



Geoscience subjects
**A GUIDE TO ACTIVITIES FOR
FURTHER EDUCATION TUTORS**



Teesside
University

WELCOME TO THE GEOSCIENCES AT TEESSIDE UNIVERSITY

Teesside University offers an exciting selection of geoscience programmes – geography, geology and environmental science. Students are fully involved in our vibrant teaching and research culture, embedded in the diverse and dynamic social and environmental systems we live in. Our programme teaches and equips them with the skills and knowledge to help solve the world's greatest social and environmental challenges.

We want to work collaboratively with our network of schools and colleges to ensure that Teesside University is viewed as a resource that can help students and staff by enhancing their secondary level teaching and learning.

This guide outlines a range of talks, workshops and activities that we can deliver throughout the academic year. The sessions integrate directly with level 3 course content, enhancing and extending students' learning by exposing them to the cutting-edge research and teaching that we deliver through our courses.

This brochure is not exhaustive. If you would like to discuss any aspect of the activities, please get in touch. We look forward to working with you throughout the academic year.

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PROGRESSION ACTIVITIES

We offer a range of activities to help students understand how studying a geoscience at university can help them engage with current environmental and social challenges in the world, as well as developing the skills and knowledge for them to succeed in their future careers.

Why study the geosciences?

How will the world look in 50 years? What action is needed to address global climate change? Can lessons be learnt from the past to help shape our future?

In this talk students are introduced to geosciences as an academic discipline, and how studying this diverse subject at university can develop a range of specialist skills and knowledge, and open up a wide range of career paths.

Studying the geosciences at Teesside University

What does studying a geoscience at Teesside University involve? How can students prepare? What options do they have?

This talk provides a broad introduction to the degree courses which make up the Teesside University geosciences cluster. Students are introduced to the degree content and the opportunities available, some of the key teaching staff, and how they can prepare for the move from school to university.

ALL THESE PROGRESSION ACTIVITIES CAN BE DELIVERED IN YOUR SCHOOL AT YOUR CONVENIENCE. TO ARRANGE A PROGRESSION ACTIVITY CONTACT:

E: A.THOMPSON@TEES.AC.UK
STUDENT RECRUITMENT TEAM

TALKS

Our academics can also deliver a range of research-focused talks and workshops which are intended to complement AS and A-level curricula, as well as showcase to your students the range of work and research being undertaken across the geosciences at Teesside University:

Managing floods in an era of climate change

Flooding is one of the most significant natural hazards that our society faces, and climate change looks set to make this picture more complex.

This talk explores how our understanding of flooding and how to manage it has changed, and how we're now looking to natural processes to help make our towns and cities resilient to flooding when it occurs.

Social diversity, migration and place

Human geography understands the contemporary city as a meeting point of global flows, rhythms, people and places.

This talk examines some of the attempts to explain the complex impacts of this and looks at the importance of urban spaces such as schools, buses, and streets for understanding how multicultural societies function.

Climate change, culture and society

How is the critical issue of climate change represented in the media and culture? How can we read and understand these engagements?

This talk tackles these questions by drawing from a range of cultural sources including film, art, social media, and newspapers.

Geographies of protest and social justice

We are currently witnessing a period of unprecedented societal unrest, whether driven by environmental concerns, political distrust or resistance to far-right extremism.

This talk discusses this contemporary emergence and identifies why geography is crucial in understanding why and how this is happening

Palaeoclimate: reconstructing past climate to better prepare us for the future

Palaeoclimate archives take many forms from ocean and lake sediment cores to terrestrial archives like stalagmites, ice cores and tree rings.

This talk explains how these archives can be used to reconstruct past climate and how this knowledge firmly underpins scientific assessment of current climate trends and patterns.

Geographies of art

Geography has had a close relationship with art throughout its disciplinary history.

This talk discusses how and why geography has looked to art to understand key issues such as landscape, place, belonging and identity, cities, social diversity, war and migration.

Human impacts on the environment

Many scientists argue we have now entered The Anthropocene, a new geological era dominated by human activity.

This talk tackles how humans have impacted our environments, from the environmental legacy of mineral resource extraction on soil and water to the impacts of greenhouse gas and aerosol emissions on Earth's climate system

Rewilding and ecology

Re-introducing large herbivores and carnivores, such as beaver, bison and lynx that were hunted to extinction in Britain may sound like science fiction. However, there is an incredible push to bring back this charismatic fauna.

The re-introduction of large fauna pleases wildlife watchers and ecologists, as there is growing realisation that fauna act as ecological engineers, transforming landscapes into more biodiverse and climate resilient systems. To what extent these reintroductions are compatible with other land use, such as agriculture, remains an open question.

ALL THESE TALKS CAN BE DELIVERED IN YOUR SCHOOL AT YOUR CONVENIENCE. TO ARRANGE A GENERAL OR SUBJECT-SPECIFIC TALK CONTACT:

E: A.THOMPSON@TEES.AC.UK
STUDENT RECRUITMENT TEAM

FIELD ACTIVITIES AND WORKSHOPS

We have developed a programme of activities to integrate directly with the further education curriculum, helping tutors deliver laboratory and field-based classes using our facilities and aligned with our research expertise.

Examples of workshops and field activities that we can deliver include:

Exploring river channel hydraulics in the laboratory

What impact do manmade features have on river flows?

Using our tilting flume, students can experiment with the impact of different river structure such as weirs and culverts on channel flows, exploring their impact on flow characteristics and water levels.

Investigating river processes in the field

How do river systems evolve through time and space?

Working in the classroom and in the field, students study the evolution of a dynamic gravel bedded river reach, exploring the hydrological and geomorphological drivers of change.

Modelling river processes in the laboratory

How do river systems alter their form and processes in response to internal and external changes?

Working in the laboratory, students explore how changes in sediment input and discharge, and human activity, can all have major impacts on river behaviour.

Representations of climate change in media and culture

What does the film *Snowpiercer* (2013) tell us about societal anxieties of environmental harm? Why do deniers spread doubt about climate change science?

Students are supported in critically analysing the representations of climate change issues in a range of cultural and media sources including film, art, social media, and newspapers.

Exploring the geographies of public space in Middlesbrough

Who is public space for?

Why is it important for geography?

Through a tour of urban Middlesbrough, students explore the meaning of an inclusive and diverse society, and how public spaces are crucial for social connectivity.



TO DISCUSS A POTENTIAL CURRICULUM-BASED WORKSHOP AT TEESIDE UNIVERSITY, PLEASE CONTACT US TO DISCUSS YOUR REQUIREMENTS.

E: A.THOMPSON@TEES.AC.UK
STUDENT RECRUITMENT TEAM



BSc (Hons) Environmental Science

This degree covers three core themes:

- > Earth systems science
- > sustainability and renewable energy
- > biodiversity and ecosystems

Graduates with an environmental science degree can play a significant part in making the world a better place to live in.

This degree provides students with the knowledge and skills to measure and assess the impact of human activities on the complex and interconnected environmental systems which support life on this planet – and to be able to harness science to develop solutions for a sustainable future. The human-impacted landscapes of the North East provide excellent opportunities to develop field and laboratory skills related to real-life environmental issues.

In Year 1, students study a broad range of modules which provide an overview and introduction to the multidisciplinary

nature of environmental sciences. Students are introduced to the major environmental issues facing the world today and explore the role of science and technology in providing solutions for a more sustainable future.

Year 2 explores how the impacts of human activities on environmental systems can be monitored, the potential to minimise these impacts by more effective management and use of resources, energy and waste, and how to remediate the impacts of anthropogenic interventions in the environment. Students also study the

legislative and economic drivers which can be used to make this happen.

In the final year students focus in more detail on the potential of science and technology to provide solutions to environmental problems.

Students undertake a major individual research project focused on mitigating environmental or ecological impacts, and have the opportunity to participate in an overseas field trip to test their skills and knowledge in a new environment.



BSc (Hons) Geography

We offer a unique, integrated approach to geography, covering three core themes:

> geographical processes and change

> human geography and sustainable futures

> biogeography and conservation

We provide a contemporary and applied approach to geography that considers the evolution of the natural environment, the processes that shape it, and the creatures within it as well as the social and cultural structures that define our society and how it functions.

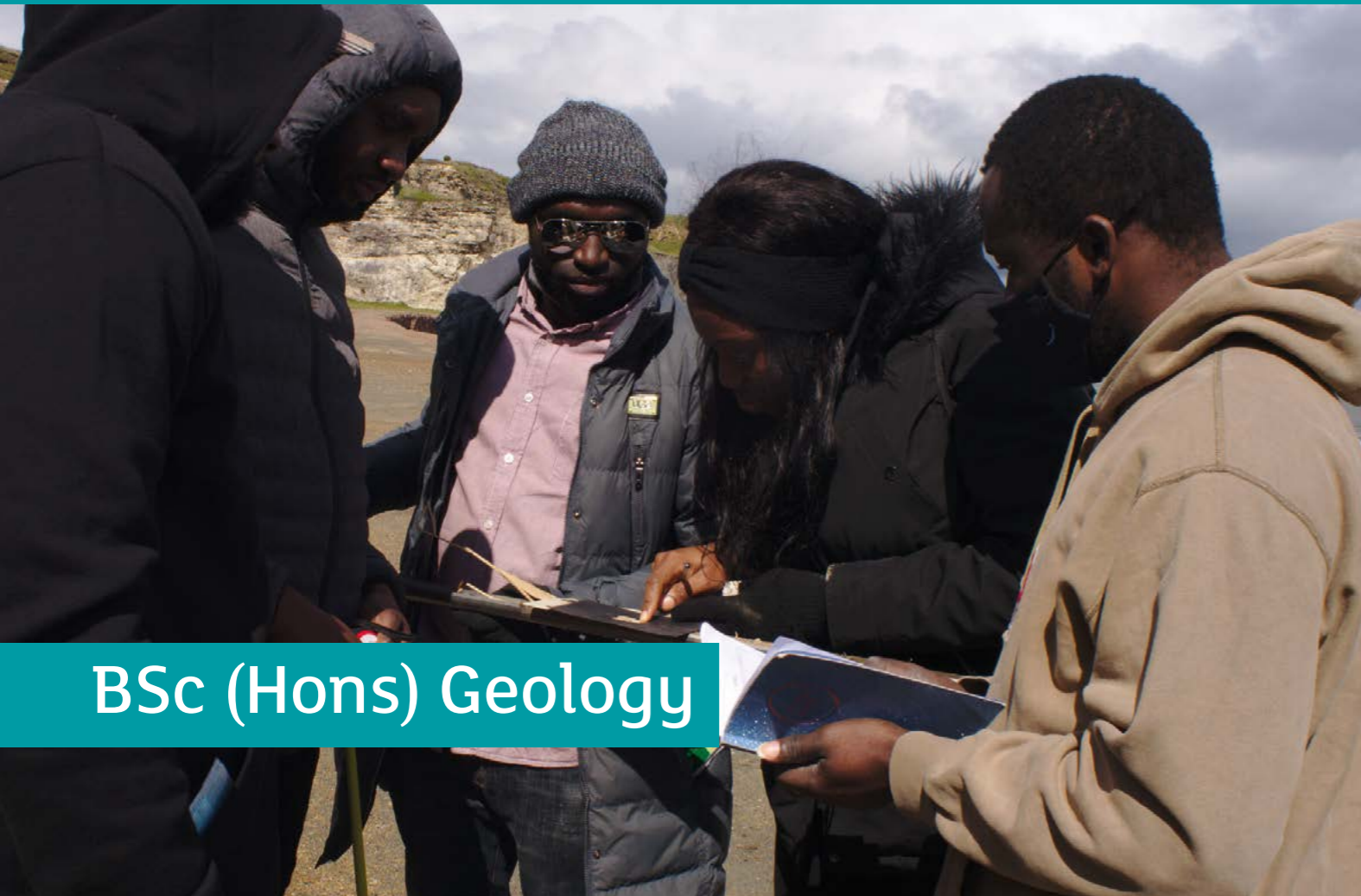
Through our programme, students investigate key topics including globalisation, climate change, sustainability, rivers and coasts, and environmental management. Students also engage with industry-standard software for data analysis, remote sensing and geographical analysis.

Fieldwork, both at home and abroad, is embedded into modules across the programme. Teesside University's location offers excellent opportunities

to explore natural and human systems. Students conduct fieldwork in places shaped by environmental change and management such as the North York Moors, Yorkshire Dales and the North East coast. Students also explore and consider the dynamic town of Middlesbrough, that is currently undergoing rapid urban and social change. In the final year of the programme, students also take their knowledge overseas, exploring other

landscapes and systems with an overseas, residential field trip.

Our geography degree is enhanced through research-led teaching by research-active academics. Our geography academics are specialists in a range of current topics including flooding and catchment management, climate change, ecology, migration, social diversity and culture.



BSc (Hons) Geology

This degree provides students with knowledge and understanding of a range of applied geoscience sub-disciplines delivered through three themes:

> **dynamic Earth – processes and evolution**

> **georesources and geohazards**

> **Earth system science and environmental geology**

In the first two years, students gain a thorough grounding in the major principles of geology including core modules covering mineralogy and petrology, stratigraphy, Earth history and the fossil record, structural geology, and geological mapping and surveying. Additional modules provide an overview of wider Earth system science including natural hazards and climate change.

Field-based modules are embedded within each year of the degree programme to ensure students are confident applying geological field skills such as geological mapping, sampling, surveying and environmental monitoring.

In the final year, students can apply these skills and knowledge to address

pressing geological and environmental issues. Through specialist modules and an optional international fieldtrip to a world-class geoscience destination, students gain valuable professional, technical and field skills that enhance their employability.

A key benefit to studying geology at Teesside University is that we are ideally

placed to explore a wealth of geological and environmental diversity. Day trips to the Jurassic Coast, running from Saltburn to Scarborough, the unique North Yorkshire Moors, and the North Pennines, and a residential trip to Scotland are all integral components of the programme.



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For more information email the Student Recruitment team a.thompson@tees.ac.uk

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