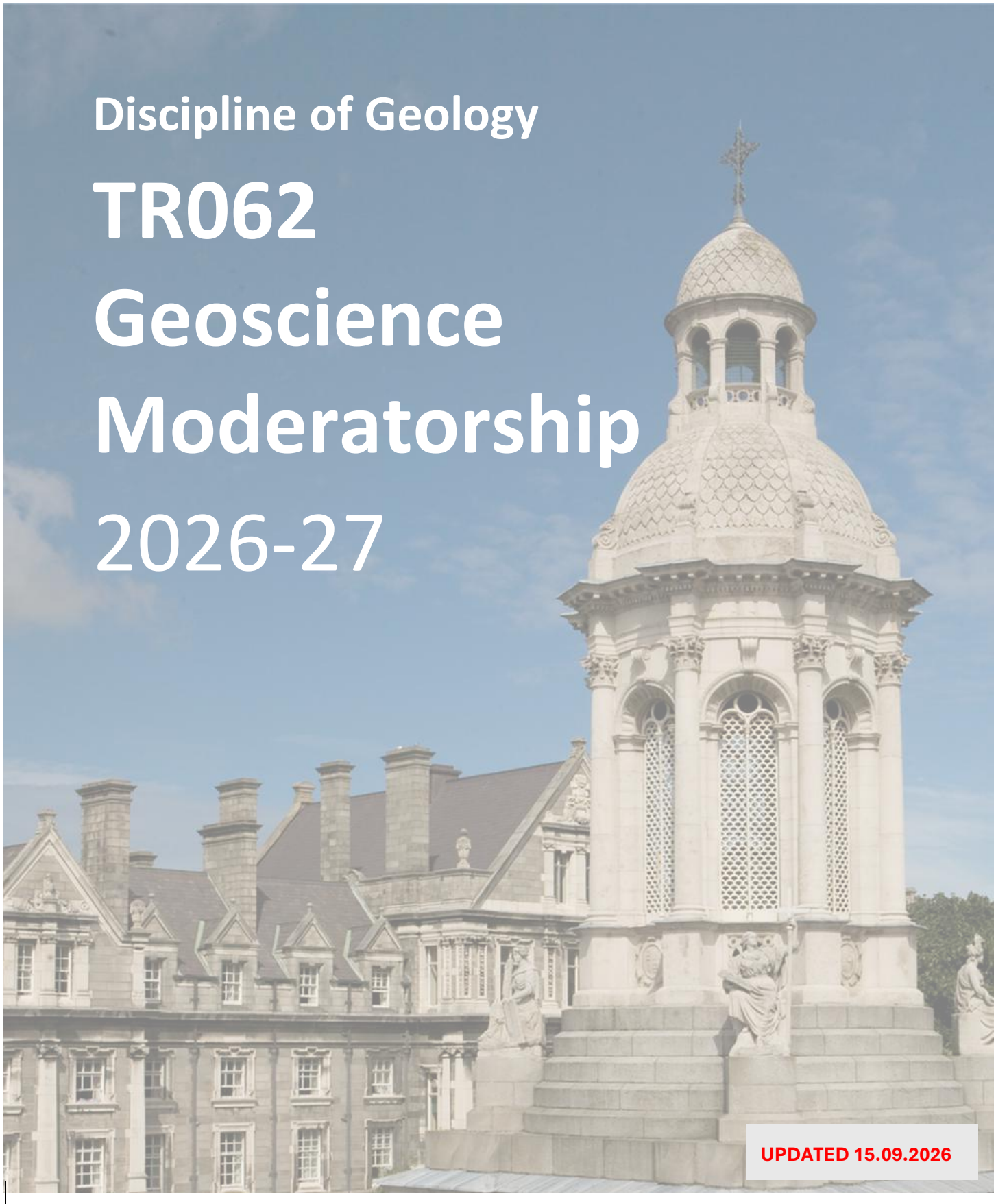


Discipline of Geology

TR062 Geoscience Moderatorship 2026-27

UPDATED 15.09.2026

IMPORTANT NOTE:

Although the information in this handbook is correct at the time of production, the precise content of the course is subject to change. While every effort will be made to give due notice of major changes, the School Office reserves the right to suspend, alter or initiate courses, timetables, examinations and regulations at any time.

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: https://www.tcd.ie/calendar/undergraduate-studies/

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Welcome

Welcome to TR062 Geoscience Moderatorship!

The purpose of this handbook is to provide you with information on modules that will be available to you in the Sophister (3rd and 4th) years of the Geoscience Moderatorship. You now must decide which Pathway (Geology or Earth System Science) you wish to follow.

For some this will be very easy, because you have known from entry which career path you wish to embark upon. For others, the decision may require a bit more thought and this handbook is designed to furnish you with all the information you need to make your choice.

I wish you well over the next two years, whatever choices you make, and I trust you will maintain the tradition we have of producing the very highest quality of Science graduates.

Dr Sean Mc Clenaghan

TR062 Geography and Geoscience Programme Director

TR062: Geography and Geoscience - BA Mod in SCIENCE (GEOSCIENCES)

Geosciences combine the study of geology, geography, chemistry, physics and biology, to develop a complete understanding of how the earth works (past, present & future). The work of geoscientists helps us understand the changing climate, predict earthquakes and volcanic eruptions, find supplies of energy and raw materials, maintain clean air and water, understand the motion of the earth's crust and oceans, and reconstruct the evolution of rocky planets and life.

Within the Geoscience Moderatorship, students will have the option of two pathways:

- **Geology Pathway** will provide you with the foundations of earth processes and how they relate to the evolution of our Planet and Solar system as well as Society's relationship with our lithosphere from the perspective of natural hazards and resources. This pathway is suited for students who are interested in discovery and exploration of our planet's diverse geology. It will feature a Survey Capstone in the Senior Sophister year 4 which will be based upon geological mapping of a student's chosen field area within Europe (past areas include Ireland, Spain, Greece) or abroad. The Geology Capstone requires the student to complete 5 weeks of field work during the summer term between JS and SS.
- **Earth System Science Pathway** will give you access to a wider range of Geoscience and Geography modules than are available for those selecting Geology, allowing you to pursue a broad programme that may focus surficial processes, climate and environment. This pathway is suited for students who are interested in geoscience research and monitoring of Earth processes to meet the future challenges on our planet. It features a Research Capstone in the Senior Sophister year 4 which will be based upon field/laboratory data collection and interpretation.

Geoscience Moderatorship Learning Outcomes

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

- Demonstrate a thorough working understanding of the scientific method, the nature of scientific knowledge and its evolution over time.
- Discuss the core principles of Geoscience and apply the scientific method to the study of Geographical and Geological problems.
- Explain the interdisciplinary nature and acquisition of scientific knowledge, illustrating the relationships among geographical and geological sciences and cognate disciplines.
- Formulate and test hypotheses in order to make logical and scientific arguments based on current data.
- Collect qualitative and quantitative data with precision and organisation, using specific geographical and geological technical skills.
- Analyse and critically evaluate data using appropriate mathematical, statistical, computational and other relevant methods.
- Conduct geographical / geological research independently and as part of a team.
- Critically evaluate current and novel concepts and ideas.
- Communicate effectively in written, oral, electronic and social media formats to scientific and non-scientific audiences.
- Discuss the role and influence of scientific knowledge on society and illustrate its application in the geosciences.

TR062 Geoscience Junior Sophister Programme

The Junior Sophister programme comprises **40 credits of mandatory core modules** that are taken by TR062 Geoscience students. Depending on your desired path of 1) Earth Systems Science or 2) Geology, mandatory module requirements will vary between the two pathways.

All students are required to select an **additional 20 credits of modules**, ensuring that 10 credits are chosen in each semester. Of these 20 credits, at least 5 credits (one module) must be drawn from the Trinity Elective modules. A student may choose to take an additional 5 credit module from the Trinity Electives but cannot take both modules in the same Semester.

IMPORTANT NOTE ON SELECTING A TRINITY ELECTIVE:

Due to the mandatory residential field course, students will be away from College during the last week of Semester two. Students wishing to take an elective from Semester two should check that their absence from the final week of the module will not impact on assessment.

Junior Sophister Programme Structure

Earth System Science Pathway

TR062 Geoscience Moderatorship **Earth System Science Pathway** **Junior Sophister Year**	
Semester 1 *30 credits*	**Semester 2** *30 credits*
CORE MODULES (40 Credits)	
BOU33123 Soil Science (5 Credits)	GGU33011 Earth's Climate Past, Present and Future (5 Credits)
GLU33002 Blue Earth: Understanding the Function of Marine Ecosystems (5 Credits)	GLU33007 Earth Resources for a Critical Future (5 Credits)
GLU33006 Stratigraphy: Earth Through Time (5 Credits)	GLU33009 Hydrology and Groundwater Quality (5 Credits)
GLU33027 Junior Sophister Field Skills (5 Credits)	GSU33001 Research Methods for Geoscientists (5 Credits)
Trinity Elective (5 credits) + THREE Open Modules (15 credits)	
Trinity Elective (5 Credits)	**Trinity Elective (5 Credits)**
GSU33007 Junior Sophister Geology Field Course (Greece; 10 Credits)	
GGU33020 Research Skills and Data Analysis in Geomorphology 1 (5 Credits)	GGU33021 Research Skills and Data Analysis in Geomorphology 2 (5 Credits)
GLU33004 The Crystal World (5 Credits)	GGU33931 Environmental Governance 1 (5 Credits)
GLU33017 Earth Survey: GIS Mapping Methods (5 Credits)	GLU33005 Volcanism and Magmatism (5 Credits)
	GLU33010 Palaeobiology and Palaeoecology (5 Credits)
	GLU33013 Tectonics & Structural Geology (5 Credits)

IMPORTANT NOTE: Junior sophister modules are subject to change.

Junior Sophister Programme Structure

Geology Pathway

TR062 Geoscience Moderatorship **Geology Pathway** **Junior Sophister Year**	
Semester 1 *30 credits*	**Semester 2** *30 credits*
CORE MODULES (40 Credits)	
GLU33004 The Crystal World (5 Credits)	GLU33005 Volcanism and Magmatism (5 Credits)
GLU33006 Stratigraphy: Earth Through Time (5 Credits)	GLU33008 Metamorphic Rocks and Processes (5 Credits)
GLU33027 Junior Sophister Field Skills (5 Credits)	GLU33013 Tectonics & Structural Geology (5 Credits)
GSU33007 Junior Sophister Geology Field Course (Greece; 10 Credits)	
Trinity Elective (5 credits) + THREE Open Modules (15 credits)	
Trinity Elective (5 Credits)	**Trinity Elective (5 Credits)**
BOU33123 Soil Science (5 Credits)	GGU33011 Earth's Climate Past, Present and Future (5 Credits)
GLU33002 Blue Earth: Understanding the Function of Marine Ecosystems (5 Credits)	GLU33007 Earth Resources for a Critical Future (5 Credits)
GLU33017 Earth Survey: GIS Mapping Methods (5 Credits)	GLU33009 Hydrology and Groundwater Quality (5 Credits)
	GLU33010 Palaeobiology and Palaeoecology (5 Credits)

IMPORTANT NOTE: Junior sophister modules are subject to change.

TR062 Geoscience Senior Sophister Programme

The Senior Sophister programme comprises **40 credits of mandatory core modules** that are taken by TR062 Geoscience students. Depending on your desired path of 1) Earth Systems Science or 2) Geology, mandatory module requirements will vary between the two pathways.

All students are required to select an **additional 20 credits of modules**, ensuring that 10 credits are chosen each semester.

Senior Sophister students will undertake the Geoscience Capstone Project, a significant piece of individual research conducted under the guidance of a member of academic staff. The project takes one of two forms:

Geological survey

The geological survey aims to solve the geological history and evolution of a specific area over time, presenting the results as a digitised geological map sheet (including cross-sections and stratigraphic column), with an accompanying, descriptive Memoir.

The geological survey Capstone project requires the student to conduct 5-6 weeks of field work during the summer between JS and SS. The Discipline of Geology will subsidise student field costs associated with the geology capstone and student hardship funds may also be used to help cover expenses.

Geosciences research

The geosciences research project addresses specific research questions via field work, laboratory analysis, novel work on museum collection material / pre-existing data sets, or some combination of these, presenting the results in an extended written report (dissertation).

Students undertaking a Geological Survey capstone project will receive specialised training in geological mapping and instruction on how to translate field data into publication quality geological maps, cross-sections and reports immediately prior to undertaking their field work.

Senior Sophister Programme Structure

Earth System Science Pathway

TR062 Geoscience Earth System Science Pathway Senior Sophister Year	
Semester 1 *30 Credits*	**Semester 2** *30 Credits*
MANDATORY MODULES (40 Credits) *20 credits each semester*	
GSU44001 Geoscience Research Capstone Project (20 Credits)	
GSU44004 Geoscience Frontiers: Past, Present and Future (10 Credits)	
GLU44009 Geoscience for a Sustainable Planet (5 Credits)	GSU44002 Senior Sophister Geoscience Field Course (5 Credits)
OPTIONAL MODULES (20 Credits)	
GGU44976 Glaciers & Glaciation (5 credits)	GGU44902 Karst Landscapes (5 Credits)
GLU44008 Early Earth Evolution (5 Credits)	GGU44979 Living on the Edge: Estuaries and Coasts (5 Credits)
GLU44012 Raw Materials in Building (5 Credits)	GLU44004 Advanced Volcanology and Igneous Petrology (5 Credits)
GLU44014 Rift Sedimentary Geodynamics (5 Credits)	GLU44011 Palaeoceanography and Palaeoclimatology (5 Credits)
GLU44015 Human Futures on a Finite Planet (5 Credits)	GLU44020 Cyclostratigraphy and Astrochronology (5 Credits)

IMPORTANT NOTE: Senior sophister modules are subject to change.

Geology Pathway

TR062 Geoscience Geology Pathway Senior Sophister Year	
Semester 1 *30 Credits*	**Semester 2** *30 Credits*
MANDATORY MODULES (40 Credits) *20 credits each semester*	
GSU44001 Geoscience Research Capstone Project (20 Credits)	
GSU44004 Geoscience Frontiers: Past, Present and Future (10 Credits)	
GLU44019 Lithoprobe: Advanced Earth Exploration (5 Credits)	GSU44002 Senior Sophister Geoscience Field Course (5 Credits)
OPTIONAL MODULES (20 Credits)	
GGU44976 Glaciers & Glaciation (5 credits)	GGU44902 Karst Landscapes (5 Credits)
GLU44008 Early Earth Evolution (5 Credits)	GLU44004 Advanced Volcanology and Igneous Petrology (5 Credits)
GLU44012 Raw Materials in Building (5 Credits)	GLU44011 Palaeoceanography and Palaeoclimatology (5 Credits)
GLU44014 Rift Sedimentary Geodynamics (5 Credits)	GLU44020 Cyclostratigraphy and Astrochronology (5 Credits)
GLU44015 Human Futures on a Finite Planet (5 Credits)	

IMPORTANT NOTE: Senior sophister modules are subject to change.

Description of ECTS system

The European Credit Transfer and Accumulation System (ECTS) is an academic credit system based on the estimated student workload required to achieve the objectives of a module or programme of study. It is designed to enable academic recognition for periods of study, to facilitate student mobility and credit accumulation and transfer. The ECTS is the recommended credit system for higher education in Ireland and across the European Higher Education Area.

The ECTS weighting for a module is a measure of the student input or workload required for that module, based on factors such as the number of contact hours, the number and length of written or verbally presented assessment exercises, class preparation and private study time, laboratory classes, examinations, clinical attendance, professional training placements, and so on as appropriate. There is no intrinsic relationship between the credit volume of a module and its level of difficulty.

The European norm for full-time study over one academic year is 60 credits. Within Undergraduate courses 1 credit represents 20-25 hours estimated student input, so a 10-credit module will be designed to require 200-250 hours of student input including class contact time, assessments and examinations. Within Postgraduate courses 1 credit represents 25 hours estimated student input, so a 10-credit module will be designed to require 200-250 hours of student input including class contact time, assessments and examinations.

ECTS credits are awarded to a student only upon successful completion of the programme year. Progression from one year to the next is determined by the programme regulations. Students who fail a year of their programme will not obtain credit for that year even if they have passed certain components. Exceptions to this rule are one-year and part-year visiting students, who are awarded credit for individual modules successfully completed.

Module Selection

The module selection form will be shared with students between July and August. Students should note that due timetable constraints Open Modules may delivered via a blended learning approach involving face to face and online teaching for some open modules.

Enrolment in core and open modules is processed via the TR062 Office, while the enrolment in Trinity Electives is processed via Online Module Enrolment (OME), as outlined in the following section.

Trinity Electives

The Trinity Electives are a unique feature of your Trinity Education. They are stand alone, College-wide 5 credit modules. They cover a broad range of topics in the arts, humanities, sciences, health and social science, and technology. They are designed to allow students to study topics outside of their core discipline and thus provide breadth in their education. Depending on your moderatorship, you will choose a combination of Trinity Electives and Open Modules as described in this handbook.

Choosing your Trinity Elective

The choice of Trinity Elective is student driven. Almost all Trinity Electives are open to all students. However, students of some moderatorships may be precluded from taking certain Trinity Electives. The list of exemptions is outlined in the Trinity Electives webpage: https://www.tcd.ie/trinity-electives/

Selection of Trinity Electives will be made through online enrolment after publication of examination results and allocation of moderatorship places. You will be asked to list your choice(s) of Trinity Elective on a first come first served basis via Online Module Enrolment (OME).

The Trinity Electives website provides full details of each of the Trinity Electives. A list of the Trinity Electives can be found at https://www.tcd.ie/trinity-electives/

You need to think carefully about your choice of Trinity Elective as the semester in which you take it (Semester 1, Semester 2) will affect your choice of Open Modules. That is: taking one Trinity Elective in the first semester, restricts you to the open modules in Option 1; taking one Trinity Elective in the second semester, restricts you to the open modules in Option 2.

IMPORTANT NOTE ON SELECTING A TRINITY ELECTIVE

Due to the mandatory residential field course, students will be away from College during the first week of Semester one and last week of Semester two. Students wishing to take an elective from Semester two should check that their absence from the final week of the module will not impact on assessment.

Fieldwork



Fieldwork is a special and important component of the Geoscience programme, as it provides many of the data from which we derive our knowledge of Earth, including spatial and temporal variations in its components.

Students are introduced to field work during freshman years, and it becomes a substantial portion of sophister years, particularly for those pursuing the Geology pathway. The courses show how to extract information from the environment and how to apply these skills in both academic and practical contexts.

Please note that additional costs are typically associated with field trip modules, and this should be recognized and accounted for when considering geoscience degrees. We endeavour to keep these costs low, especially considering studied locations. Although there is a College student hardship fund which can be applied for (depending on individual financial circumstances), the costs for this field course usually are borne by the student.

Fieldwork in Sophister years

GLU33027

This field course will provide basic field skills to junior sophister students in both Earth System Science and Geology Pathways. In this module students will embark on a 7-day field excursion in Ireland designed to provide first-hand experience of working in common geological contexts. Particular emphasis is placed on the collection and recording of field data, making informed field observations and subsequent interpretation.

IMPORTANT NOTE: This module will take place in the first week of Semester 1. Students will be required to make a financial contribution to the cost of the trip (currently approximately **€500**, but this may vary depending on inflation, fuel/transport prices, etc). Although there is a College student hardship fund which can be applied for (depending on individual financial circumstances), the costs for this field course usually are borne by the student.

GSU33007

In this module students will embark on a two-week overseas field excursion designed to provide first-hand experience of working in unfamiliar geological contexts. Particular emphasis is placed on the collection of high-quality field observations and their subsequent interpretation.

IMPORTANT NOTE: This module will take place overseas and is slated to run in the final week of Semester 2 and Trinity Week. Students will be required to make a financial contribution to the cost of the trip (currently approximately **€1000**, but this may vary depending on inflation, flight prices, etc). Although there is a College student hardship fund which can be applied for (depending on individual financial circumstances), the costs for this field course usually are borne by the student.

GSU44002

This module comprises a one-week residential field course that is usually held overseas. It provides students with practical experience in conducting primary research across a range of geoscience themes. Students are required to complete a series of guided research tasks and to present the results of their work in evening seminars, and in written form as a field notebook and report. This field course further develops practical fieldwork and problem-solving skills. Emphasis is placed on the application of geoscience techniques in real-world situations.

IMPORTANT NOTE: This module will take place overseas and is slated to run in the final week of Semester 2. Students will be required to make a financial contribution to the cost of the trip (currently approximately **€1000**, but this may vary depending on inflation, flight prices, etc). Although there is a College student hardship fund which can be applied for (depending on individual financial circumstances), the costs for this field course usually are borne by the student.

Fieldwork: mitigating circumstances

Attendance in field trips is mandatory for all students. Students who are unable to attend due to mitigating circumstances must provide valid evidence to support their absence. If mitigating circumstances apply and are accepted by the Discipline, students will be required to attend an alternative field trip during the summer/reassessment period to fulfil the learning outcomes. Exemption from field trips is not permitted.

Facilities, Conduct and Safety

General Information

The Disciplines of Geography and Geology are both primarily located in the Museum Building. Each discipline has several dedicated facilities that may be used by undergraduate and postgraduate students for teaching, research, and project work.

For general or technical enquiries, please contact the Chief Technical Officer, Elaine Treacy (treacyel@tcd.ie).

Capstone students must submit an SNS Technical Support Request: UG and Taught PG Capstone/Dissertation Projects form. A link to this form is available from the Chief Technical Officer, Elaine Treacy

The facilities located in the Museum Building are as follows:

Laboratories

The **Geology Teaching Laboratories** (Petrology Lab, Palaeontology Lab, Microscopy Lab) are the primary teaching laboratories in the Discipline of Geology. The laboratories are mainly used for lectures and non-hazardous lab work involving geological hand specimens, maps, and thin sections.

The **Geology Technical Laboratory** houses our very own in-house geological thin section sample preparation facility. It also acts as a hub for Discipline of Geology fieldtrip equipment collection and returns.

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

The **Palynology Laboratories** are 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 Computer Room

The GIS computer room (Room 0.17, Museum Building) in the School of Natural Sciences (SNS) is a dedicated space equipped with 11 high-powered computers for Geographic Information Systems (GIS), image processing, and geospatial data analysis. The room is available for use by staff, postgraduate, and undergraduate students engaged in projects requiring GIS software and technology. Priority is given to undergraduate students completing their capstone work.

The Freeman Library (Geography)

The Freeman Library is located off the main concourse of the Museum Building. It is the Discipline of 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. - 6.00 p.m. Mondays to Friday 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.

Other Discipline Related Facilities (Geology)

The Discipline of Geology has a variety of other analytical and sample preparation laboratories and facilities including but not limited to, rock crushing, mineral separation, scanning electron microscope (SEM), x-ray fluorescence spectroscopy (XRF), etc. These facilities are located at various locations both on and off the main Trinity College campus. Find more at https://www.tcd.ie/geology/research/research-facilities/.

Safety

The School of Natural Sciences in conjunction with the College Safety Office and under the Safety, Health and Welfare at Work Act 2005 is a safe working environment which keeps its members safe and protected across all its teaching and research activities.

All School members must read and agree to abide by the School Safety Statement and where appropriate the Fieldwork Safety Manual.

Safety Statement, Fieldwork Manual and Risk Assessments, are available at https://www.tcd.ie/naturalscience/health-and-safety/.

Students will be given class based or one to one instruction on health, safety and welfare.

More general information is available from the University Safety Office at https://www.tcd.ie/safetyoffice/

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 Museum Building. 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.

More information can be fount at: https://www.tcd.ie/naturalscience/health-and-safety/

Fieldwork Safety

Fieldwork is an important part of both Geography and Geology research and teaching. Any staff member, postdoctoral researcher, postgraduate student or undergraduate student must read the School of Natural Sciences Fieldwork Manual (https://www.tcd.ie/naturalscience/health-and-safety/) prior to undertaking fieldwork.

Capstone projects: 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.

Fire Safety

The SNS Fire Wardens for the Museum Building are Sarah Carty, Maura Morgan, James Canavan and Elaine Treacy. 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 Chief Technical Officer 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, Geology Technical 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 First Aid in the Museum Building: Elaine Treacy (Room 1.13),James Canavan (Room B8) and Mary O'Shea (Room 0.12A).

All accidents must be reported to the Safety Officer, Mary O Shea (osheam21@tcd.ie) 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

The Library of Trinity College Dublin

History

Trinity College Library's history dates back to the establishment of the College in 1592 and it is the largest library in Ireland. Today it has over 6 million printed volumes with extensive collections of journals, manuscripts, maps and music reflecting over 400 years of academic development. The Library was endowed with Legal Deposit privilege in 1801 and continues to receive copies of material published in the United Kingdom and Ireland. Find out more at About the Library on the Library homepage.

Resources for Geoscience Students:

The Library is currently composed of 7 different libraries. The ones most impactful to Geology students are the Hamilton Library and the Library Complex, which contains the Lecky, Ussher, and Boland libraries. Books, articles, and databases can be accessed from the Library's website at www.tcd.ie/library/ .

My Library Top Tips

1. Search the Library Catalogue,
2. Contact their Subject Librarian for expert searching help. The subject librarian for Geology is Leslie Kotzas (kotzasl@tcd.ie)

3. Borrow up to 10 books at a time,
4. Request books from the shelves or from storage using Click and collect service in the library Catalogue,
5. Use the Self-Service Kiosks to borrow or return books,
6. Pring/Copy/Scan on any printer (service managed by Datapac). ID code = your student number; PIN e-mailed when you register with TCD,
7. Attend any training session - Library HITS - and brush up on your research skills,
8. Ask Library Staff for help by e-mail to library@tcd.ie, our Chat with us service on the Library website or in-person at our Service Desks.

More information on the Library can be found here: https://www.tcd.ie/library/usinglibrary/

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Erasmus

All TR062 students have the opportunity to study abroad in their Junior Sophister year through the Erasmus exchange programme or the College-wide non-EU exchange programme.

Erasmus programmes are coordinated separately by the Disciplines of Geology and Geography for students choosing the TR062 Geosciences and Geography moderatorships, respectively, whereas non-EU exchanges are coordinated independently by the Trinity Global Office and are not arranged at a discipline level.

Geoscience students are currently only permitted to study abroad in semester one of their Junior Sophister year. Geoscience students are not permitted to study abroad in semester two, with no exceptions. Students can only apply for either an Erasmus or non-Erasmus exchange, not both. The single semester exchange is equivalent to taking exchange modules totalling 30 ECTS credits.

Available Erasmus partner universities for Geoscience students include institutions in France, Iceland, Norway, the Netherlands and Sweden. Please note that Erasmus exchange partners are subject to change, and the institutions listed are not guaranteed to be available in any given year.

Any student going on an international exchange (Erasmus or non-Erasmus) must achieve a minimum of 60% average mark in their first AND second year examinations. This is a hard cutoff with no exceptions. Nominations for Geoscience Erasmus places will be decided based on a combination of Junior Freshman results and a 600-word Statement of Interest.

Erasmus coordinator: Dr. Matthias Sinnesael

Attendance requirements

All students are required to attend College in person during the teaching term and fully participate in the academic work of their class throughout the course period.

Timetables are published through my.tcd.ie before the beginning of the teaching term. It is the responsibility of students to inform themselves of the dates, times, and venues of their lectures and other forms of teaching by consulting these timetables.

Attendance at all lectures, tutorials, and practical sessions is compulsory for students in the TR062 Geoscience programme. Students will be deemed non-satisfactory if they miss more than one third of the scheduled sessions in any module or fail to submit more than one third of the required coursework.

Students who are unable to attend due to illness or other unavoidable circumstances are required to notify the relevant lecturer and submit a medical certificate or other appropriate documentation to the TR062 Office at tr062Admin@tcd.ie.

Students reported as Non-Satisfactory in the Michaelmas and Hilary terms may be refused permission to take their annual examinations and may be required by the Senior Lecturer to repeat the year.

Further details of procedures for reporting a student as non-satisfactory are given on the College website at https://www.tcd.ie/academicregistry/student-cases/non-satisfactory-attendance/.

Assessment Regulations

Undergraduate Progression and Awards Regulations

Reassessment - Regulation 8:

- Same progression regulations, including compensation, for assessments relating to semesters 1 & 2 and to reassessment.
- Automatic right to reassessment for a student who has achieved a fail grade in any of their modules and is not eligible for compensation.
- Students (in all years) should only be required to re-sit examinations or re-submit coursework for failed modules or components thereof.
- Students are not permitted to present for reassessment in any module for which they have achieved a pass grade, in order to improve their academic performance.
- Rescheduled exams within the session will no longer be permitted.
- Different reassessment modalities permitted.
- No capping of marks

Repetition of a year - Regulation 7:

- Students are not permitted to repeat any academic year more than once and may not repeat more than two academic years within a programme.
- Repetition of a year is in full, i.e., all modules and all assessment components
- A student's academic record on their transcript will show clearly the time lost through repetition of a year.
- There will be an option to repeat a year on an 'off-books' basis.

Degree award calculation - Regulation 5:

- The final moderatorship results are calculated as a weighted average of the overall result for the Junior and Senior Sophister examination results.

Full Progression and Awards regulations can be found via the following:
https://www.tcd.ie/teaching-learning/academic-affairs/ug-prog-award-regs/index.php

Examinations

The regulations governing examinations are set out in the College Calendar. Examination timetables are published in advance of the dates of examinations. Please check the examinations office website for more details: https://www.tcd.ie/academicregistry/exams/.

Students must ensure that they 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 students.

The Discipline employs anonymous marking where practically possible. Results will be published by student number.

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).

Flexible Assessment Deadlines

As part of the new Late Submission of Assessments (Extensions) Policy, students who have reasonable accommodations that specify "flexible assessment deadlines" as part of their Learning Educational Needs Summary (LENS) report are entitled to a one-week extension for all their assessments.

This means that:

- These students have an extension of one-week for submission of assessments related to all modules for which they are registered. This extension will automatically be applied by your module coordinator or lecturer in Blackboard Ultra so students do not need to

provide any additional documentation in support of it. **N.B.** This automatic extension only applies to students who have a reasonable accommodation that specifies "flexible assessment deadlines" as part of their Learning Educational Needs Summary (LENS) report.

- Please note that submissions beyond the one-week extension, even if Blackboard allows you to upload the assessment, may be subject to penalties or not accepted at all.
- For group assessments, any due date accommodation granted to a group member applies to the entire group. If you are a member of a group and have a reasonable accommodation that specifies "flexible assessment deadlines" as part of your Learning Educational Needs Summary (LENS) report, the group as a whole will have a one-week extension to the submission deadline for the group assessment if it is practical to accommodate it. The other members of the group will be notified that, in accordance with the policy, they have an extension for submission of the group assessment, but no further information will be provided in accordance with GDPR legislation.
- If a one-week extension is **not possible,** the module coordinator or lecturer will be in touch with the student/s as needed to inform them that no extension is possible and/or to discuss alternative arrangements.

Students who have any questions about the deadline or need clarification can contact their module coordinator or lecturer.

Academic Integrity Policy

Trinity College Dublin, the University of Dublin, is committed to upholding academic integrity, and recognises that it underpins all aspects of university life, including all activities relating to research, learning, assessment, and scholarship.

Trinity therefore considers academic misconduct to be serious and academically fraudulent and an offence against academic integrity that is subject to the Trinity procedures in cases of suspected misconduct.

The Academic Integrity Policy (https://www.tcd.ie/media/tcd/about/policies/pdfs/academic/Academic-Integrity-Policy.pdf) should be read in conjunction with (and is subject to) the University Calendar, Part II on Academic Integrity (This policy replaces the Plagiarism Policy).

Other sources of information are available:

- https://www.tcd.ie/calendar/undergraduate-studies/
- https://libguides.tcd.ie/academic-integrity
- https://www.tcd.ie/teaching-learning/academic-affairs/academic-integrity/

Guidance on the use of AI and Generative-AI in College

The advent of commonly available artificial intelligence tools are disruptive in both positive and negative ways. Before using them in your studies it is important that you familiarise yourself with College policies on its use. Unless otherwise instructed for particular modules or assessments, **the default expectation would be that you do not submit AI generated content as an attempt at an assessment.**

Below is some basic overview of the College policy on AI and GenAI. This has been taken from the more detailed policy which is informative and wide ranging. You are expected to have read and familiarised yourself with this policy.

https://www.tcd.ie/academicpractice/resources/generative_ai/

Artificial Intelligence (AI)

Artificial intelligence is generally understood to be a set of technologies that enable computers to perform a variety of functions usually perceived as requiring human intelligence – for example, understanding speech, recognising objects in images, composing written answers and problem reasoning. A more formal definition of an AI system from the European Union AI Act (2024) is:

...a machine-based system designed to operate with varying levels of autonomy and that may exhibit adaptiveness after deployment and that, for explicit or implicit objectives, infers, from the input it receives, how to generate outputs such as predictions, content, recommendations, or decisions that can influence physical or virtual environments[.] (EU AI Act 2024)

Generative Artificial Intelligence (GenAI)

Generative AI is the sub-area of AI, involving AI systems which generate content — for example, human dialogue, speech, images and video. GenAI systems are capable of generating such content based on a user's request or instruction. More formally, GenAI is defined by UNESCO as **"an artificial intelligence (AI) technology that automatically generates content in response to prompts written in natural-language conversational interfaces" (UNESCO 2023).**

AI and GenAI in Trinity

As Ireland's leading university and as a world leader in AI research, Trinity recognises that AI and GenAI offer new opportunities for teaching, learning, assessment and research. We also recognise that these technologies present challenges and risks, including to academic integrity, ethics, privacy, impartiality, intellectual property and sustainability.

Acknowledging these opportunities and challenges, Trinity commits to supporting the opportunity for students and staff to become AI literate and fluent, thereby helping them to navigate and respond to the challenges and risks of AI and GenAI in order to harness the potential of (Gen)AI to enhance teaching, learning, assessment and research – and to be prepared for future challenges as these technologies evolve. We also commit to providing ongoing resources and guidance to support students and staff to use AI and GenAI in ways that are appropriate, responsible and ethical – and to ensure that academic integrity is maintained in its usage.

College aspires to develop best practice guidelines in this area. In addition to the resources and supports that College provides and recognising that appropriate uses of AI and GenAI tools vary across academic disciplines, Schools will have some flexibility to customise their own discipline-

specific practices in line with this institutional statement, other institutional policies as they develop, and national and international regulation. The College goal is to enable overall consistency in the regulation of GenAI usage, while also respecting where disciplines or degree programmes require specific restrictions in GenAI usage in assessment preparation and execution.

Thus, where disciplines or degree programmes wish to refine specific regulations on student use of GenAI for learning, general as well as programme-specific regulations should be communicated in the relevant discipline/degree programme handbook.

Such regulation could range from how student GenAI usage is acknowledged or cited within student assessment submissions, to prohibition of GenAI usage in the production of student assessment submissions.

IMPORTANT NOTE: If any additional restrictions on the use of Generative Artificial Intelligence (GenAI) apply to a particular module, these will be stated in the module description on Blackboard or communicated to students by module coordinators.

Prizes, awards and scholarships

Scholarships

ADRIAN PHILLIPS FUND

This fund was established in 2003 by a gift from Professor Adrian Phillips. The fund is to be operated by the Department of Geology to support the teaching of students in field-based techniques in the earth sciences. Approximate annual value, €800.

DAVE JOHNSTON MEMORIAL FUND

Established in 1998 in memory of Dave Johnston by his family and friends to support field based studies by undergraduate and postgraduate students in geology. The annual income of the fund may be awarded to one or more projects in any year. The fund will be administered by the Professor of Geology, another member of the Department of Geology and a representative of the alumni of the Department of Geology. Applications should reach the Professor of Geology by the last day of Hilary term in the year in which the grant is to be held. Approximate annual value, €500.

PAUL AND JACKIE BLUNDELL SCHOLARSHIP

The Paul and Jackie Blundell scholarship was established in 2023 through a generous gift of Trinity alumni Paul and Jackie Blundell. The scholarship will support undergraduate students in geosciences with demonstrated need, to undertake fieldwork or to engage in study visits in support of their research projects. Specimen analysis costs are not supported. It is anticipated that several awards will be made per annum. Approximate annual value, €6,000, but across multiple students with a cap of €1500 per student.

JULIAN BOLDY BURSARY

This bursary was established in 1992 in memory of Julian Boldy by his friends John and George Kurkjian. The bursary is awarded annually to help support (but excluding conferences) a

postgraduate student(s) in (or exceptionally an undergraduate) student in Geology. Approximate annual value, €1,650

Prizes

JULIAN BOLDY PRIZE IN GEOSCIENCE

This prize was founded in 1987 by a gift from Mrs Margaret P. Boldy in memory of the late Julian Boldy. It is awarded annually on the basis of the Junior Fresh examination in geoscience. Value, €83.

EDGE PRIZES IN GEOSCIENCE

Two prizes are awarded annually, one to the Junior Sophister who obtains the highest marks at the Junior Sophister honour examination in geoscience and whose work in that examination is of appropriate standard; the other to the Senior Fresh, intending to moderate in geoscience, who has shown most promise. Value of each prize, €223.

CHARLES H. HOLLAND PRIZE

This prize is awarded to the student obtaining the highest overall mark in the geoscience moderatorship. Value, €100.

W.E. ADRIAN PHILLIPS PRIZE

This prize is awarded to the student who produces the best geological survey project in the geoscience moderatorship. Value, €100.

VICTOR TALBOT AWARD

This award is intended to encourage a talented Geoscience student to further their passion for environmental/ecological protection. It is anticipated that this commitment would be sustained later in life by the winner. The principle criterion for the award is a demonstrated or espoused commitment to environmental protection through course work, final year research project, non-curricular activities or all three. Value, €100.

GEOLOGY CHAIR AWARD

This award is given to a graduating student in Geoscience in recognition of outstanding and spirited contributions to their class at Trinity College Dublin. Value, €100.

Contact Details

STAFF NAME	ROLE/TITLE	CONTACT
Dr. Christopher Nicholas	Head of the Discipline of Geology	nicholyj@tcd.ie
Dr. Sean Mc Clenaghan	TR062 Geography and Geoscience Programme Director	mcclens@tcd.ie
Sarah Lynch	TR062 Executive Officer	tr062admin@tcd.ie
Dr. Michael Stock	TR062 Geoscience Moderatorship Exams Coordinator	michael.stock@tcd.ie
Dr. Matthias Sinnesael	TR062 Geoscience Moderatorship Erasmus Coordinator	sinnesam@tcd.ie
Dr. Elaine Treacy	Chief Technical Officer	treacyel@tcd.ie
Leslie Kotzas	Subject Librarian for Geology	kotzasl@tcd.ie

Key dates

WEEK	WEEK BEGINNING	NOTES
3	14-Sep-2025	Sunday, 13 September to Saturday, 19 September GSU33007 Junior Sophister Fieldtrip
4	21-Sep-2025	Lectures begin
9	26-Oct-2025	Study/Revision week
14	30-Nov-25	Last week of in-class activities Semester 1
15	07-Dec-2025	Semester 1 assessment session: December 11 to 22, 2026 inclusive
16	14-Dec-25	Semester 1 assessment session: December 11 to 22, 2026 inclusive
17	21-Dec-25	Semester 1 assessment session: December 11 to 22, 2026 inclusive
18	28-Dec-25	Christmas Period College closed 24 December 2026 to 3 January 2027 inclusive
21	18-Jan-26	Teaching and learning resume
27	01-Mar-26	Study/Revision week
31	29-Mar-26	Last week of in-class activities Semester 2
32	05-Apr-26	Spain and Greece field trip
33	12-Apr-26	Spain and Greece field trip

WEEK	WEEK BEGINNING	NOTES
34	19-Apr-26	Semester 2 assessment session: April 19 to 30, 2027 inclusive
35	26-Apr-26	Semester 2 assessment session: April 19 to 30, 2027 inclusive

IMPORTANT NOTE:

Field trip dates are subject to change. Final dates will be confirmed by the course coordinators. For any queries, please contact TR062Admin@tcd.ie.

Assessment Session: the exams timetable will be published by the Exams Office. For any queries, please contact ASKEXAMS@tcd.ie.

Junior Sophister Modules

IMPORTANT NOTE: Please note that the information provided in this section serves as a general guide to what is expected in the modules. Changes may occur, and any updates or modifications will be communicated appropriately by the Module Coordinators.

BOU33123 Soil Science (5 Credits)

Module Coordinator: Dr Matthew Saunders (saundem@tcd.ie)

Soils are important for plants as they provide the key resources required for growth and also essential structural support. This module will provide an overview of the fundamental concepts of soil formation and characterisation; how soil characteristics influence plant distribution and productivity through water and nutrient availability; how soil organisms (bacteria, fungi) interact with plants and how soils influence global biogeochemical cycles (carbon and nitrogen). Particular focus will be given to the role of soils in the production of food, fuel and fibre and how sustainable land management practices are required to ensure the long-term health and fertility of soil systems.

Learning Outcomes:

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

1. Describe the nature of soil and the terms used to describe the major physical and chemical characteristics of soil.
2. Understand how soils are formed and how they are influenced by natural and anthropogenic processes.
3. Compare and contrast the role of soils in plant productivity such as through plant water relations and mineral nutrition.
4. Appraise the issues of sustainable soil management and the impacts of intensive land use on soil quality and fertility.

5. Demonstrate an understanding of biogeochemical cycling within soil systems and the role of soils in the mitigation of climate change.

Prerequisites: None

Assessment: Course work (50%); end of semester examination (50%)

Recommend Reading List:

Foth, HD. (1990). Fundamentals of soil science. Wiley, Chichester.

Hartlemink, AE., McBratney, AB., White, RE. (Eds) (2009). Soil Science, Earthscan, London.

Lal, R. (2006). Encyclopedia of soil science. Taylor and Francis. Oxford.

McLaren, RG., Cameron, KC. (1996). Soil science: sustainable production and environmental protection. Oxford University Press, Oxford.

Weil, RR., Brady, NC. (2016). The nature and properties of soil. Pearson, London.

White, RE. (2006). Principles and practice of soil science: the soil as a natural resource. Blackwell Science, Oxford.

GGU33011 Earth's Climate Past, Present and Future (5 Credits)

Module Coordinator: Dr Margaret Jackson (margaret.jackson@tcd.ie)

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 be able to:

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

Prerequisites: None

Assessment: Course work (100%)

GGU33020 Research Skills and Data Analysis in Geomorphology 1 (5 Credits)

Module Coordinator: Dr Margaret Jackson (margaret.jackson@tcd.ie)

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 and geomorphic maps. We will also investigate methods used to date earth surface landforms and processes. This module relies heavily on hands-on activity and skill 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 will be able to:

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

Prerequisites: None

Assessment: Course work (100%)

Recommend Reading:

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 Credits)

Module Coordinator: Dr Iris Moeller (moelleri@tcd.ie)

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 will be able to:

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

Prerequisites: None

Assessment: Course work (100%).

Recommended Reading:

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

GGU33931 Environmental Governance 1 (5 Credits)

Module Coordinator: Dr Rory Rowan (rowanro@tcd.ie)

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 deal with 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 policymaking, 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:

1. Understand the key developments and debates within modern environmentalism over the past fifty years;
2. Identify and discuss the key thinkers and texts that have shaped modern environmental thinking;
3. Debate the nature and impact of different environmental policies and initiatives at local, national and global scales;

4. 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.

Prerequisites: None

Assessment: Course work (100%).

Recommend Reading List:

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.

GLU33002 Blue Earth: Understanding the Function of Marine Ecosystems (5 Credits)

Module Coordinator: Prof Carlos Rocha (rochac@tcd.ie)

This introductory course in marine biogeochemistry explores the ocean's central role in Earth's climate system and its regulation of human impact on the global environment. It provides insights into the functioning of the Earth system and its reactions to human activity, shedding light on the formation, evolution, sustenance, and endangerment of life on Earth. This knowledge informs adaptation to climate and environmental change, supporting sustainable food production, fisheries, aquaculture, and pollution mitigation.

The programme explores marine biogeochemical phenomena that influence the Earth's climate and marine life diversity, distribution, and productivity. It covers physical, biological, geological, and chemical processes that control organic matter creation, distribution, and fate in the marine environment, seawater and atmosphere composition, and marine sediment formation and preservation. It prepares students for related courses, fieldwork, laboratory work, and careers in marine and environmental sectors.

Learning outcomes:

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

LO1: Demonstrate a working understanding of the processes that determine seawater composition

LO2: Analyse oceanographic data to understand physical, chemical, and biological processes in the ocean

LO3: Generate global estimates of biogeochemically important ocean fluxes using publicly available data

LO4: Explain how our understanding of modern marine biogeochemistry is crucial to describe the co-evolution of life and chemistry on Earth, from the past to the future

Prerequisites: This is an introductory course on marine biogeochemistry. Even if there are no formal pre-requisites for attendance, familiarity with foundation level biology and chemistry, basic numeracy and an elementary knowledge of algebra and calculus will greatly facilitate learning**.**

Assessment: 100% in course

Recommended Reading list:

Libes, Susan. 2009. Introduction to Marine Biogeochemistry. 2nd edition. Academic Press, 928 pp. ISBN: 9780120885305; eBook ISBN: 9780080916644

Middelburg, Jack J. 2019. Marine Carbon Biogeochemistry – A primer for Earth System Scientists (Open Access).

Open University, 2005. Marine Biogeochemical Cycles, Butterworth-Heinemann, 130 pp. eBook ISBN: 9780080940779

GLU33004 The Crystal World (5 Credits)

Module Coordinator: Dr Juan Diego Rodriguez-Blanco (j.d.rodriguez-blanco@tcd.ie)

Minerals are solid chemical compounds that occur naturally but sometimes can also be synthesised in the laboratory. They are the fundamental building blocks of rocks, also a major component of all soils, and are needed as raw materials because they are the ultimate source of many essential elements used in industrial processes. This module provides an overview of the main characteristics of minerals from a chemical and structural point of view, as well as their formation and transformation process and the factors affecting their crystallisation and chemical variability. It also focuses on the identification and characterisation of the 10-top rock-forming minerals using the petrographic microscope.

Learning outcomes:

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

LO1: Describe the meaning of the terms “mineral”, “crystal”, “amorphous material”, “unit cell”, “isomorph”, “polymorph”, “solid-solution”, “zoning”, “twinning” and outline their key characteristics.

LO2: Recognize that minerals are crystalline chemical compounds made up of atoms linked together by very different chemical bond types, resulting in solids with very different geometries and physicochemical properties.

LO3: Explain what the most abundant rock-forming minerals in nature are, their composition and cite examples of the important characteristics of the silicate and non-silicate rock-forming minerals.

LO4: Evaluate the contribution of mineral sciences to modern society and cite examples of the role that minerals play in Earth sciences, technology and humankind.

LO5: Recognise the structural (polymorphism) and chemical (solid-solution) variabilities of minerals, as well as the main mechanisms of formation and transformation of minerals.

LO6: Describe the characteristic physical properties that we use to identify minerals (crystal shape, color, luster, and hardness) and the most important techniques used for mineral analysis and characterisation.

LO7: Identify the 10 most important rock-forming minerals under the petrographic microscope and describe their most important optical properties.

Prerequisites: None

Assessment: Course work (50%); end of semester examination (50%).

GLU33005 Volcanism and Magmatism (5 Credits)

Module Coordinator: Dr Emma Tomlinson (tomlinse@tcd.ie)

This module explores the origin, evolution and emplacement of magmas and the effect of magmatic and volcanic processes on society and the environment. The module provides an overview of the most important igneous rocks at a range of scales (tectonic setting, outcrop, hand specimen and thin section) through investigations of thin section and hand samples, videos and analogue experiments.

Learning outcomes:

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

LO1: Recognise common magmatic rocks in hand specimen and under the microscope.

LO2: Know how to classify igneous and pyroclastic rocks.

LO3: Understand the processes involved in the generation of magmas.

LO4: Outline the various tectonic regimes in which igneous rocks form.

LO5: Understand the processes that lead to compositional change in magmas.

LO6: Recognise mineral textures and be able to use them to infer magmatic conditions and processes.

LO7: Understand the processes that control volcanic eruption style.

LO8: Understand the hazards posed by volcanic eruptions and the impact of volcanism on society and the environment.

LO9: Appreciate the mineral and energy resources associated with volcanic and magmatic activity.

Prerequisites: GLU33004 The Crystal World

Assessment: Coursework (60%); end of semester examination (40%)

Recommended Reading List:

Gill, R. (2010) Igneous rocks and processes – a practical guide.

GLU33006 Stratigraphy: Earth Through Time (5 Credits)

Module Coordinator: Prof Gerald Dickens (dickensg@tcd.ie)

We live on a planet that has evolved spectacularly and wonderfully since 4.55 billion years ago (Ga). Clearly from the geological record, little oxygen existed in our atmosphere until about 2.6 Ga, thick ice sheets covered equatorial latitudes 650 million years ago (Ma), and greenhouse conditions turned poles ice free at 100 though 50 Ma; life on Earth has adapted accordingly. This module sets the foundation for how to reconstruct the history of our planet, from the samples and techniques employed, through the controversies that remain. It will address the fundamental question of how to constrain geological time, and why this is important to unravel the fundamental processes that control the Earth system.

Learning Outcomes:

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

Please contact the module coordinator for more information.

Prerequisites: None

Assessment: Coursework (50%); end of semester examination (50%)

GLU33007 Earth Resources for a Critical Future (5 Credits)

Module Coordinator: Dr Sean Mc Clenaghan (mcclens@tcd.ie)

Decarbonization of society's energy infrastructure will involve a significant shift from fossil fuel extraction to the mining of "energy minerals" for the fabrication of green energy infrastructure. This module introduces students to a wide range of mineral deposits with an emphasis placed on raw materials critical to energy conservation, transport, and infrastructure. Students will gain a broad understanding of earth resources and important occurrences of mineral deposits in the Earth's Crust. The students will become familiar with the environments in which various ore resources and critical elements form as well as the implications for exploration, assessment and recovery of critical raw materials for a decarbonized society. Raw materials will be practically studied through thin section petrography, advanced micro-analysis, hand specimens and exploration drill core as well as field excursions to local mineral deposits in Ireland. Assessment of mineralization based on mineralogy and geochemistry, presence of known critical elements, precious metals and deleterious elements are addressed throughout the module.

Upon successful completion of this module students will be able to assess mineralization and identify favourable terranes for the concentration of critical raw materials. Students will also be able to analyse economic factors controlling the viability of raw materials and devise strategies for the exploration and recovery of a mineral resource.

Learning Outcomes:

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

LO1: Assessment of specimens for commodity-bearing minerals and interpretation of mineral deposit setting.

LO2: Interpretation and mapping of mineralization in drill core and in outcrop.

LO3: Assessment of resource potential for various terranes from the interpretation of geological data.

LO4: Recognition and communication of the role of metal resources in society and a carbon neutral future.

Prerequisites: None

Assessment: Course work (40%); end of semester examination (60%).

LO4: Recognition and communication of the role of metal resources in society and a carbon neutral future.

Prerequisites: None

Assessment: Course work (40%); end of semester examination (60%).

GLU33008 Metamorphic Rocks and Processes (5 Credits)

Module Coordinator: Dr Emma Tomlinson (tomlinse@tcd.ie)

Metamorphic rocks are the most common rocks on Earth and their compositions and textures provide information on the tectonic history or an area. This module introduces the minerals and mineral assemblages that develop in metamorphosed basic igneous rocks (metabasites), mudstones and shales (pelites) and limestones (calc-silicates) investigations of thin sections, hand samples and maps.

Learning Outcomes:

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

LO1: Recognise the main types of metamorphic rocks (metabasite, metapelite, metacarbonate) in hand specimen and under the microscope.

LO2: Know how to classify metamorphic rocks and how to identify their protoliths.

LO3: Understand the development of metamorphic textures and the mechanisms by which minerals crystallise in the solid state.

LO4: Outline the various tectonic regimes in which metamorphic rocks form and appreciate the role of metamorphic rocks in recording past tectonic events.

LO5: Estimate the pressure-temperature conditions of formation of a metamorphic rock.

Prerequisites: None

Assessment: Course work (50%); end of semester examination (50%).

Recommended Reading list:

Yardley, B (1989) An introduction to Metamorphic Petrology

GLU33009 Hydrology and Groundwater Quality (5 Credits)

Module Coordinator: Dr Alex Cabral (alex.cabral@tcd.ie)

This module examines hydrology and hydrogeology within the Earth system, focusing on how water moves, interacts, and evolves across terrestrial and coastal environments from the catchment to global scales. It integrates surface water and groundwater processes, linking physical hydrology with water quality and biogeochemical dynamics under environmental change.

The module combines fundamental hydrogeological concepts with applied perspectives on groundwater-surface water interactions, tracer approaches, and water quality challenges. Emphasis is placed on understanding groundwater systems within an integrated catchment management framework, including issues of vulnerability, protection, and the role of groundwater in climate-driven change.

Learning Outcomes:

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

LO1: Evaluate the role of surface water and groundwater pathways in terrestrial and coastal catchment systems.

LO2: Explain and interpret quantitative principles underlying catchment water balance, river flow, surface water processes, and groundwater movement.

LO3: Analyse the factors controlling aquifer chemistry, contaminant transport, and groundwater flow dynamics.

LO4: Assess groundwater quality challenges in rural, urban, and coastal environments.

LO5: Evaluate groundwater vulnerability to pollution and the role of protection strategies and integrated catchment management under climate change.

Prerequisites: None.

Assessment: Course work (50%); end of semester examination (50%).

Recommended Reading List:

Hydrology and hydrogeology textbooks are available in the College Library to support the lectures. Selected articles and book chapters are provided on Blackboard.

GLU33010 Palaeobiology and Palaeoecology (5 Credits)

Module coordinator: Dr Emma Dunne (emma.dunne@tcd.ie)

This module explores palaeoecological and macroevolutionary concepts by examining the long-term patterns of biodiversity, extinction, and morphological change that have shaped life on Earth. Students will gain an overview of key events and controls on the evolution of ecosystems, from micro- to macroscopic life, and investigate how these patterns are influenced by environmental (e.g. climatic) changes, as well as biotic controls (e.g. competition).

The goal of this module is to understand how ancient ecosystems looked, operated, and changed through time. The content will span both terrestrial and marine realms, including plant, invertebrate, and vertebrate groups to provide a broad perspective on evolutionary and palaeoecological trends.

Learning Outcomes:

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

LO1. Understand and apply key macroevolutionary and (palaeo)ecological concepts and techniques

LO2. Understand key patterns in the long-term records of diversification, extinction and trends in morphological evolution and adaptation across marine and terrestrial fossil groups.

LO3. Describe and use different methods for reconstructing organisms' ecology and evolutionary history.

LO4. Identify and describe key events in the evolution of ecosystems and their dominant abiotic and biotic controls.

LO5. Manage and examine palaeontological datasets in the context of macroevolutionary and palaeoecological studies.

LO6. Assess the relevance and insights from the fossil record for understanding current anthropogenic changes.

Prerequisites: None

Assessment: Course work (100%).

GLU33013 Tectonics & Structural Geology (5 Credits)

Module Coordinator: Prof David Chew (chewd@tcd.ie)

Understanding the geometry and distribution of rocks in the subsurface is crucial for many applied aspects of the geosciences (e.g. groundwater flow, the distribution of natural resources, carbon sequestration and geothermal energy). This course aims to develop an understanding of structures produced by tectonics in the Earth's lithosphere at a range of scales from the tectonic plate to the microscopic scale. Lectures will explore (1) compressional, extensional and strike-slip tectonic regimes and the resulting geometry and types of structures that are produced (2) factors influencing the strength and mechanical behaviour of the Earth's crust and underlying mantle lithosphere and (3) the large-scale geodynamic processes controlling plate motions and crustal deformation.

Practicals will employ various tectonic regimes (mountain belts, rifts) as case studies to investigate aspects of structural geology and tectonics, by focusing on interpreting geological maps, constructing geological cross-sections and using structural data to solve basic geological and tectonic problems.

Learning Outcomes:

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

LO1: be aware of the principal features of compressional, strike-slip and extensional tectonic regimes;

LO2: summarise the basics of rock rheology, the concepts of stress and strain, and the processes of brittle and ductile deformation;

LO3: classify and identify rock fabrics, faults, fractures and fault zone rocks and describe and classify folds;

LO4: be confident presenting and manipulating data using stereographic projection and interpreting maps and cross sections in three dimensions

Prerequisites: None

Assessment: Course work (50%); end of semester examination (50%)

GLU33017 Earth Survey: GIS Mapping Methods (5 Credits)

Module Coordinator: Dr Sean Mc Clenaghan (mcclens@tcd.ie)

The objective of this module is to develop the skills required to plan and execute a geological survey and finished geological map (Capstone Project) using a digital Geographic Information System (GIS). Enrolment in this module is strongly recommended for students undertaking a Geological Survey Capstone project. Students will receive training on GIS platforms such as ArcGIS and QGIS and will be exposed to 3D visualization software for geological modelling.

Learning Outcomes:

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

Please contact the module coordinator for more information.

Prerequisites: None

Assessment: Coursework (100%)

GLU33027 Junior Sophister Field Skills (5 Credits)

Module Coordinator: Dr Christopher Nicholas (nicholyj@tcd.ie)

This field course will provide basic field skills to junior sophister students in both Earth System Science and Geology Pathways. In this module students will embark on a 7 day field excursion in Ireland designed to provide first-hand experience of working in common geological contexts. Particular emphasis is placed on the collection and recording of field data, making informed field observations and subsequent interpretation.

Learning Outcomes:

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

Please contact the module coordinator for more information.

Prerequisites: None

Assessment: Coursework (100%)

IMPORTANT NOTE: This module will take place in the first week of Semester 1. Students will be required to make a financial contribution to the cost of the trip (currently approximately €500, but this may vary depending on inflation, fuel/transport prices, etc). Although there is a College student hardship fund which can be applied for (depending on individual financial circumstances), the costs for this field course usually are borne by the student.

GSU33001 Research Methods for Geoscientists (5 Credits)

Module Coordinator: Dr Michael Stock (michael.stock@tcd.ie)

The objective of this module is to develop the skills and aptitudes required to plan and execute an individual piece of guided research (the capstone project). Students undertaking a Geosciences research project will receive some basic training in research design, thesis writing, and critical evaluation of academic literature. Students will also develop an understanding and appreciation for the processes governing ethical scientific research and its impact in society.

Learning Outcomes:

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

1. Design an independent, guided geoscience research project.
2. Communicate research effectively through well-structured thesis.
3. Critically search and evaluate scientific literature relevant to geoscience.
4. Gain hands on experience in data collection using cutting edge laboratory materials and equipment.
5. Apply principles of ethical research, international law and science governance, and reflect on the societal impact of geoscience.

Prerequisites: None

Assessment: Coursework (100%)

GSU33007 Junior Sophister Geology Field Course (Greece; 10 Credits)

Module Coordinator: Prof David Chew (chewd@tcd.ie)

Undergraduate field courses provide vital experience in learning and practising geoscience subject skills. In this module students will embark on a two-week overseas field excursion designed to provide first-hand experience of working in unfamiliar geological contexts. Particular emphasis is placed on the collection of high-quality field observations and their subsequent interpretation.

Learning Outcomes:

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

LO1: accurately locate yourself in the field using topographic base maps, satellite imagery and / or GPS

LO2: make essential field observations and measurements, including recognition of major rock types and geological structures

LO3: Use a compass-clinometer with familiarity to measure geological structures

LO4: construct a geological map (field slips and interpretative map) and stratigraphic log and accurately record field observations in a notebook, as notes, sketches or tabulated data

LO5: construct a geological cross-section on the basis of a geological map

LO6: identify and interpret a range of sedimentary structures and their depositional environments

LO7: identify diagnostic metamorphic assemblages in the field

LO8: be familiar with a range of volcanic rocks and their modes of deposition and be able to use this information to determine eruptive style

LO9: to evaluate the regional geology and tectonic setting in the context of an active orogenic belt

Prerequisites: None

Assessment: Coursework (100%)

IMPORTANT NOTE: This module will take place overseas and is slated to run in the **final week of Semester 2 and Trinity Week**. Students will be required to make a financial contribution to the cost of the trip (currently approximately €1000, but this may vary depending on inflation, flight prices, etc). Although there is a College student hardship fund which can be applied for (depending on individual financial circumstances), the costs for this field course usually are borne by the student.

Senior Sophister Modules

IMPORTANT NOTE: Please note that the information provided in this section serves as a general guide to what is expected in the modules. Changes may occur, and any updates or modifications will be communicated appropriately by the Module Coordinators.

GGU44902 Karst Landscapes (5 Credits)

Module Coordinator: Dr Pete Akers (akersp@tcd.ie)

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:

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

Prerequisites: None

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.

GGU44976 Glaciers & Glaciation (5 credits)

Module Coordinator: Dr Margaret Jackson (margaret.jackson@tcd.ie)

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 should be able to:

LO1: Understand and explain the primary controls on glacial mass balance.

LO2: Describe the elements required for glaciation, and where glaciers are found today.

LO3: Evaluate different types of glaciers, how they behave, and how this relates to landscape.

LO4: Describe the ways glaciers modify landscapes, and the evidence of this modification.

LO5: Evaluate how glaciers and glacial landforms can be used to reconstruct past climate conditions.

LO6: Describe how and why glaciers influence changes in sea level.

LO7: Understand potential hazards associated with glaciers and glaciation.

LO8: Discuss the impacts of glaciers on communities and cultures.

Prerequisites: None

Assessment: Course work (100%)

Recommend Reading List:

Primary reference text: Glaciers & Glaciation, D. Benn and D. Evans, 2nd Ed. Additional topical material (shorter items, news articles, research journal articles, book chapters) will be made available to students on Blackboard.

GGU44979 Living on the Edge: Estuaries and Coasts (5 Credits)

Module Coordinator: Dr Iris Moeller (moelleri@tcd.ie)

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 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:

1. Explain the theory behind estuarine and coastal morphodynamics.

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

Prerequisites: None

Assessment: Course work (100%)

Recommend Reading List:

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.

GLU44004 Advanced Volcanology and Igneous Petrology (5 Credits)

Module Coordinator: Dr Michael Stock

This module will introduce students to the state-of-the-art and outstanding research challenges in volcanology and igneous petrology. Classes will progress sequentially from mantle petrogenesis, through crustal magma processing, to eruptive processes and volcanism at the Earth's surface. The module will draw on aspects of geochemistry, petrology and geophysics. Students will be introduced to petrological and geochemical tools/models, learning how these can be applied to understand the architecture and dynamics of magmatic systems from analyses of rocks and minerals at the Earth's surface.

Learning Outcomes:

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

Please contact the module coordinator for more information.

Prerequisites: GLU33005 Volcanism and Magmatism

Assessment: Course work (40%); end of semester examination (60%)

GLU44006 Carbonates: from the Atomic to Planetary Scale (5 Credits)

THIS MODULE WILL NOT RUN IN 2026-27

Module Coordinator: Dr Juan Diego Rodriguez-Blanco (j.d.rodriguez-blanco@tcd.ie)

Carbonate minerals constitute the Earth's largest reservoir of carbon and thus take a key role in the carbon cycle. Their occurrence is widespread, forming primary deposits in natural waters (e.g., oceans, lakes, hydrothermal systems and caves) through precipitation from supersaturated waters. They can form in many different environments, from carbonate-rich magmas, to biomineralisation, or as secondary minerals during the weathering of primary silicates during reactions with dissolved CO_2 or organic compounds.

This module provides a review of the most important carbonate minerals, their stability, reactivity and natural distribution. After an introduction on the importance of carbonates in Earth and planetary sciences, technology, carbon capture and storage and environmental sciences, we will focus on the chemistry and structures of carbonate minerals and the discussion on the processes that lead to adsorption and uptake of foreign ions by these minerals. The module concludes with the principal methods for carbonate synthesis and key tools for characterisation.

Learning Outcomes:

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

LO1: Evaluate the contribution of carbonate mineralogy and geochemistry to modern society and cite examples of the roles that carbonate minerals play in Earth and planetary sciences, technology and environmental sciences.

LO2: Understand the importance of the carbonate group and the factors affecting the formation of carbonate solids (ion size, ion coordination, ionic potential, supersaturation) and in the polymorphism and polyamorphism of carbonates.

LO3: Recognise what are the most abundant rock-forming carbonate minerals in nature and their chemical composition and structure, as well as their relevance in key processes (e.g., biomineralization, carbon capture and storage).

LO4: Recognise the structural (polymorphism) and chemical (solid-solution) variability of carbonates, as well as the main mechanisms of formation and transformation of these solids.

LO5: Understand the main mineral-water interaction processes in the carbonate world, their importance in the uptake of minor and trace elements in carbonate minerals and in water chemistry.

LO6: Describe the principal methods for the synthesis of carbonates in research and in industrial processes.

LO7: Familiarise with the key methods in research for carbonate identification and physicochemical characterisation.

Prerequisites: None

Assessment: Course work (50%); end of semester examination (50%).

Recommended Reading List:

Reeder, J. (1983) Carbonates: mineralogy and chemistry. *Reviews in Mineralogy*, vol **11**. 412 pages.

Hazel et al (2013) Carbon Mineralogy and Crystal Chemistry. *Reviews in Mineralogy and Geochemistry*, **75**, 7–46.

Morse et al (2007) Calcium carbonate formation and dissolution. *Chemical Reviews*, **107**, 342-381.

Also see blackboard for details on reading.

GLU44008 Early Earth Evolution (5 Credits)

Module Coordinator: Prof David Chew (chewd@tcd.ie); Dr Emma Tomlinson (tomlinse@tcd.ie)

This module explores the uncertain science of the first billion years of Earth history. This was a period of significant change however, the rock record is both sparse and ambiguous. Furthermore, the processes that shaped our planet may not have operated by the same mechanisms or at the same rate as today, and therefore the present may not be the key to the past. We will start by introducing the tools used to understand the early Earth, and then move on to investigate the formative processes that shaped the planet:

• What were conditions like in the Hadean? How did geological processes operate before plate tectonics?

• When did modern plate tectonics begin?

• And how and when did continental crust form?

Learning Outcomes:

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

LO1: Understand the principles and application of radiogenic isotope dating and tracing

LO2: Understand the link between mantle and crustal processes

LO3: Be able to synthesise information from a variety of sources and data types

LO4: Formulate questions based on reading

LO5: Summarise the models relating to early Earth processes

LO6: Be able to critically assess potential uncertainties on these models

Prerequisites: None

Assessment: Course work (60%); end of semester examination (40%)

GLU44009 Geoscience for a Sustainable Planet (5 Credits)

Module Coordinator: Prof Quentin G Crowley (crowleyq@tcd.ie)

Geoscience has a crucial role to play in implementing the Sustainable Development Goals (SDGs). In fulfilling a global strategy to achieve a more sustainable future for all, the role of Earth subsystems needs to be clearly mapped onto the SDGs. In the past, lack of a geoscience overview resulted in unsustainable development and several undesirable knock-on effects. For instance, the high energy output from combustion of fossil fuels was instrumental in development of key technologies as part of the industrial revolution and advancement of society. We now realise however, that large-scale utilisation of fossil fuels led to the unintended consequence of increased greenhouse gas emissions and climate disruption on a planetary scale. Whereas climate-change is unequivocally one of the greatest challenges faced by society today, there are also new opportunities for geoscience to contribute to climate adaptation and mitigation strategies. For instance, with the phasing out of fossil fuels there is now a new demand for raw materials to support the transition to renewable energy. Additionally, geoscience knowledge specifically developed for petroleum exploration now underpins carbon capture and storage technologies. In other areas, integration of geoscience knowledge is crucial for sustainable agriculture and food production. This module will explore various ways in which geoscience not only supports the SDGs but also underpins global sustainable development across several sectors and systems.

Learning Outcomes:

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

LO1. Evaluate how Earth system processes contribute to achieving the Sustainable Development Goals.

LO2. Analyse past and present resource use to assess its environmental and societal impacts.

LO3. Apply geoscientific knowledge to solutions for climate mitigation and adaptation.

LO4. Use systems thinking to propose sustainable management of Earth's resources.

LO5. Communicate the role of geoscience in advancing sustainability across sectors.

Prerequisites: None

Assessment: Course work (40%); end of semester examination (60%).

Recommended Reading List:

Books:

Meadows, D. H. 2008. Thinking in Systems: A Primer. Edited by Diana Wright. White River Junction, VT: Chelsea Green Publishing.

Meadows, D. H., Randers, J., & Meadows, D. L. 2004. Limits to Growth: The 30-Year Update. White River Junction, VT: Chelsea Green Publishing.

Papers:

Raworth, K. 2012. A Safe and Just Space for Humanity: Can we live within the doughnut? Oxfam Discussion Papers. Oxford: Oxfam. DOI: 10.21201/2012.3920.

Sakschewski, B., et al 2025. Planetary Health Check 2025 A Scientific Assessment of the State of the Planet. Planetary Boundaries Science (PBScience). Potsdam Institute for Climate Impact Research (PIK), Potsdam, Germany. DOI: 10.48485/pik.2025.017.

Senger, K. 2024. Sustainable Development Goals and the Geosciences: A Review. Earth Science, Systems and Society, 4, 1. DOI:10.3389/esss.2024.10124.

Steffen et al. 2015. Planetary boundaries: Guiding human development on a changing planet. Science, 347, 1259855. DOI:10.1126/science.1259855.

GLU44011 Palaeoceanography and Palaeoclimatology (5 Credits)

Module Coordinator: Prof Gerald Dickens (dickensg@tcd.ie)

In the past 250 million years Earth has experienced significant physical, chemical and biological changes of the atmosphere, oceans and terrestrial environments; leading up to the planet that we live on today. How did this little blue planet evolve over that time, and how have we figured out its amazing history? In this course we will study the gradual long-term evolution of Earth, on land and in the oceans, and how this was interrupted by extreme global change events such as global mass extinctions, oceanic anoxic events, hyperthermals, but also more locally the Messinian Salinity Crisis, Pleistocene climate transitions, or the Younger Dryas. We study the forensics on how to constrain Earth's past, and how this helps us to understand the present, and predict the future.

Learning Outcomes:

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

LO1: Summarise the principal changes in the Earth's climate and ocean that have occurred during the last 250 Ma

LO2: Explain how these major Earth system changes are linked with internal and external forcing mechanisms

LO3: Linking stratigraphic record with climate

LO4: Discuss timescales

LO5: Knowledge of proxies phys chem bio

LO6: Relative strengths / weaknesses of proxies

LO7: Critically evaluate …Peer review literature – current state of knowledge

Prerequisites: None

Assessment: Course work (65%); end of semester examination (35%).

Recommended Reading List:

None. Peer reviewed literature referred to in class.

GLU44012 Raw Materials in Building (5 Credits)

Module Coordinator: Dr Robbie Goodhue (goodhuer@tcd.ie)

The module will explore several recent failures in building materials and their legacy, highlighting the need for professional geoscientists in the industry. We explore the types of bulk raw materials and end uses (road dressing, concrete and mortar aggregate, fill, soil) in Ireland, focusing on specified properties and national standards. Basic testing methods and advanced analytical techniques will be covered, along with method and standard development. Predicting the stability of raw materials and the lifespan of the structures they are used in will introduce the topics of site-won material, recycling and alternative green building materials. The quarrying / extraction and processing will be taught with a trip to a working quarry / gravel pit / recycling and site stabilisation site.

Learning Outcomes:

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

LO1: Understand the links between geosciences, engineering, and construction

LO2: Acquiring an understanding of national and international standards

LO3: Learning about appropriate field and analytical methods related to raw materials

LO4: Learning about legacy failures and how they might be prevented

LO5: Exploring how public opinion interfaces with the need for raw materials

Prerequisites: None

Assessment: Course work (30%); end of semester examination (70%).

GLU44019 Lithoprobe: Advanced Earth Exploration (5 Credits)

Module Coordinator: Dr Sean Mc Clenaghan (mcclens@tcd.ie)

Much of our planet's surface has been subjected to a geological surveys and mineral exploration. Geologists must now focus on deeply buried terranes to further develop our understanding of crustal processes. Furthermore, decarbonization of society's energy infrastructure will require greater quantities of mineral resources and with much of the Earths near-surface resources depleted, a shift in exploration to deeper targets in the crust will require a full spectrum of techniques for geological interpretation and modelling. Students will gain a broad understanding of the processes responsible for the formation of mineral resources and their geochemical footprint in the Lithosphere. Geophysical, lithogeochemical and Geological data will be used to model geological formations and their potential for mineral resources.

Upon successful completion of this module students will be able to assess geological terranes using available data and assess their resource prospectivity.

Learning Outcomes:

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

Please contact the module coordinator for more information.

Prerequisites: None

Assessment: Course work (100%)

GLU44020 Cyclostratigraphy and Astrochronology (5 Credits)

Module Coordinator: Dr Matthias Sinneasael (sinnesam@tcd.ie)

A major driver of natural climate change is the changing position and orientation of the Earth relative to the Sun. We experience this for example as the day-night or the seasonal cycles, but over geological timescales this configuration also changes significantly in a periodic way, due to gravitational interactions within the Solar System. Cyclostratigraphy studies the record of cyclic variations in the sedimentary record. Astrochronology uses this understanding of these sedimentary cycles linked to astronomical processes to construct highresolution geological timescales. In this course we will study these phenomena and their applications from the intersection of astronomy, stratigraphy and palaeoclimatology. This course will integrate state-of-the-art research with hand-on exercises in how to collect data, train (numerical) analytical and interpretational skills, as well as how to report and discuss such results. Students will obtain advanced understanding on i) forcing of astronomical processes on Earth's climate and environments throughout Earth history, ii) how to construct the geological timescale, iii) and how the geological archive can help constrain past Solar System dynamics.

Learning Outcomes:

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

LO1: Understand the processes underlying astronomical climate forcing.

LO2: Understand the integrated links between astronomy, climate, sedimentology and stratigraphy.

LO3: Identify and describe cyclic variations in the sedimentary record.

LO4: Use astronomical cycles to construct geological timescales.

LO5: Utilize obtained numerical skills in data treatment and to apply time-series analysis

LO6: Interpret, report and present data.

Prerequisites: GLU33006 Stratigraphy: Earth Through Time.

Assessment: Coursework (100%)

GLU44014 Rift Sedimentary Geodynamics

Module Coordinator: Dr Christopher Nicholas (nicholyj@tcd.ie)

Continental rifting is a fundamental geological process that has been responsible for breaking supercontinents apart and opening new ocean basins throughout Earth's history. Whilst the rift basins that form during crustal extension may follow a broadly similar structural pattern of development, the stratigraphic architecture of their fill is driven by the coupling of tectonics and climate; what might be termed a rift basin's *sedimentary geodynamics*. Consequently, as centres for sedimentary deposition rift basins often evolve as unique, self-contained systems. Where in the world the rifting is taking place also plays an important role in determining the nature and style of the resulting lithologies that stack together to fill the basin(s). Continental rift basins also hold a variety of renewable and non-renewable energy resources, currently exploited across the globe.

This module explores how sedimentary rift basins originate and evolve. To begin with, this is done by examining in detail modern day structural geomorphology and sedimentary depositional environments in the great East African Rift System (EARS), which is the best example in the world today of active early rifting in progress. The sedimentary response to glacial-interglacial climatic cyclicity will be used to resolve the Plio-Pleistocene stratigraphy and 3D architecture of the basin fill. The module will then move on to focus on rifting and sedimentary basin development in examples from the older geological record. In particular, the break-up of the Supercontinent, Gondwana, at the beginning of the Mesozoic, leading to rift basin development along the present East African margin of coastal Tanzania (illustrated with field data from the Mandawa and Ruvuma basins). Simultaneous rifting of South America away from West Africa began the opening of the Atlantic and evolution of sedimentary rift basins along each conjugate margin, and the focus here will be on the Lusitanian Basin in Portugal.

The module will conclude by examining typical depositional sedimentary environments in the field with a **mandatory 4 day residential field course to Co. Clare** (indicative costs from **€250 – €300**; dependant upon numbers taking the module). Whilst the module will focus on continental rifting, it will also discuss intra-arc rift basins, thereby referring back to, and building upon, the JS Field Course to the Gulf of Corinth, Greece.

Learning Outcomes:

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

LO1: Discuss the sedimentary geodynamic elements of typical symmetric grabens and asymmetric half-grabens.

LO2: Demonstrate a clear understanding of the structural and geomorphological features that develop in rift valleys.

LO3: Understand modern day sedimentary depositional environments, and where they can be found in a rift basin.

LO4: Discuss the evolution of chronostratigraphic sequences in the Albertine Rift and how they have formed from glacial-interglacial climatic cyclicity.

LO5: Understand the non-renewable and renewable natural energy resources, such as oil, gas and geothermal, that rift basins will generate.

LO6: Know how to apply various investigative techniques, including; electronic well log interpretation and 'mud-logging', well correlation, sequence stratigraphy and basic seismic interpretation to understand rift-fill sedimentation.

LO7: Give an overview of Gondwana break-up from the Triassic to Cretaceous on both East and West rift margins of Africa.

LO8: Describe sedimentary depositional environments in Co. Clare, from their own field observations and data.

Prerequisites: JS Geoscience / JS Geology or JS Earth System Science

Assessment: Coursework (100%)

Recommended Reading list:

Nicholas, C. J. 2025. Sedimentary Dynamics in the Albertine Rift Valley, Equatorial East Africa. Geological Society, London, Memoirs, 61.

GLU44015 Human Futures on a Finite Planet: Systems, Energy, and Limits to Growth

Module Coordinator: Prof Carlos Rocha (rochac@tcd.ie)

This module explores environmental change from a earth systems science perspective to inform a sustainable future for individuals and society. It examines the thermodynamic structure and function of ecosystems and socioecological systems, emphasizing how entropy drives evolution and energy consumption enables complexity, growth, and adaptation. Using systems thinking, system dynamics, and Earth-system science, students will analyze the biophysical limits to growth and adaptability in closed systems such as planet Earth. Through lectures, hands-on practical workshops, simulations, modeling, and structured debate, students will map and critically assess alternative trajectories for human development, including collapse, managed descent, powered descent, and stewardship.

Learning Outcomes:

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

LO1: Understand how ecosystems and societies function as complex systems

LO2: Explain why energy and thermodynamics matter for growth, complexity, and sustainability

LO3: Diagnose the state of the Earth system using concepts such as limits to growth and planetary boundaries

LO4: Use simple quantitative models to explore system behaviour and trade-offs

LO5: Critically assess future pathways for human civilization

LO6: Communicate system-based arguments clearly and collaboratively

Prerequisites: None

Assessment:

- Participation and engagement (20%)

- Quantitative modelling assignment (30%)
- Structured debate performance (25%)
- Project seminar contribution (25%)

Recommended Reading List

Core Book (long read)

Meadows, Donella H. 2015. Thinking in Systems, a primer. White River Junction, VT: Chelsea Green Publishing. 218 p.

Core papers (shorter read)

Cushman, Samuel A. 2023. 'Entropy, Ecology and Evolution: Toward a Unified Philosophy of Biology'. Entropy 25 (3): 405. https://doi.org/10.3390/e25030405.

Daly, Herman E. 2005. 'Economics in a Full World'. Scientific American, September: 100–107.

Fath, Brian D. 2017. 'Systems Ecology, Energy Networks, and a Path to Sustainability'. International Journal of Design & Nature and Ecodynamics 12 (1): 1–15. https://doi.org/10.2495/DNE-V12-N1-1-15.

Lovelock, James E., and Lynn Margulis. 1974. 'Atmospheric Homeostasis by and for the Biosphere: The Gaia Hypothesis'. Tellus 26 (1–2): 2–10. https://doi.org/10.1111/j.2153-3490.1974.tb01946.x.

Richardson, Katherine, Will Steffen, Wolfgang Lucht, et al. 2023. 'Earth beyond Six of Nine Planetary Boundaries'. Science Advances 9 (37): eadh2458. https://doi.org/10.1126/sciadv.adh2458.

Rockström, Johan, Will Steffen, Kevin Noone, et al. 2009. 'A Safe Operating Space for Humanity'. Nature 461 (7263): 472–75. https://doi.org/10.1038/461472a.

Steffen, Will, Wendy Broadgate, Lisa Deutsch, Owen Gaffney, and Cornelia Ludwig. 2015. 'The Trajectory of the Anthropocene: The Great Acceleration'. The Anthropocene Review 2 (1): 81–98. https://doi.org/10.1177/2053019614564785.

Steffen, Will, Katherine Richardson, Johan Rockström, et al. 2015. ‘Planetary Boundaries: Guiding Human Development on a Changing Planet’. Science 347 (6223): 1259855. https://doi.org/10.1126/science.1259855.

Ward, James D., Paul C. Sutton, Adrian D. Werner, Robert Costanza, Steve H. Mohr, and Craig T. Simmons. 2016. ‘Is Decoupling GDP Growth from Environmental Impact Possible?’ PLOS ONE 11 (10): e0164733. https://doi.org/10.1371/journal.pone.0164733.

GSU44001 Geoscience Research Capstone Project (20 Credits)

The Geoscience capstone project is a significant piece of individual research conducted under the guidance of a member of academic staff. The project takes one of two forms:

a. a **geological survey** which aims to solve the geological history and evolution of a specific area over time, presenting the results as a digitised geological map sheet (including cross-sections and stratigraphic column), with an accompanying, descriptive Memoir*; or

b. a **geosciences research project** which addresses specific research questions via field work, laboratory analysis, novel work on museum collection material / pre-existing data sets, or some combination of these, presenting the results in an extended written report (dissertation).

Assessment: Course work (100%)

The geological survey Capstone project requires the student to conduct 5-6 weeks of field work during the summer between JS and SS. The Discipline of Geology will subsidise student field costs (Iveagh fund, maximum of €900 per student) associated with the geology capstone and student hardship funds may also be used to help cover expenses.

Contact: Dr Christopher Nicholas (nicholyj@tcd.ie)

Students undertaking a Geological Survey capstone project will receive specialised training in geological mapping and instruction on how to translate field data into publication quality geological maps, cross-sections and reports immediately prior to undertaking their field work.

Contact: Dr Michael Stock (michael.stock@tcd.ie)

GSU44002 Senior Sophister Geoscience Field Course (5 Credits)

Module Coordinator: Dr Matthias Sinnesael (sinnesam@tcd.ie)

This module comprises a 10-day residential field course that is usually held overseas. It provides students with practical experience in conducting primary research across a range of geoscience themes. Students are required to complete a series of guided research tasks and to present the results of their work in evening seminars, and in written form as a field notebook and report. This field course further develops practical fieldwork and problem-solving skills. Emphasis is placed on the application of geoscience techniques in real-world situations.

Learning Outcomes:

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

LO1: accurately locate yourself in the field using topographic base maps, satellite imagery and / or GPS

LO2: make essential field observations and measurements

LO3: accurately record field observations in a notebook, as notes, sketches or tabulated data, construct a geological map (field slips and interpretative map), and stratigraphic logs and assoicated palaeoenvironmental interpretations

LO4: interpret the interplay of geology, geography, climate and human activity

Prerequisites: None

Assessment: Course work (100%)

IMPORTANT NOTE: This module will take place overseas and is slated to run in the final week of Semester 2. Students will be required to make a financial contribution to the cost of the trip (currently approximately €1000, but this may vary depending on inflation, flight prices, etc). The costs for this field course are borne by the student.

GSU44004 Geoscience Frontiers: Past, Present and Future (5 Credits)

Module Coordinator: Emma Tomlinson (tomlinse@tcd.ie)

This module explores the history, evolution and frontiers of geoscientific research. A new topic will be examined each week, starting with an introductory lecture, followed by time for reading and finishing with a symposium session with talks, posters and discussion on current thinking on the topic. The lecture will focus on the original ideas, how they were received and whether these ideas have been accepted, rejected or remain contested. The symposium sessions will focus on current ideas, problems and controversies in the geosciences.

Learning Outcomes:

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

LO1: Describe the major theories developed by earlier geologists and the evolution of geological concepts from stratigraphy and plate tectonics to geochemistry and geophysics.

LO2: Discriminate between well justified and poorly justified arguments in the geoscience literature

LO3: Identify and discuss some key areas of current research in the geosciences

LO4: Be able to synthesise information from a variety of sources

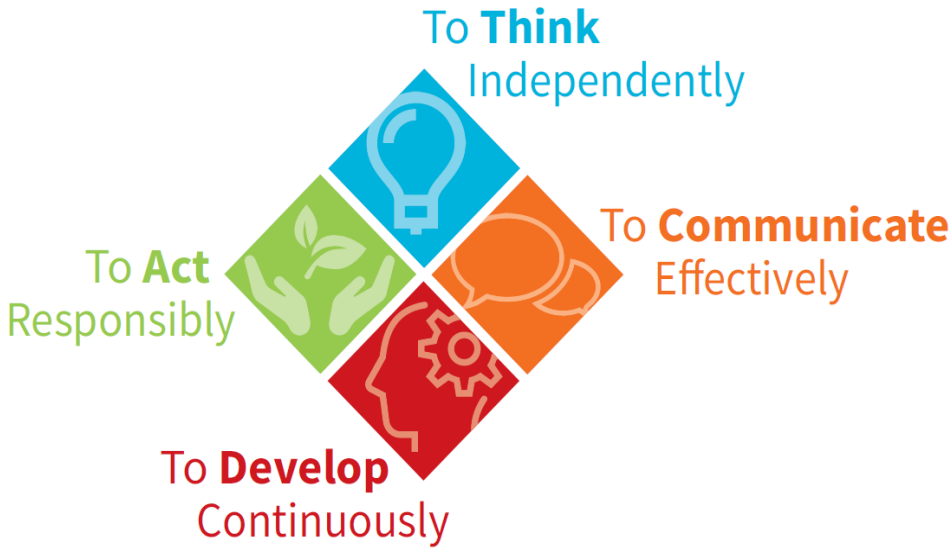
LO5: Formulate questions based on reading

Prerequisites: None

Assessment: Continuous Assessment (50%); end of semester examination (50%).

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.

Important Information

Student Services



For general information on the Supports and Services available to Trinity Students please visit: https://www.tcd.ie/students/supports-services/.

This is a comprehensive site which breaks down the different categories of support and services available to students is an intuitive manner.

Trinity Tutorial Service (Undergraduate Students)

The Tutorial Service is unique, confidential, and available to all undergraduate students offering student support in all aspects of College life. The Tutorial Service is supported and coordinated by the Senior Tutor's Office which is located on the ground floor in House 27.

Opening Hours and Appointments

The Senior Tutor's Office is open for student appointments between 10.30am - 12.30pm and 2.30pm - 4.00pm Monday to Friday ONLY (email stosec@tcd.ie to arrange an appointment).

What is a Tutor?

A Tutor is a member of the academic staff who is appointed to look after the general welfare and development of the students in his/her care. Whilst the Tutor may be one of your lecturers, this is not always the case as the role of the College Tutor is quite separate from the teaching role.

When should I go to see my Tutor?

You should visit your Tutor whenever you are worried or concerned about any aspect of College life or indeed your personal life, especially if it is affecting your academic work. The conversation with your Tutor takes place in strictest confidence. Unless you give him/her permission to do so, s/he will not divulge information given to them to anybody, whether a member of College or to anyone outside College (to your parents/family for example). Your Tutor can only help you if s/he knows you are facing difficulties, so if you are worried about anything go and see your Tutor before things get out of hand.

Further information on the Senior Tutors Office and College Tutors may be found via the following webpage: Senior Tutor Services- https://www.tcd.ie/seniortutor/students/undergraduate/

Disability Services

The Disability Service aims to provide appropriate advice, support and information to help students and staff with disabilities. The Disability Service has in place a range of supports to ensure that students with disabilities have full access to the same facilities for study and recreation as their peers. Most students registering with the Disability Service request access to a range of supports that help the student reach their full potential while studying. Most

students' needs are accommodated through these supports. The student decides what level of support they require.

For contact information or to make an appointment please contact the Disability Services – contact details are available via the following webpage:

https://www.tcd.ie/disability/contact/

Student Learning Development

Student Learning Development offers support in a variety of study and learning skills including essay writing, exam preparation, study skills, self and time-management and note taking. Mechanisms of support are workshops, individual appointments and drop-in clinics.

- For new students: https://www.tcd.ie/sld/your-student-journey/new-to-trinity/
- For Undergraduate Students: https://www.tcd.ie/sld/your-student-journey/undergraduate-students/
- For Postgraduate Students: https://www.tcd.ie/sld/your-student-journey/postgraduate-students/
- For general information on all resources and supports available visit: https://www.tcd.ie/sld/

Student Health and Wellbeing

College Health Service

Trinity Health Services have GP services available for the following Opening Hours:

Please contact us on 01 8961556 or 01 8961591 between 9am and 1pm and from 2-4:30pm

You can email collegehealth@tcd.ie , but please note that this email is NOT FOR ANY MEDICAL/CLINICAL enquiries and is not manned to manage clinical/medical enquiries, strictly only admin.

The Physiotherapist operates daily between 09.00 and 13.00 and also Monday/Tuesday afternoons during term time.

For further information visit: https://www.tcd.ie/collegehealth/

Student Counselling

The Student Counselling Service is here to help you to manage any difficulties you are experiencing so you can enjoy and fully participate in your time here at College.

If you wish to make an appointment with the Student Counselling Service, please consider one of the options below. If you have any other queries you can call into reception on the 3rd floor of 7-9 South Leinster Street or contact us on:

Phone: (01) 896 1407

Email: student-counselling@tcd.ie

For further information visit the following webpage: https://www.tcd.ie/StudentCounselling/

Student Life

Student life offers information on Supports and Services, Clubs and Societies, Student Unions etc., https://www.tcd.ie/students/

Academic Registry

The Academic Registry is responsible for services that support the complete student lifecycle of Trinity College Dublin – from application to graduation.

For information on Registration, Fees, Grants, ID Cards etc. visit the Academic Registry (AR). AR is located in in the Watts Building, on the first floor, or visit the AR website: https://www.tcd.ie/academicregistry/

Queries can be emailed to academic.registry@tcd.ie, or you can telephone 01 896 4500 during office hours.

Student Accommodation

CAMPUS: The Accommodation Office is open Monday to Friday from 8.30am to 1pm and 2pm-5pm each day. Queries can be emailed to residences@tcd.ie, or you can telephone 01 896 1177 during office hours.

After hours you can contact Front Gate at 01 896 3978 in case of difficulties or key problems. In Goldsmith Hall attendants are on duty in the residential area at weekends and overnight and they will assist with local problems.

In the event of a serious emergency, particularly where you require the attendance of ambulance, fire or police services please telephone College Security at 01 896 1999 (internal 1999).

To ensure a co-ordinated response please do not call these services directly. We recommend that you programme these numbers into your mobile phone using the prefix “01” before the number. https://www.tcd.ie/accommodation/

Appendix 1

Item	Reference/Source
General College Regulations	Calendar, Part II, General Regulations and Information
Emergency Procedures	In the event of anemergency, dial Security Serviceson extension 1999 Security Services provide a 24-hourservice to the college community, 365 days a year. They are the liaison to the Fire, Garda and Ambulance services and all staff and students are advised to alwaystelephone extension 1999 (+353 1 896 1999) in case of an emergency. Should you require any emergencyor rescue services on campus, you must contact Security Services. This includes chemical spills,personal injury or first aid assistance. It is recommended that all studentssave at least one emergency contact in their phone under ICE (In Case of Emergency).
Health and Safety	School of Natural Sciences Health, Safety and Welfare
Data Protection	Trinity College Data Protection
Academic Integrity	Academic Integrity Policy
Research Ethics	Research Ethics
Blackboard	Blackboard

Item	Reference/Source
Academic Credit System (ECTS) and Module Regulations	Academic Credit System (ECTS) and Module Regulations
Assessment and Progression Regulations	Undergraduate Progression and Awards Regulations
Prizes & medals	Prizes and awards
Equality, Diversity and Inclusion	Equality, Diversity and Inclusion
Study Abroad	Trinity Global
Framework of qualifications	The National Framework of Qualifications
Attendance Requirements	Calendar, Part II, General Regulations and Information, Section II, Items 17-23
Student Cases	Academic Registry, Student Cases
Student complaints procedures	Complaints Procedure
General Examination Guidelines	Exam Guidelines - Academic Registry - Trinity College Dublin

Item	Reference/Source
Academic Policies and Procedures	Academic Policies and Procedures
Registration	Academic Registry, Student Registration
Student supports	Current Students
STEM Schools and Disciplines	STEM School and Disciplines
Alumni Student Mentoring programme	Mentoring Programme