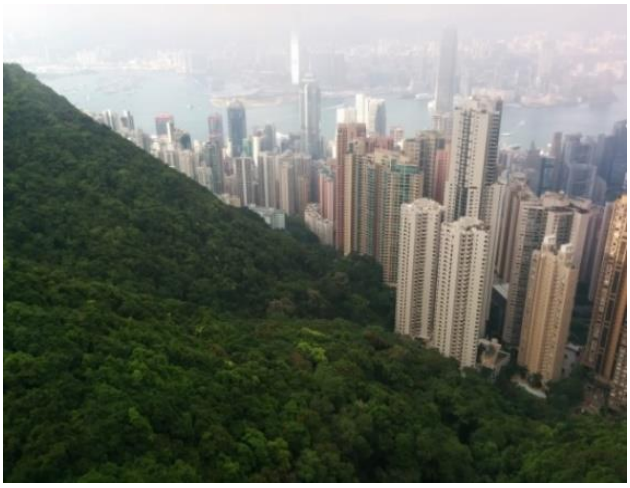
Key Texts:

- Jonas, A. E., McCann, E., & Thomas, M. (2015) *Urban geography: a critical introduction*. Oxford: John Wiley & Sons.
- MacLaran, A. & Kelly, S. (Eds.) (2014) *Neoliberal Urban Policy and the Transformation of the City: Reshaping Dublin*. London: Palgrave Macmillan.

GGU33939 Exploring the Sustainable City 5 ECTS

Module Co-ordinator: Dr Federico Cugurullo (cugurulf@tcd.ie)

Pre-requisites: None



Outline: What will the city of the future look like? To what extent are our models of city-making sustainable? Is the road that we are taking leading us towards an environmental utopia in which societies will grow in balance with nature, or are we paving the way for the collapse of our civilization?

These are the key questions that will drive our exploration of the different ways through which, today, sustainable urban development is understood and practiced across the world.

In this highly interdisciplinary module, we are going to use the tools of geography to examine the most critical socio-environmental issues faced by cities (climate change, consumption, happiness, environmental degradation, etc.), and discuss both the theory and practice of urban sustainability.

Using case studies from different continents, we will explore projects for eco-cities and smart cities, and evaluate their sustainability performance. We will also draw upon urban history and political philosophy to learn how the ideal city was imagined in past, and use this knowledge to foresee what urban futures alleged smart-eco cities are shaping.

Each session will be designed to stimulate interaction and will require curiosity and imagination. This module is more than a review of how urban sustainability is understood and practiced, and you will be asked to design, present and discuss practical plans of action to sustain urban living in the 21st century and beyond.

Learning Outcomes: By the end of the course the student will be able to:

- Demonstrate knowledge of key debates relating to theories and practices of sustainable urban development
- Show understanding of the different meanings of urban sustainability across geographical spaces
- Undertake analysis of complex, incomplete or contradictory areas of knowledge in relation to contemporary urban challenges
- Critically evaluate urban agendas from a sustainability perspective
- Design and evaluate strategies for sustainable urban development.

Assessment: 100% Assessment

Module Breakdown: Contact hours (Lectures + seminars 22 hours); Additional inputs (Lectures + seminars preparation, coursework, revision and examination). TOTAL: 125 hours.

Key Texts:

- Evans et al. (2016) *The Experimental City*. London: Routledge.
- James P. (2015) *Urban Sustainability in Theory and Practice*. London: Routledge.
- Karvonen, A., Cugurullo, F., Caprotti, F. (2019) *Inside Smart Cities.* London: Routledge.

GGU33019 Economy, Finance & Space 5 ECTS

Module Co-ordinator: Dr Martin Sokol (sokolm@tcd.ie)

Pre-requisites: None

Outline: Why do some economies grow faster than others? Why is there so much inequality? Why do economies crash? What is the role of finance in contemporary capitalism? Is economic growth sustainable? What policy options are there to shape our economic systems? These are some of the questions explored by this module. To help address them, Economy, Finance & Space provides students with key insights into economic and financial geography. It highlights the ways in which economic and financial processes both shape, and are shaped by, space. In particular, the module focuses on understanding how uneven development occurs, alongside exploring questions of how social inequalities arise and what causes economic and financial crises. In addition to this, the impacts of economic and financial processes on the environment and the climate crisis are considered. In doing so, the module engages with fundamental challenges facing contemporary societies and explores policy options to address them. Students will gain a solid grounding in a number of theoretical approaches, concepts and debates pertaining to the economy, finance & space; will explore economic and financial processes in the real world through case studies from a range of different contexts, including those in the Western capitalist core and (semi-)peripheries of post-socialist Eastern Europe; and will debate policy options for the future.

Learning Outcomes: On successful completion of this module, students should be able to:

- Comprehend and explain key concepts and theoretical approaches in economic and financial geography.
- Discuss and critically evaluate these concepts and theoretical approaches.
- Apply these concepts and approaches to real world economic and financial processes.
- Describe and discuss key challenges facing contemporary capitalist economies, their causes and consequences.
- Critically reflect on, and discuss, policy options for overcoming inequality and uneven development in the contemporary world.

Module Breakdown Lectures, seminars, student presentations & debates, in-term assignments and site visits. Contact hours: 22 hrs; Additional input: independent study (preparation for course and review of materials): 50 hrs; independent study (preparation for assessment, incl. completion of assessment): 53 hrs.

Assessment: 100% Assessment

Key Texts:

- Aoyama, Y., J.T. Murphy and S. Hanson (2010) *Key Concepts in Economic Geography*. London: Sage.

- Coe, N,M., P. F. Kelly, and H. W. C. Yeung (2019) *Economic Geography: A Contemporary Introduction (3rd Edition)*. Wiley-Blackwell.

- Dicken, P. (2014) *Global Shift* (7th Edition). London: Sage.

- Hall, S. (2017) *Global Finance: Places, Spaces and People*. London: Sage.

- Harvey, D. (2010) *The Enigma of Capital and the Crises of Capitalism*. London: Profile Books.

- Hudson, R. (2005) *Economic Geographies: Circuits, Flows and Spaces*. London: Sage.
- Knox-Hayes, J. and D. Wójcik (Eds.) (2021) *Routledge Handbook on Financial Geography*. New York: Routledge.

- MacKinnon, D. and A. Cumbers (2018) *An Introduction to Economic Geography: Globalisation, Uneven Development and Place* (2nd edition). London: Routledge.

- Martin, R. (Ed.) (1999) *Money and the Space Economy*. Chichester: John Wiley & Sons.
- Martin, R. and J. Pollard (Eds.) (2017) *Handbook on the Geographies of Money and Finance.* Cheltenham: Edward Elgar.

- Pike, A., A. Rodriguez-Pose and J. Tomaney (2017) *Local and Regional Development (2nd edition)*. London and New York: Routledge.

- Leyshon, A., R. Lee, L. McDowell and P. Sunley (Eds.) (2011) *The SAGE Handbook of Economic Geography*. London: Sage.

- Sokol, M. (2011) *Economic Geographies of Globalisation: A short Introduction*. Cheltenham: Edward Elgar.

GGU33020 Research Skills and Data Analysis in Geomorphology 1 5 ECTS

Module Co-ordinator: Dr Margaret Jackson (margaret.jackson@tcd.ie)

Pre-requisites: None

Outline: Earth's surface is constantly changing. Understanding how and why these changes occur is a key skill for those across the Earth Sciences, from physical and human geographers to geo- and environmental scientists. Being able to communicate one's observations and understanding of our planet's surface is likewise a crucial competency. In this module, we will take a wide-angle view of Earth-surface forms and processes and use these concepts as our gateway to exploring and practicing key skills in the field. These skills include the use, interpretation, and creation of topographic an geomorphic maps. We will also investigate methods used to date earth surface landforms and processes. This module relies heavily on hands-on activity and skills practice in addition to traditional classroom lectures and discussion. This module also introduces key skills for students undertaking independent Capstone projects in their fourth year, and is a natural lead-in to the module 'Research Skills and Data Analysis in Geomorphology 2' in Semester 2.

Learning Outcomes: On successful completion of this module, students should be able to:

- Describe and discuss 'geomorphology' as a discipline.
- Discuss large-scale geomorphic processes.
- Understand how to interpret and use topographic maps.
- Understand how to interpret and use geomorphic maps.
- Evaluate geochronologic methods and their suitability for answering/addressing specific questions in geomorphology and Earth-surface processes.
- Make basic interpretations and categorisations of landforms and landform assemblages.
- Create simple geomorphic maps to address specific needs or challenges.

Module Breakdown: This module is uses lecture and discussion sessions, hands-on in-class and take-home activities, and independent study and reflection. Contact hours: 22 hrs (1 x 2 hr session each week); Additional input: independent study (preparation for course and review of materials): 44 hrs; independent study (preparation for assessment, incl. completion of assessment): 59 hrs.

Assessment: 100% Continuous Assessment

Key Texts:

Geomorphology: the mechanics and chemistry of landscapes. 1st Ed. R.S. Anderson &S.P. Anderson. 2010.

GGU33021 Research Skills and Data Analysis in Geomorphology 2 5 ECTS

Module Co-ordinator: Prof Iris Möller (moelleri@tcd.ie)

Pre-requisites: None

Outline: Earth's surface is constantly changing. Understanding how and why these changes occur is a key skill for those across the Earth Sciences, from physical and human geographers to geo- and environmental scientists. This module focuses on the role of water in the evolution of Earth's landscape. Though investigating Water-driven processes and sediment transport, students will gain first-hand experience in constructing simple models to help them estimate the rate and magnitude of surface processes. Students will also practice sediment classification, quantitative problem solving, and map making. This module relies heavily on hands-on activity and skills practice in addition to traditional classroom lectures and discussion. This module also introduces key skills for students undertaking independent Capstone projects in their fourth year and is a natural continuation of the module 'Research Skills and Data Analysis in Geomorphology 1' in Semester 1.

Learning Outcomes: On successful completion of this module, students should be able to:

- Discuss the importance of water in shaping landscapes.
- Understand fluvial or coastal processes.*
- Understand primary means and consequences of weathering, sediment transport, and deposition.
- Discuss the influence of humans on landscapes.
- Break down larger problems into 'back of the envelope' calculations to solve.
- Construct simple theoretical models to aid in problem solving.
- Recognise the steps required to 'build' a research project, including method development and selection.

*Note that the focus in this module may alter year-on-year between these depending on teaching staff availability.

Module Breakdown: This module is uses lecture and discussion sessions, hands-on in-class and take-home activities, and independent study and reflection. Contact hours: 22 hrs (1 x 2 hr session each week); Additional input: independent study (preparation for course and review of materials): 44 hrs; independent study (preparation for assessment, incl. completion of assessment): 59 hrs.

Note that depending on staff availability, there may be a one-day field visit to the Dublin coast in Study Week.

Assessment: 100% Continuous Assessment

Key Texts:

Anderson, R.S., Anderson, S.P. (2010) *Geomorphology: the mechanics and chemistry of landscapes*. 1st Ed.

SENIOR SOPHISTER

Semester 1	Semester 2
CORE MODULES *	
***GGU44930**: Dissertation (20 credits)	
OPTIONAL MODULES	
GGU44933 GIS and Remote Sensing Applications in Geography (5 credits)	**^^GGU44936** Globalisation and African Development (5 credits)
GGU44976 Glaciers and Glaciation (5 Credits	**GGU44977** Environmental Governance 2 (5 credits)
****GGU44901** Natural Hazards (5 Credits)	**GGU44968** Historical Geography (10 credits)
****GGU44978** Finance and Climate Justice (10 credits)	**GGU44979** Living on the Edge: Estuaries and Coasts (5 credits)
GGU44903 Carbon and Climate: How the Carbon Cycle Controls Our World (5 credits)	**^^GGU44902** Karst: Earth's Limestone Landscapes (5 credits)

*** Depending on Pathway students take compulsory 20 credit dissertation module. If you wish to undertake a dissertation in Geography you must have taken Advanced Research Methods 1 (or followed that module remotely, if you were away on exchange in Semester 2 of your JS year).**

****GGU44978 with GGU44903** Clash; students can take either or module but not both.

^^GGU44936 with GGU44902 Clash; student can take either or module but not both.

JH students need to carefully check their pathway here, bearing in mind that in Geography a Capstone Project is the dissertation:

https://www.tcd.ie/t4media/tcd/content-assets/pdf/Explore-your-pathways-JH_new.pdf

GGU44930 Geography Dissertation 20 ECTS

Module Co-ordinator: Dr Mary Bourke (bourkem4@tcd.ie**)**
Outline: The dissertation is an independent study in which field work or the study of original source material is expected to play an important role.

Data can be collected in a variety of ways - such as through field sampling or survey, laboratory analysis, questionnaire surveys, interviews, content analysis, census material or archival work or some combination of these - depending on the topic chosen. The research topic is developed as part of *GGU33928 Advanced Research Methods in Geography 1*. A more complete description of the dissertation, together with recommendations regarding supervisor meetings, health and safety regarding field and laboratory work etc and regulations relating to late submission etc, can be found on the Geography website – see Courses, Current Students.

For dissertation preparation regulations specific to Erasmus students, see page 7.

Learning Outcomes: On successful completion of this module students will be able to:

- Complete a sustained piece of individual, academic research on a chosen topic within the field of Geography, under the guidance of a member of staff;
- Explain the methodological basis employed in their research;
- Critically evaluate existing research and its implications for the topic of study;
- Demonstrate technical proficiency in the application of the selected methods and techniques of data acquisition and analysis;
- Synthesise and discuss the results with reference to relevant academic literature;
- Present a succinct and precise written report of the research that is well presented, logically structured and accurately referenced.

Assessment: Independent research project dissertation (100%). All students must also give a short progress report presentation in Semester 1 in order to progress to submission in Semester 2. Student are required to submit chapters to supervisors for formative feedback by set deadlines that will be communicated.

Module Breakdown: Contact Hours (Supervision = 10hrs, In class with module coordinator <5 hours); Additional Input (Individual research and dissertation writing = 485hrs). TOTAL = 500hrs.

GGU44977 Environmental Governance 2 5 ECTS

Module Co-ordinator: Dr Rory Rowan (rowanro@tcd.ie **)**

Outline: There is little disagreement that far-reaching societal, technological, political, and economic transformations are required if we are to avoid the worst effects of global, anthropogenic environmental change. What form these transformations should take and who should take responsibility for them are, however, far from settled.

This module considers some of the key conceptual debates and environmental conflicts arising in this context. Examination of these debates and conflicts will demonstrate the contested and uneven nature of environmental change and the measures sought to address these changes. The overall aim of the module is to help students develop a more nuanced, critical and multi-disciplinary understanding of environmental change and the different, often contested, ways of responding to such changes.

The module will consist of weekly interactive lectures/seminars, and set readings. Lectures will introduce students to key concepts and perspectives drawn from the broad field of political ecology. In this module students develop a semester-long research project focused on a key area of environmental contestation in Ireland through a political ecology lens. The projects will involve group work and individual work, written assignments, oral presentations, and primary research. Class attendance is essential.

Learning Outcomes: On successful completion of this module students will be able to:

- Understand and apply key theoretical concepts from the field of political ecology to contemporary environmental debates and issues;
- Identify and critically discuss key sites of environmental contestation in Ireland today;
- Explain why an in-depth understanding of environmental problems today requires an understanding of the political, economic and social contexts out of which they emerge and within which they are managed

Assessment: 100% Continuous assessment.

Module Breakdown: Contact Hours (Lectures = 20hrs); Additional Input (Lecture & Seminar Preparation = 60hrs; Reading = 60hrs; Assessment Preparation = 110 hrs). TOTAL = 250 hrs.

Key texts:

- Bresnihan, P. & Milner, N. (2024) A*ll We Want is the Earth: Land, Labour and Movements Beyond Enviormentalism*. Bristol: Bristol University Press.
- Castree, N. & Braun, B. (2001) *Social nature theory, practice, and politics*. London: John Wiley & Sons.
- Kaika, M. (2005) C*ity of Flows: Modernity, Nature, and the City.* London: Routledge.
- Patel, R. & Moore, J. (2017) *A History of the World in Seven Cheap Things: A Guide to Capitalism, Nature, and the Future of the Planet*. Berkley, CA: University of California Press.
- Robbins, P. (2012) *Political Ecology: a Critical Introduction* (2nd edition). London: Wiley.

GGU44933 GIS and Remote Sensing Applications in Geography 5 ECTS

Module Co-ordinator: Dr John Connolly (john.connolly@tcd.ie)

Pre-requisite: GGU33933

Note: Places on this module are limited by computer laboratory spaces available (currently 28). It is highly recommended that students purchase a windows-based laptop/PC for working in Geography. In the 3rd and 4th year ArcGIS Pro will be used and this **only** runs on PC (i.e. **it does not work on Macs**). ArcGIS Pro **is** available on campus computers.

Outline: Remote Sensing and Geographical Information Systems (GIS) allow a wide range of environmental and human phenomena to be explored across space and time. The ability to detect and map change within the human and physical/environmental sub-systems at a range of scales has the power to inform science, policy, and planning and often becomes essential when scaling up observations / theories derived within a particular place or at a particular time. In this module, students will learn the theory behind Remote Sensing techniques, exploring a range of web-based and stand-alone methods for interrogating geo-spatial data. They will be encouraged to do so critically and will gain an understanding of uncertainties and the relative merits of different sources of Earth Observation (EO) information, with particular emphasis placed on resolution and accuracy, both spatially, temporally, and in the spectral domain. The module is a practical module that takes place in the computer labs, however students' will be required to work in their own time to complete the module. This requires access to a MS Windows-based computer (i.e. not a Mac).

Learning Outcomes: On successful completion of this module students will be able to:

- Explain the concepts behind remote sensing and Earth Observation and the importance and relevance of geospatial information to a range of Geographical problems
- Critically evaluate the importance of and difference between resolution, scale, and accuracy within geospatial data
- Demonstrate use of EO data and software to derive accurate classified maps, vegetation indices and interpret images.
- Critically evaluate the appropriateness of different remote sensing platforms for a range of research questions
- Use GIS software to analyse geospatial data and explore the relationships between multiple geo-spatial datasets
- Select data of appropriate resolution, scale and accuracy for specific research questions
- Communicate the outputs of GIS/Remote Sensing projects succinctly and effectively and by using correct technical and scientific terminology

Assessment: 100% continuous assessment **Module Breakdown:** Contact Hours - Lectures & Practical classes = 22 hrs; Additional Inputs - Reading and work on project = 103 hrs. TOTAL = 125hrs.

Key Texts:

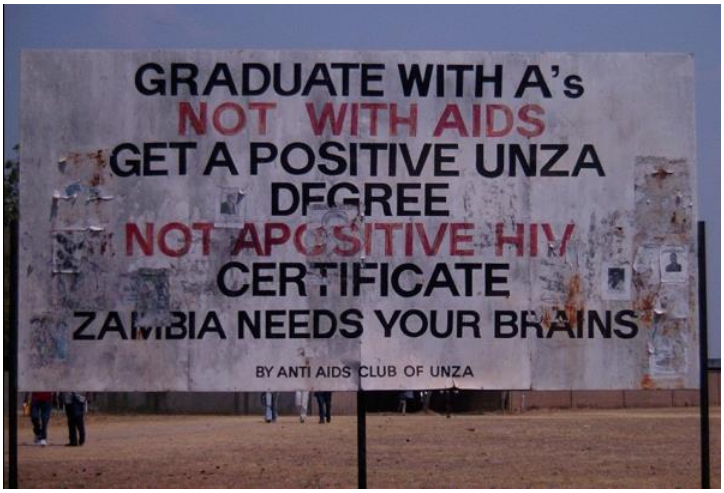
- Lillesand, T. M., Kiefer, R. W. and Chipman, J. W. (2008). *Remote Sensing and image interpretation*. (many editions). Wiley, London
- Jones, H. G. and Vaughan, R. A. (2010). *Remote Sensing of vegetation*. Oxford University Press.
- Emery, W. & Camps, A. (2017) *Introduction to Satellite Remote Sensing. Atmosphere, Ocean, Land and Cryosphere Applications*. London: Elsevier.
- Campbell, J. B. & Wynne, R. H. (2011). Introduction to Remote Sensing. Guildford Press.

A list of recommended reading materials, standards, manuals, best practice documents is provided in throughout the module.

GGU44936 Globalisation & African Development 5 ECTS

Module Co-ordinator: Professor Pádraig Carmody (carmodyp@tcd.ie)

Pre-requisites: None



Outline: This module explores the nature and impacts of globalisation in Africa. Particular attention

is paid to the geography of HIV/AIDS, gender and development, China's rising role in the continent, oil

politics and the so called "resource curse" or paradox of plenty that Africa is the most resource rich

continent in the world but also the poorest. Other topics covered included gender and the mobile phone revolution.

Learning Outcomes: On successful completion of this module students will be able to:

- Discuss critically the historical evolution of Africa's incorporation into the global political economy;
- Judge and critique different perspectives on the nature of the globalization in Africa;
- Critically evaluate the influence of organizations such as the International Monetary Fund, World Bank and International Non-Governmental Organisations in Africa;
- Apprehend the construction and interaction between issues such ethnicity, conflict and terrorism; regionalisation and globalization and gender and development;
- Interrogate the geography and evolution of HIV/AIDS in Africa and its causal factors;
- Independently evaluate broader literatures on development in Africa.

Assessment: 2-hour examination (50%) Answer 2Q/6. Three short response papers (50%).

Module Breakdown: Contact Hours (Lectures = 22hrs; Additional Input (Response papers = 32 hrs; Other reading= 30hrs; Revision and examination = 52hrs). TOTAL = 125hrs.

Some Key Suggested Texts:

- Maathai, W. (2010) *The Challenge for Africa*. London: Arrow books.
- Rotberg, R. (2013) *Africa Emerges*. Cambridge: Polity.
- Cotula, L. (2013) *The Great African Land Grab*. New York, NY: Zed.
- Burgis, T. (2015) *The Looting Machine: Warlords, Tycoons and the Systematic Theft of Africa's Wealth.* London: Harper Collins.
- Hern, E. (2023) *Explaining Successes in Africa: Things Don't Always Fall Apart*. Boulder: Lynne Rienner.

GGU44968 Historical Geography 10 ECTS

Module Co-ordinator: Dr Mark Hennessy (mhnnessy@tcd.ie)

Pre-requisites: None

Outline: This module presents an overview of the historical geography of Ireland from the earliest evidence of human settlement in the Mesolithic through to c.1840 A.D. Throughout the module developments in Ireland are set within appropriate comparative and theoretical contexts. The principal topics explored are settlement, land use and agriculture, the changing environment (including human impacts), patterns of cultural variation and interaction and how these have come together to forge changing landscapes and regions.

Learning Outcomes: On successful completion of this module students will be able to:

- Understand the development of landscapes and regional patterns in Ireland from prehistory to the modern period;
- Place developments in Ireland in appropriate comparative contexts;
- Critically evaluate alternative explanations/interpretations of the pattern of landscape and regional change in Ireland;
- Critically evaluate archaeological, field and documentary evidence relating to this topic.

Assessment: 3 hour examination (50%); coursework (50%)

Module Breakdown: Contact Hours (Lectures = 50 hrs); Additional Inputs (Reading and preparation for class discussions = 100 hrs; preparation and completion of assessment= 100 hrs)

Key Texts:

- Clarke, H.B., Hennessy, M. & Prunty, J. (Eds.) (2004) *Surveying Ireland's Past*. Dublin: Geography Publications.
- Aalen, F. H. A., Whelan, K. & Stout, M. (Eds.) (2011) *Atlas of the Irish Rural Landscape*, Cork: Cork University Press.

GGU44901 Natural Hazards 5 ECTS

Module Co-ordinator: Prof. Mary Bourke (mbourke4@tcd.ie)

Pre-requisites: 'Spaceship Earth' (JF) and 'Physical Geography: Dynamic Earth' (SF) are helpful but not necessary

Outline: Short-lived, high magnitude extreme events, from meteorite impacts, to volcanic eruptions, fire, and storms, have shaped the surface of the earth throughout its geological history. Increasing population densities in critical locations on our planet (e.g. cities at the foot of volcanoes, on tectonic fault lines, and at the coast) and human impacts on the environment at the local, regional and global scale, however, have altered the likelihood and magnitude of certain types of natural hazards. This has brought the vulnerability of societies to natural hazards into sharp focus over recent decades. In October 2020, the UN Office on Disaster Risk Reduction (UNDRR) reported that, over the past two decades, 1.23 million people had lost their lives in a total of 7,348 'disaster events' that had been recorded globally (with floods (40% of occurrences), storms (28%), earthquakes (8%), and extreme temperatures (6%) as the four most impactful types of hazard).

In our efforts to reduce the human and economic impact of such events, an understanding of the reasons for their occurrence, their spatial and temporal variability, the degree to which they are 'natural' as opposed to 'anthropogenic' as well as past and potential future societal responses to such events is critical.

This module will address the above aspects beginning with an introduction to 'natural' hazards and general concepts or risk and vulnerability. The introductory lectures are then followed by lectures, targeted reading and discussion groups. Finally, we will explore case studies highlighting past, present, and potential future societal solutions for the mitigation of the impact of natural hazards with guest speakers bringing an applied natural hazard and risk management perspective to this module.

Learning Outcomes: On successful completion of this module students will be able to:

- Have a basic understanding of the physical processes involved in a number of different natural hazards.
- Understand the role of natural hazards in the wider context of landform and ecosystem dynamics.
- Appreciate and critically evaluate the role of humans in how we understand, describe, and assess natural hazards.
- Understand the potential links between a number of natural hazards and climate change.
- Understand and assess the difference between hazard, risk, and vulnerability.
- Apply the source-pathway-receptor model to the study of natural hazards in particular settings/contexts.
- Critically evaluate different strategies for the management of natural hazards.
- Discuss the impacts of glaciers on communities and cultures.

Assessment: Continuous Assessment (100%)

Module Breakdown: Contact hours: 22 Consisting of 18 lectures and 4 discussion sessions.

Independent Study (preparation for course and review of materials**): 50 consisting of:** 40 hours assigned reading

Independent Study (preparation for assessment, incl. completion of assessment**): 52 consisting of:** 40 hours written essay preparation, 20 hours of online exam preparation.

GGU44976 Glaciers and Glaciation 5 ECTS

Module Co-ordinator: Dr Margaret Jackson (margaret.jackson@tcd.ie)

Pre-requisites: None.

Outline: Glaciers mould landscapes and mountain ranges, leaving indelible impressions long after they disappear. Glaciers also provide vital information regarding past climate, serving both as proxies and archives of past conditions. At the same time, the sensitivity of glaciers to changing climate conditions has direct implications for global sea level. Glaciers also provide water resources for billions of people in sub-tropical regions, and are a backbone of many tourist economies. Understanding glaciers, how they behave and the impacts they have on landscapes, is therefore crucial for understanding the history of our planet and for projecting future change. Through hands on activities, lectures, and discussion, this module explores how glaciers operate, their effects on landscapes over time, and the influence of glaciers in communities today. We will also investigate how glaciers can serve as indicators of past – and present – climate change.

Learning Outcomes: On successful completion of this module students will be able to:

- Understand and explain the primary controls on glacial mass balance.
- Describe the elements required for glaciation, and where glaciers are found today.
- Evaluate different types of glaciers, how they behave, and how this relates to landscape.
- Describe the ways glaciers modify landscapes, and the evidence of this modification.
- Evaluate how glaciers and glacial landforms can be used to reconstruct past climate conditions.
- Describe how and why glaciers influence changes in sea level.
- Understand potential hazards associated with glaciers and glaciation.
- Discuss the impacts of glaciers on communities and cultures.

Assessment: Continuous Assessment (100%)

Teaching and Learning Methods:

The module is taught through

- Classroom lectures and discussions
- Activities and problem-solving exercises
- Independent study, research, and reflection

Module Breakdown: Contact hours: 22 total hours comprised of 2 hours of lecture per week. Independent Study (preparation for course and review of materials): 45 hours.

Independent Study (preparation for assessment, incl. completion of assessment):

58 hrs

Key Texts: Primary reference text: Benn, D., Evans, D. *Glaciers & Glaciation,* 2nd Ed.

Additional topical material (shorter items, news articles, research journal articles, book chapters) will be made available to students on Blackboard.

Available to TR062; TR060 Env Sci / Botany; JH Geography

GGU44978 Finance and Climate Justice 10 ECTS

Module Co-ordinator: Dr Martin Sokol (sokolm@tcd.ie)

Pre-requisites: No prior knowledge of economics, finance or economic geography is required. The only pre-requisite for students wishing to take this module is to care about people and planet, and to have their heart in the right place.

Outline: This module examines finance and climate justice, and the links between them. As the worsening climate chaos threatens the very existence of humanity, it is increasingly clear that a climate justice approach is needed for both climate change mitigation and adaptation. Climate justice approaches emphasise the need for a fundamental transformation of society and the economy, while applying the principles of social justice and economic equity. However, there is a growing realisation that such a socio-economic transformation will not be possible without radical changes in the sphere of finance. Going beyond the proposition that finance needs to be mobilised to fund 'green' transition, this module examines the view that the entire global financial architecture must be transformed to safeguard a better, healthier, more stable and a more just future for all. Special attention is given to central banks and their role in the financialised economic system, their relation to climate change and their role in hampering and/or promoting climate justice. Alternative economic and financial models, including de-growth and post-growth approaches, will be examined. The module also highlights a critical role of geography in understanding both the climate justice issues and the operation of finance in capitalist economies. In line with the principles of climate justice, the module offers students the opportunity to co-design its elements, while also promoting students' climate activism, self-learning and self-reflection.

Learning Outcomes: On successful completion of this module students will be able to:

- Comprehend and explain the concept of climate justice.
- Comprehend and explain the role of finance in capitalist economies.
- Describe and discuss the links between finance and climate justice.
- Describe and discuss the role of central banks in advancing climate justice.
- Reflect on, and discuss, alternative economic and financial models for climate justice.

Assessment: Continuous Assessment (100%)

A combination of debate & reflection (40%) and climate action / report (60%)

[Indicative breakdown only]

Module Breakdown:

Contact hours (lectures and seminars): 44hrs; Independent study (preparation for course and review of materials): 100hrs; Independent study & action research (preparation for assessment, incl. completion of assessment): 106hrs. TOTAL = 250hrs.

Key Texts:

- Dafermos, Y. (2023). "Towards a climate just financial system." *SOAS Department of Economics Working Paper* **Vol No. 259**, London: SOAS University of London.
- Hickel, J. (2016). *To deal with climate change we need a new financial system*. The Guardian, 5 November 2016.
- Hickel, J. and G. Kallis (2020). "Is Green Growth Possible?" *New Political Economy* **25(4)**: 469-486.
- Knox-Hayes, J. and D. Wójcik (2020*). The Routledge handbook of financial geography*, Taylor & Francis.
- Robinson, M. (2018). *Climate Justice: Hope, Resilience, and the Fight for a Sustainable Future*. New York, Bloomsbury.
- Stephens, J. C. (2022). "Beyond Climate Isolationism: a Necessary Shift for Climate Justice." *Current Climate Change Reports* **8:** 83-90.
- Stephens, J. C. and M. Sokol (2023). "Financial innovation for climate justice: central banks and transformative 'creative disruption'." *Climate and Development*: **1-12.**
- Sultana, F. (2022). "Critical climate justice." *The Geographical Journal* **188(1):** 118-124.
- Urai, A. E. and Kelly, C. (2023). Rethinking academia in a time of climate crisis*. eLife*, **12**, e84991.

GGU44979 Living on the Edge: Estuaries and Coasts 5 ECTS

Module Co-ordinator: Professor Iris Möller (moelleri@tcd.ie**)**

Pre-requisites: None

Outline: Coastal regions are some of the most dynamic on Earth, not least because human and natural processes act in tight connection to each other. This dynamism poses one of the great societal challenges of the 21st Century: as coastal populations are increasing at three times the global rate, they are also experiencing an increasing threat of coastal flooding and erosion under climatic extremes (e.g. tropical and extratropical storm surges), and are 'locked into' accelerated sea level rise for centuries to come. Building upon a basic, foundational knowledge of ocean and coastal processes covered in relevant modules within the first and second year ('Spaceship Earth' and 'Physical Geography: Dynamic Earth'), students will gain wide ranging theoretical and

practical skills required to address those challenges. The lectures and seminars take students on a journey that highlights how the natural processes operating within estuaries and on coasts are a function of external factors (past and present climate, geology, human influences) and feedbacks in which the landforms themselves affect the operation of processes that shape the landforms. Equipped with this knowledge, and several examples from around the world, students will put their knowledge into practice. A day-field trip (please note this will take place during Study Week) and practical exercise will challenge students to apply what they have learnt to real-world coastal management problems. Working in groups, they will form 'coastal management consortia' that will navigate their way through the stages of problem definition to data acquisition and development of appropriate coastal management solutions. The assessed practical exercise will develop and enhance team-working, independent research, critical thinking, scientific and applied writing, and presentation skills.

Learning Outcomes: On successful completion of this module students will be able to:

- Explain the theory behind estuarine and coastal morphodynamics.
- Draw on specific examples to illustrate the societal importance of coastal morphodynamics in the context of human use of the coast.
- Critically reflect on the importance of considering different temporal and spatial scales for an understanding of coastal change.
- Discuss the key impacts of climate change on coastal landforms and ecosystems.
- Carry out basic (bio)geomorphological assessments of estuarine and coastal landforms and associated ecosystems.
- Assist the development of coastal management approaches that consider societal and biophysical aspects of how coasts and estuaries function and deliver ecosystem services.
- Clearly and concisely present the results of their work in written and oral (presentation) form.

Assessment: 100% Continuous assessment (lecture content, course and tutorial reading = 20%, case study report = 80%)

Module Breakdown: Contact Hours = 34 hours (Lectures = 16 hours, 2 x tutorials, field excursion (optional), lab practical's and student workshops/presentations); Additional Input (Lecture Preparation = 60hrs; Coursework preparation = 85hrs; examination preparation = 85 hours) TOTAL = 250hrs.

***** NOTE: There will be a one day field visit to the coast near Dublin in Study Week *****

Key Texts:

- Woodroffe, C.D. (2002) *Coasts: Form, process and evolution*. Cambridge: Cambridge University Press.
- Masselink, G, Hughes, M., & Knight, J. (2011) *Introduction to Coastal Processes and Geomorphology*. London: Routledge.

GGU44903 Carbon and Climate: How the Carbon Cycle Controls Our World 5 ECTS

Module Co-ordinator: Dr Margaret Jackson (@tcd.ie)

Pre-requisites: None

Outline: When it comes to the stability of life on Earth, one might say that the carbon cycle can be more dangerous than an asteroid. Today, as humans add ever increasing amounts of carbon to our atmosphere and global temperatures rise in turn, rapid anthropogenic climate change places stress on ecosystems and human infrastructure alike. But to truly understand the role of carbon in our world we must look to our past. We can examine how the Earth has responded to past carbon cycle change, and look to these periods for lessons for both our present and our potential future. This module will focus on Earth's carbon cycle today, and will contextualise changes in our modern carbon and climate systems through comparisons with carbon-cycle change in Earth's past (both its causes and consequences). Students will gain understanding of the science of carbon and its links to the climate system. Students will also learn more about the wider research process through readings which highlight the process of scientific debate and discovery.

Learning Outcomes: On successful completion of this module students will be able to:

- Understand the elements and functions of Earth's carbon cycle.
- Explain the role of carbon dioxide in Earth's climate.
- Discuss the role of carbon dioxide in past Earth events.
- Contextualise Earth's modern climate – and the rate of modern climate change - in terms of Earth history.
- Discuss how researchers study Earth's history and climate.
- Practice strategies for critical reading and thought.
- Discuss the evolution of scientific thought using discrete examples.

Assessment: 100% Continuous assessment (weekly reading discussion, mini quizzes, larger quizzes) Re-assessment will involve a written activity to complete based on module materials.

Module Breakdown: Contact Hours 22 (2 hours classroom time per week for each teaching week); Independent Study (preparation for course and review of materials): 52; Independent Study (preparation for assessment, incl. completion of assessment): 51

Key Texts:

Readings to be provided from academic and popular literature.

GGU44902 Karst: Earth's Limestone Landscapes 5 ECTS

Module Co-ordinator: Dr Pete Akers (Pete.Akers@tcd.ie**)**

Pre-requisites: None

Outline: The dissolution of limestone and other carbonate bedrocks produces unusual landscapes dominated by underground drainage. Globally, these carbonate rocks underlie 12–20% of the Earth's land surface that support a quarter of the world population. When these bedrocks are exposed at the surface, dissolution carves a distinctive topography known as karst. Karst landscapes are known for their scenic mixture of peculiar landforms which include sinkholes, disappearing streams, turloughs, and caves. Karst and limestone aquifers are an important source of domestic and industrial water for billions, and the distinct hydrology of karst produces unique ecosystems and high biodiversity. However, the environmental properties that set karst apart from other landscapes also make it vulnerable to human mismanagement and pollution. Proper stewardship of limestone landscapes requires us to understand how they differ from other, better-known landscapes, and this is particularly important for Ireland, which has over 40% of its land underlain by limestone. For students interested in protecting Irish water and biodiversity resources, including those at some of Ireland's most distinctive landscapes such as the Burren, this module provides the foundational understanding of karstic geomorphology, hydrogeology, and geochemistry for future success when operating in such environments.

Learning Outcomes: On successful completion of this module students will be able to:

- Explain the major and minor environmental processes specific to limestone that produce karst landscapes.
- Identify the primary landforms associated with global karst landscapes.
- Distinguish and compare the unique characteristics of karst relative to other landscapes and environments.
- Develop a focused understanding of Irish karst landscapes and compare Irish karst to karst from elsewhere in the world.
- Hypothesize and discuss how karst landscapes have affected human societies in Ireland and around the world.
- Consider how modern human societies impact karst resources and environments and recommend how these impacts can be lessened.

Assessment: 100% Continuous assessment of two exams (mid-term and end-of-term) consisting of MCQ, short answer, and short essay, and small in-class activities.

Module Breakdown: Contact Hours = **22 hours of lecture and discussion (2 hr/wk)**

Independent Study (preparation for course and review of materials): **63 hr**
Independent Study (preparation for assessment, incl. completion of assessment): **40 hr**

Key Texts:

- *Karst Hydrogeology and Geomorphology*, D. Ford and P. Williams, (2007).
- *Karst of Ireland: Landscape, Hydrogeology, Methods*, D. Drew (2018).

4. Examinations and Assessment

Throughout your degree, your progress will be evaluated by examination and course work. Details concerning examination procedures are documented in the College Calendar and you are advised to familiarise yourselves with these at the earliest opportunity. Modules are assessed in the semester is which they are taught.

In all cases, the end-of-year Geography mark is calculated according to the relative ECTS weightings of the modules taken.

Please refer to documentation on relevant pathway webpages (Joint Honours or TR062) when considering contributions of minor or major moderatorships, or percentage contribution of JS years.

The Haughton Prize is awarded annually to the student who achieves the highest overall Geography mark in the Junior Sophister year.

The 'Des Gilmor best undergraduate dissertation prize' of €100 is awarded to the best undergraduate dissertation in Geography.

Examinations

The regulations governing examinations are set out in the College Calendar.

Examination timetables are published in advance of the dates of examinations. See the examinations office website for more details (http://www.tcd.ie/Examinations/Timetables/). You must ensure that you are available for the duration of the examinations period as presented in the College Calendar (http://www.tcd.ie/calendar/).

It is the student's responsibility to establish the dates, times and venues of examinations No reminders will be sent to you

The College employs anonymous marking where practically possible. Results will be published by student number. The marking criteria used when marking Geography examination scripts are presented in the relevant section below.

Course work

The form of course work will vary between modules. Details concerning the assessment requirements, value, marking criteria, and deadline/process for submission will be circulated by the module co-ordinator or lecturer when the assessment task is set.

Under normal circumstances, course work will be submitted on a Monday and marked within 20 working days of submission (this does not apply to the Dissertation). The results will be notified to students by the module coordinator or lecturer.

All submitted course work must have a completed Assignment Submission Form attached. These are available from the Geography website – see Courses, Current Students – or from the Geography Desk.

Marks are returned in the form of indicative grades as presented in the table below. These grades are provisional, being subject to moderation at the Examiners' Meeting.

Submission of assessed course work in the Sophister Years

It is the student's responsibility to ensure that you accurately note the deadline and procedure for submission of assessed work.

When work is handed in a register of its receipt is kept. The register includes the date of submission and the student's signature.

For work that is submitted electronically, the student must obtain acknowledgement from the member of the academic staff responsible that the submission has been received. Unless otherwise stipulated, all written work must be word-processed.

The student must keep a paper and electronic copy of all work submitted for assessment.

Policy regarding absence from in-class assessments

Please note that attendance at all undergraduate classes (lectures, laboratory classes etc.) in the fresh years is mandatory. Unsatisfactory attendance can result in you not being permitted to rise with the year. Please see the college calendar for the regulations regarding attendance (general regulations ii, 17 – 23).

In Sophister years, the importance of attendance increases as both years generally contribute directly to your final degree mark.

Attendance at assessments is compulsory in all years. Students must be available during term and certainly during the teaching term. However, in exceptional circumstances and if a reasonable case is made, staff can make special arrangements for students regarding assessments. Each case will be considered on its merits.

Paid employment, family holidays, weddings, birthdays etc. do not constitute grounds for making special assessment arrangements.

The Undergraduate Studies website contains further information concerning the academic regulations governing study at Trinity College.

Deadlines and penalties for late submission

Late Submissions and Extensions for Module Assignments

Developing effective time management strategies and taking personal responsibility for learning is a key skill that students need to master in order to succeed at university and beyond. All students enrolled in modules delivered by the School of Natural Sciences are required to be well prepared for their continuous assignment work, and to submit their work on time and by the deadlines communicated to them by their module coordinator.

Students should note that for some modules it is not possible to grant an extension on coursework due to assignment structure and timing, this will however be clearly communicated by the module coordinator. In addition, no extensions can be given for requests arising from a lack of organisation of work around other activities, or a lack of planning on the student's part. All students must allow time for contingencies in their planning when completing assignments

If students experience truly exceptional and unforeseen circumstances that affect their ability to submit work on time, they are asked to contact their module coordinator via email in the first instance and as soon as the issue arises. The student's tutor should also be copied in on this initial email request,

and all students are strongly encouraged to also approach their tutor for assistance and support in addressing any underlying reasons that are contributing to their extension request.

Extensions for module assignments and acceptance of late submissions will only be granted when supported by verified evidence of exceptional and unforeseen circumstances at the discretion of the module coordinator. If students submit work late without having been granted an extension by their module coordinator, the following reduction to the mark for the assignment will apply:

- For submissions up to three days late: 5% per day including weekends.
- Submissions received more than three days late (including weekends), without a pre-agreed extension, a medical certificate or documented evidence of significant extenuating circumstances, will not be marked.

The registered time of submission will be the time recorded on email or Blackboard for the submission.

Students experiencing difficulties staying on top of their work on medical or other grounds should contact their tutor as soon as their concern arises. Further information can be found in part II of the College Calendar (General Regulations 45).

Students registered with the Disability Office

Students registered with the **Disability Office** are advised to contact the Module Coordinator or Lecturer at the beginning of a module, to ensure their learning and assessment requirements are met and to enable any adjustments to examination conditions are implemented.

The student should bring a copy of their LENS report with them.

Important note regarding plagiarism

All students (undergraduate and postgraduate, new entrants and existing students) must ensure that they have a clear understanding of what plagiarism is, how Trinity deals with cases of plagiarism, and how to avoid it.

We ask you to take the following steps:

- Visit the online resources to inform yourself about how Trinity deals with plagiarism and how you can avoid it at https://libguides.tcd.ie/academic-integrity. You should also familiarise yourself with the Calendar entry on plagiarism and the sanctions which are applied.
- **Complete the 'Ready, Steady, Write' online tutorial** on plagiarism at the link above. **Completing the tutorial is compulsory for all students**.
- Familiarise yourself with the declaration that you will be asked to sign when submitting course work at https://libguides.tcd.ie/academic-integrity/declaration
- Contact your College Tutor, your Course Director, or your Lecturer if you are unsure about any aspect of plagiarism.

Plagiarism is interpreted by the University as the act of presenting the work of others as one's own work, without acknowledgement. Plagiarism is considered as academically fraudulent, and an offence against University discipline. The University considers plagiarism to be a major offence, and subject to the disciplinary procedures of the University.

Plagiarism can arise from deliberate actions and also through careless thinking and/or methodology. The offence lies not in the attitude or intention of the perpetrator, but in the action and in its consequences.

Plagiarism can arise from actions such as:

a) copying another student's work;

b) enlisting another person or persons to complete an assignment on the student's behalf;

c) quoting directly, without acknowledgement, from books, articles or other sources, either in printed, recorded or electronic format;

d) paraphrasing, without acknowledgement, the writings of other authors.

Examples (c) and (d) in particular can arise through careless thinking and/or methodology where students:

- fail to distinguish between their own ideas and those of others;
- fail to take proper notes during preliminary research and therefore lose track of the sources from which the notes were drawn;
- fail to distinguish between information which needs no acknowledgement because it is firmly in the public domain, and information which might be widely known, but which nevertheless requires some sort of acknowledgement;
- come across a distinctive methodology or idea and fail to record its source.

All the above serve only as examples and are not exhaustive.

Students should submit work done in co-operation with other students only when it is done with the full knowledge and permission of the lecturer concerned. Without this, work submitted which is the product of collusion with other students may be considered to be plagiarism.

It is clearly understood that all members of the academic community use and build on the work of others. It is commonly accepted also, however, that we build on the work of others in an open and

explicit manner, and with due acknowledgement. Many cases of plagiarism that arise could be avoided by following some simple guidelines:

- Any material used in a piece of work, of any form, that is not the original thought of the author should be fully referenced in the work and attributed to its source. The material should either be quoted directly or paraphrased. Either way, an explicit citation of the work referred to should be provided, in the text, in a footnote, or both. Not to do so is to commit plagiarism.
- When taking notes from any source it is very important to record the precise words or ideas that are being used and their precise sources.
- While the Internet and particularly generative Artificial Intelligence tools now offer a wide range of possibilities for researching particular themes, it also requires particular attention to be paid to the distinction between one's own work and the work of others. Particular care should be taken to keep track of the source of the electronic information obtained from the Internet or other electronic sources and ensure that it is explicitly and correctly acknowledged and that it is interpreted, scrutinised, and backed up by trackable evidence gathered by the author

It is the student's responsibility to ensure you do not commit plagiarism. If in doubt, you should seek advice from a lecturer, tutor or supervisor on avoiding plagiarism. See Guidelines on Referencing below.

NB: Assignments may be checked using anti-plagiarism software

Students should ensure that they are fully aware of the University's plagiarism and AI related challenges and how to deal with these as part of their studies by consulting the University's respective web pages

(see: https://www.tcd.ie/academicpractice/resources/academic_integrity/challenges/)

Guidelines on Referencing

Geography employs the Harvard Referencing system and students must use this method in all written work (including presentations). Please note the following points:

- You should insert a citation when referring to the work or ideas of others. This can be done when you are reviewing existing work or using the work of others to support your own arguments.
- You should cite all references within the text using the author's surname (no first names or initials) followed by the year of publication. For example, "Smith (2009) demonstrates that…" or "These results support previous work in this area (Smith, 2009)."
- If there are two authors, include both in the citation within the text. For example, "Smith & Jones (2009) demonstrate that…". If there are three or more authors, insert "et al." after the first author. For example, if Smith & Jones write a paper with their colleague Bloggs, this should be cited in the text as "Smith et al. (2009) demonstrate that…".
- When citing multiple works, references must be arranged in chronological order within the text. For example, "These results support previous work in this area (Smith, 2001; Jones, 2004; Smith et al., 2009).
- At the end of your assignment, you must compile a reference list that includes all of the material cited in your work. This differs from other forms of Bibliography that may list work that has not been cited (e.g. recommended reading).

- Your reference list must be in alphabetical order by first author's surname, with material by individual authors ordered chronologically. For example, the papers above would be listed as:

Jones, A.B. (2004)

Smith, C.D. (2001)

Smith, C.D. (2009)

Smith, C.D., Jones, A.B. (2009)

Smith, C.D., Jones, A.B., Bloggs, E.F. (2009)

- The precise format of the references varies with publication type. Common examples are:

Academic Journal papers:

Smith, C.D. (2001) Title of the paper. *Name of the Journal* **Vol No.**, pg X-Y.

Books:

Jones, A.B. (2004) *Title of Book.* Edition. Publisher: Location, No. of pages.

Website:

Author names (Year) *Title of webpage* (online), URL, [Date Accessed]

For more information see the
Freeman Library website:

https://www.tcd.ie/Geography/freeman-library/

Marking Criteria

Geography uses the following guidelines on awarding grades for essays and examination answers

Class	Mark Range	Criteria
I	90-100	EXCEPTIONAL ANSWER; This answer will show original thought and a sophisticated insight into the subject, and mastery of the available information on the subject. It should make compelling arguments for any case it is putting forward and show a rounded view of all sides of the argument. In exam questions, important examples will be supported by attribution to relevant authors and, while not necessarily giving the exact date, should show an awareness of the approximate period. In essays, the referencing will be comprehensive and accurate.
	80-89	OUTSTANDING ANSWER; This answer will show frequent originality of thought and make new connections between pieces of evidence beyond those presented in lectures. There will be evidence of awareness of the background behind the subject area discussed, with evidence of deep understanding of more than one view on any debatable points. It will be written clearly in a style which is easy to follow. In exams, authors of important examples may be provided. In essays all important examples will be referenced accurately.
	70-79	INSIGHTFUL ANSWER; showing a grasp of the full relevance of all course material discussed and will include one or two examples from wider reading to extend the arguments presented. It should show some original connections of concepts. There will be only minor errors in examples given. All arguments will be entirely logical and well written. Referencing in exams will be sporadic but referencing should be present and accurate in essays.
II-1	65-69	VERY COMPREHENSIVE ANSWER; good understanding of concepts supported by broad knowledge of subject. Notable for synthesis of information rather than originality. Evidence of relevant reading outside lecture notes and coursework. Mostly accurate and logical with appropriate examples. Occasional lapse in detail.
	60-64	LESS COMPREHENSIVE ANSWER; mostly confined to good recall of coursework. Some synthesis of information or ideas. Accurate and logical within a limited scope. Some lapses in detail tolerated. Evidence of reading the assigned course literature.
II-2	55-59	SOUND BUT INCOMPLETE ANSWER; based on coursework alone but suffers from a significant omission, error or misunderstanding. Usually lacks synthesis of information or ideas. Mainly logical and accurate within its limited scope and with lapses in detail.
	50-54	INCOMPLETE ANSWER; suffers from significant omissions, errors and misunderstandings, but still with understanding of main concepts and showing sound knowledge. Several lapses in detail.
III	45-49	WEAK ANSWER; limited understanding and knowledge of subject. Serious omissions, errors and misunderstandings, so that answer is no more than adequate.
	40-44	VERY WEAK ANSWER; a poor answer, lacking substance but giving some relevant information. Information given may not be in context or well explained, but will contain passages and words, which indicate a marginally adequate understanding.
Fail	35-39	MARGINAL FAIL; inadequate answer, with no substance or understanding, but with a vague knowledge relevant to the question.
	30-34	CLEAR FAILURE; some attempt made to write something relevant to the question. Errors serious but not absurd. Could also be a sound answer to the misinterpretation of a question.
	0-29	UTTER FAILURE; with little hint of knowledge. Errors serious and absurd. Could also be a trivial response to the misinterpretation of a question.

Geography uses the following agreed guidelines on marking for project/dissertation assessment.

Class	Mark Range	Criteria
I	80-100	Exceptional project report showing broad understanding of the project area and excellent knowledge of the relevant literature. Exemplary presentation and analysis of results, logical organisation and ability to evaluate critically and discuss results coupled with insight and originality.
	70-80	A very good to excellent project report showing evidence of wide reading, with clear presentation and thorough analysis of results and an ability to evaluate critically and discuss research findings. Clear indication of some insight and originality. A very competent and well-presented report overall but with some room for improvement.
II-1	60-69	A good to very good project report which shows a reasonably good understanding of the problem and knowledge of the relevant literature. Mostly sound presentation and analysis of results but with occasional lapses. Relevant interpretation and critical evaluation of results, though somewhat limited in scope. General standard of presentation and organisation adequate to good.
II-2	50-59	A moderately good project report which shows some understanding of the problem but limited knowledge and appreciation of the relevant literature. Presentation, analysis and interpretation of the results at a basic level and showing little or no originality or critical evaluation. Insufficient attention to organisation and presentation of the report.
III	40-49	A weak project report showing only limited understanding of the problem and superficial knowledge of the relevant literature. Results presented in a confused or inappropriate manner and incomplete or erroneous analysis. Discussion and interpretation of results severely limited, including some basic misapprehensions and lacking any originality or critical evaluation. General standard of presentation poor.
Fail	20-39	An unsatisfactory project containing substantial errors and omissions. Very limited understanding or, in some cases, misunderstanding of the problem and very restricted and superficial appreciation of the relevant literature. Very poor, confused and, in some cases, incomplete presentation of the results and limited analysis of the results including some serious errors. Severely limited discussion and interpretation of the results revealing little or no ability to relate experimental results to the existing literature. Very poor overall standard of presentation.
Fail	0-19	A very poor project report containing every conceivable error and fault. Showing virtually no real understanding or appreciation of the problem and of the literature pertaining to it. Chaotic presentation of results and, in some cases, incompletely presented and virtually non-existent or inappropriate or plainly wrong analysis. Discussion and interpretation seriously confused or wholly erroneous revealing basic misapprehensions.

Prizes

HAUGHTON PRIZE IN GEOGRAPHY

This prize, established in 1989 from funds subscribed to honour Joseph P. Haughton, Fellow emeritus and formerly Professor of Geography, is awarded to the best student of geography in the Junior Sophister year as nominated by the annual departmental examiners' meeting. Value, €305.

DES GILMOR PRIZE IN GEOGRAPHY

The 'Des Gilmor best undergraduate dissertation prize' of €100 is awarded to the best undergraduate dissertation in Geography.

5. Geography Staff and Contact Information

The Geography Undergraduate Teaching and Learning desk is in the School of Natural Sciences Office on the ground floor of the Museum Building.

Email: geography@tcd.ie

Telephone: +353-(0)1 896 1576

Head of Geography: Prof Iris Möller

Contact: moelleri@tcd.ie

Members of staff from across the School of Natural Sciences contribute to the teaching programmes in Geography. Specific enquiries relating to individual modules should be directed to the module co-ordinator or the member of teaching staff involved.

Academic Staff

Dr Pete Akers BS Purdue University MS, PhD University of Georgia
Research interests: Environmental monitoring, paleoclimatology, human-environment interactions.
Contact: akersp@tcd.ie

Dr Tara Bedi BA Lewis & Clark College, MPAID (Harvard), Ph.D. (TCD). Research Interests: Development economist with a focus on gender, agriculture, social protection, behaviour change and mental well-being.
Contact: TBEDI@tcd.ie@tcd.ie

Dr Mary Bourke BA, MA (UCD), Ph.D. (Australian National University) FTCD
Research Interests: Geomorphology..
Contact: bourkem4@tcd.ie

Professor Pádraig Carmody BA (Dublin), MSc (Dublin), PhD (Minnesota), FTCD, MRIA
Research Interests: Development and economic geography, political economy, globalisation, Africa.
Contact: carmodyp@tcd.ie

Dr John Connolly BA International (UCD), MSc (The University of Sheffield), PhD (UCD).
Research Interests: Applied GIS and Remote Sensing, terrestrial carbon dynamics; land use and land use change; peatlands; geomorphology; habitat mapping; geospatial analysis & renewable energy.
Research Interests: john.connolly@tcd.ie

Dr Federico Cugurullo BA, MA (Cagliari), PhD (London)
Research interests: sustainable urban development; smart cities; eco-cities; experimental urbanism; the ideal city; Southeast Asia; Middle East.
Contact: cugurulf@tcd.ie

Professor Anna Davies BA (Cantab.), MSc (Oxf Brookes), PhD (Cantab), FTCD, MRIA
Research Interests: Human geography and the environment; environmental values and valuation; environmental planning and governance; environmental conflicts and justice with a special interest in sustainability and public participation in environmental issues.
Contact: daviesa@tcd.ie

Dr Robin Edwards BSc (Southampton), PhD (Dunelm)
Research Interests: Sea level change & climate; foraminifera; quantitative palaeoenvironmental reconstruction; oceanography; coastal change; environmental archaeology.
Contact: robin.edwards@tcd.ie

Dr Mark Hennessy BA (NUI), MA (Dublin), PhD (NUI)
Research Interests: Historical geography; history and philosophy of geography; history and theory of cartography; Australasia.
Contact: mhnnessy@tcd.ie

Dr Margaret Jackson BS (Dickinson), MS (Maine), PhD (Dartmouth)
Research Interests: Palaeoclimate, abrupt climate change, glacial geomorphology, geochronology, environmental reconstruction, ice-sheet sensitivity, Quaternary geomorphology and sedimentology
Contact: margaret.jackson@tcd.ie

Dr Philip Lawton BA, MA (UCD), PhD (Dublin)
Research Interests: Urban Social and Economic Change, Suburbanization and Urban Processes, Urban Public Space, Film and the City.
Contact: lawtonp@tcd.ie

Prof Iris Möller BA (Oxon), MPhil, PhD (Cantab.)
Research Interests: Coastal geomorphology and management; sea-level rise adaptation; coastal flood risk mitigation; coastal protection provided by dynamic coastal landforms and ecosystems; climate change adaptation.
Contact: moelleri@tcd.ie

Dr Susan P. Murphy BA, MA, PhD (NUI), MA (Dublin)
Research Interests: Governance and ethics in international development cooperation and sustainable development practice.
Contact: susan.p.murphy@tcd.ie

Dr Cian O'Callaghan BA (Cork), PhD (Cork)
Research Interests: Urban political economy, Creativity and place, Neoliberalism, Urban vacancy and 'new ruins'.
Contact: ocallac8@tcd.ie

Dr Rory Rowan, BA, MA, PhD (Royal Holloway, University of London)
Research Interests: environmental governance, political ecology, geopolitics, the Anthropocene, outer space, intellectual history, artistic collaboration.
Contact: rowanro@tcd.ie

Dr Martin Sokol IngArch (Bratislava), MA (Grenoble), PhD (Newcastle)
Research Interests: Economic geography; Urban and regional development; Post-socialist geographies; Geographies of finance.
Contact: sokolm@tcd.ie

Professional Staff

In addition to the academic staff list above, the Geography teaching programmes are supported by the invaluable contributions of range of further staff.

Dr James Canavan BSc (Hons) (Glasgow), PhD (Glasgow)
Role: Senior Technical Officer
Contact: canavaj1@tcd.ie

Ms Mary O'Shea –
Role: Senior Technical Officer
Contact: OSHEAM21@tcd.ie

Ms Samantha Hinton –
Role: GIS Technical Officer
Contact: SHINTON@tcd.ie

Members of staff from across the School of Natural Sciences contribute to the teaching programmes in Geography. Specific enquiries relating to individual modules should be directed to the module co-ordinator or the member of teaching staff involved.

6. Facilities, Conduct and Safety

The Discipline of Geography is primarily housed within the Museum Building in New Square. Geography has several dedicated facilities in the Museum Building that may be used by undergraduate students. These facilities include lecture rooms, laboratory spaces, and a library.

Laboratories

The laboratories within the discipline of Geography need to be booked in advance. Please contact James Canavan (canavaj1@tcd.ie) to book time in the laboratories.

The Geomorphology Laboratory is the primary teaching laboratory within the discipline. The laboratory is mainly used for soil and sediment based work as well as non-hazardous chemical work.

The Palynology Laboratory is reserved for work that requires the use of hazardous chemicals.

The Particle Size Analysis (PSA) Laboratory houses our particle size analysis (PSA) instrument; The Malvern Mastersizer 3000. Anyone required to use this instrument will be given full training in its operation in advance of work commencing.

GIS and Remote Sensing are run in the College Computer Labs. The GIS software only work on PC computers (i.e. it does not run the Apple Mac OS). If a student intends on taking GIS or Remote Sensing in their Sophister years, it is recommend that they have access to a Windows PC (Desktop or Laptop - minimum system requirements can be found here)

ArcGIS Pro 3.2 system requirements—ArcGIS Pro | Documentation

Ensure your computer meets the system requirements before installing and using ArcGIS Pro 3.2.

pro.arcgis.com

Safety

The Discipline of Geography Safety Statement is located within Room 0.19. The document contains all relevant safety information for the discipline, including risk assessments, policies and forms.

The safety statement is also available via a dedicated MS Teams site which is shared with relevant undergraduate and postgraduate students.

Under the *Safety, Health and Welfare at Work Act (2005)*, Trinity College Dublin has a duty to provide, within reason, a safe place of work and safe working practices. As a student using facilities in the Discipline of Geography, you have responsibility for your own safety and that of your fellow students and staff. To this end, all safety protocols and instructions as laid out in the Safety Statement and any additional instructions given by the staff in charge of a class/laboratory practical/fieldtrip must be understood and adhered to.

James Canavan (canavaj1@tcd.ie) acts as Discipline Safety Officer for Geography.

Emergencies

Situations which may require emergency response include:

- Fire
- Emergency evacuation due to bomb alerts, gas leaks, chemical spills, biological or radioactive incidents
- Serious accident and injury
- Natural disaster
- Off-site incidents
- Power failure

In the event of an emergency, contact the college Emergency number Ext 1999 (from an internal line) or 01 896 1999 (from a mobile). You should give your name, location and the nature of the emergency. If necessary, you can evacuate the building by using one of the break-glass units.

Laboratory Safety

Laboratory protocols exist for each of the laboratories within the Discipline of Geography. These protocols are available via a dedicated MS Teams site which is shared with relevant undergraduate and postgraduate students. The Laboratory protocol must be signed off before using any of the laboratories. Any new experimental or project work taking place in any of the laboratories will require a Laboratory **Risk Assessment** to be completed before the work can begin. Assessments need to be approved by your Supervisor and in some cases the Head of Discipline before the work can commence.

Fieldwork Safety

Fieldwork forms an important part of Geography research and teaching. Any staff member, postdoctoral researcher, postgraduate student or undergraduate student must read the Discipline of Geography Fieldwork Safety Manual and view the presentation, Preparing a Fieldwork Risk Assessment prior to undertaking fieldwork. Undergraduate students must initially discuss the proposed fieldwork with their academic supervisor and obtain their consent prior to undertaking any fieldwork. A **Fieldwork Risk Assessment** must be undertaken before embarking on any fieldwork. The risk assessment must be approved by your Supervisor and in some cases the Head of Discipline before the fieldwork can commence. All of the above assessment forms and manuals are available from the technical staff and via a dedicated MS Teams site which is shared with relevant undergraduate and postgraduate students.

Fire Safety

The Fire Wardens for the Discipline of Geography are Elaine Treacy (Room 0.9B) and James Canavan (Room B8A). However, individuals are responsible for checking the fire precautions in their work areas. Any defects or potential fire hazards should be reported to the Discipline Fire Wardens or to the Head of Discipline immediately.

Within your work area, note the position of the nearest fire extinguishers and note the position of the nearest fire exit. Under no circumstances should fire doors be wedged or left open. The curtailment of fire spread is dependent on fire doors being kept shut.

When the fire alarm sounds within the building, stop whatever function you are engaged in and leave it in a safe condition. Leave the building by one of the exits. Proceed to the appropriate assembly point for your area. You should ensure to lock your office/lab door behind you when you leave. **The assembly point for the museum building is Fellows Square, located outside the arts building**.

If you discover a fire, raise the alarm by using one of the break glass units, leave the building, closing or locking all doors behind you, notify the security centre by calling Ext 1999 or 01 8961999 and report to your assembly point.

First Aid

If a student is injured or falls ill during a class, laboratory practical or fieldtrip, the person in charge must be informed immediately. First Aid Kits are located in the Administration Office, Palynology Laboratory, Geomorphology Laboratory, Basement Laboratory and Freeman Library. The First Aid Kits contain a range of dressings and bandages for treatment of minor cuts and burns as well as eyewash solution. If you use any items from the First Aid Kits, please inform a Safety or Technical Officer so the items can be replaced.

Staff trained in Occupational First Aid for the discipline: Elaine Treacy (Room 0.9B) and James Canavan (Room B8).

All accidents must be reported to the Discipline Safety Officer and entered in the accident book which is kept in room B8A. An accident report form will be completed for each incident.
If an injury requires a doctor or nurse, the college health centre number is Ext 1556 (from an internal line) or 01 896 1556 (from a mobile). The doctor should be informed of when and where the illness took place. In emergencies where immediate attention or ambulance is required call the emergency number Ext 1999 (or 01 896 1999 from a mobile).

Security

As the museum building is open to the public, it is particularly vulnerable to intruders and potential thieves and as a result, cash, personal items and valuable equipment disappear without apparent explanation. You are advised **never** to leave a handbag, purse, wallet, camera, personal computer, etc. unattended in the laboratories or unlocked offices. Intruders often set off the fire alarm in order to gain entry to vacant offices. When evacuating the building once the fire alarm sounds, ensure that you lock doors behind you.

If you encounter an intruder or if a person seems to be acting suspiciously, inform a member of staff or phone: Security Office, Front Gate - ext 1317/1999.

7. The Freeman Library

The Freeman Library is located off the main concourse of the Museum Building. It is Geography's own archive and book collection built on the initial efforts of Walter Freeman, who brought much geographical enthusiasm to Trinity when he arrived there from Edinburgh in 1936. He bequeathed the collection to Trinity Geography and it has been supplemented ever since. It provides a wide range of materials useful for coursework and a quiet working environment. In addition to course-related texts, reference books, bibliographies, periodicals, pamphlets, maps, postgraduate theses and undergraduate dissertations.

In 2020, however, the Faculty and College decided not to continue to support the part-time archivist who had been keeping the archive catalogued and safe – thus we now rely on our students to ensure all materials remain in place and are kept safe.

To this end, membership of the library is open to all those reading geography. Enquiries concerning the use the Freeman Library should also be addressed to geography@tcd.ie .

Library opening hours are subject to change but generally follow the pattern of 9.00 a.m. - 5.00 p.m. on Mondays & Wednesdays, and 9.00 a.m. - 1.00 p.m. on Fridays during term time. The Library is accessed by use of student/staff cards and we ask all users to be mindful of the flexible use of the space (occasional bookings for teaching and seminars etc) and to not use the library for study after hours. Notices will be placed on the door to let students know any changes in the opening hours. Books or other materials may not be borrowed. If students need help in finding information, locating books or using databases please do not hesitate to contact geography@tcd.ie.

8. Beyond a Geography Degree

Careers for Geography Graduates

Trinity College geography graduates are to be found in almost every branch of employment. These include teaching at all levels, research in industry, semi-state bodies and academic institutions; planning and development in the civil service, local government and overseas development agencies.

Graduates of the Department are also found in industry, marketing, property management, housing management and research, banking, accountancy, advertising, journalism, publishing, librarianship, television, agriculture, soil surveying, meteorology, hydrology and tourism.

The breadth of the subject enables geographers to be more adaptable to cyclical variations in employment opportunities than the graduates of many narrower specialisms. Moreover, the integrating nature of geography has become a major asset in a world of constant change in which many employers seek adaptability and flexibility, rather than narrow technical knowledge which is soon outdated.

Research Opportunities

Geography has a thriving postgraduate community with students engaged in PhD research in both human and physical geography. Further research information is available on the Geography website: https://www.tcd.ie/geography/research/

The School of Natural Sciences also runs taught M.Sc. programmes. These one-year courses comprise 60 ECTS of specialist taught modules followed by an independent research project worth 30 ECTS. Two of these masters programmes may be of particular interest to Geography graduates:

The Masters in Development Practice (MDP) is a one year interdisciplinary degree programme consisting of twelve academic modules across four intersecting disciplines—health, natural, social, and management sciences combined with cross-sectoral field training, professional work-based placements, and a research based dissertation. It blends theory and practice, science, and social science to further international development solutions. It is part of a global network under the remit of the United Nations Sustainable Development Solutions Network headquartered in Columbia University in New York.

The Masters in Smart and Sustainable Cities is a one year Masters focused on the intersection between 'smart' and 'sustainable' solutions to the urban challenges of today and tomorrow. The programme, which is the first dedicated programme of its kind, provides students with an in-depth understanding of smart and sustainable cities, using (a) the tools of urban geography and planning to examine the spatial formation of smart cities; (b) methods in engineering and computer science to analyze the functions and applications of smart technologies, and (c) insights from ecology to explore the environmental impact of both 'smart-city projects' and wider transformations of contemporary cities.

Further course details including admission requirements and applications process can be obtained from the Postgraduate Prospectus on the Graduate Studies website or via the School of Natural Sciences.