1495 UNIVERSITY OF ABERDEEN

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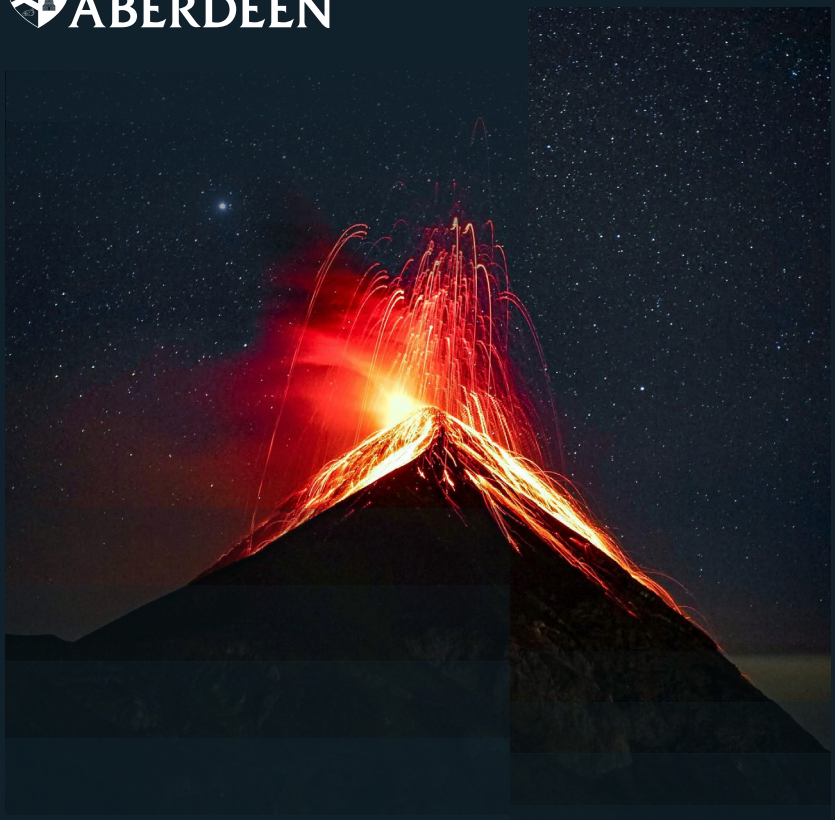


GO BEYOND BOUNDARIES

Geology and Geophysics

UNDERGRADUATE GUIDE

→ 1ST IN THE UK FOR EARTH SCIENCES

Overall student satisfaction, National Student Survey 2024

About Aberdeen

Going beyond boundaries, expectation, and tradition since 1495

For more than 525 years we have proudly offered our students life-changing opportunities by proving true to our Foundational Purpose: 'open to all and dedicated to the pursuit of truth in the service of others'.

Our rich heritage, world-leading research, and learning excellence has contributed to our association with five Nobel Prize winners and our ranking in the Top 15 UK Universities (Guardian University Guide 2025 and The Times and Sunday Times Good University Guide 2025).

Scotland's alternative city

Aberdeen is welcoming, adventurous, unafraid, and forever evolving – the perfect place to find your purpose and your people. Nestled in between the Cairngorms National Park and miles of golden coastline, Aberdeen has something exciting at every turn.

An ancient campus that has helped shape the modern world

Since 1495 our campus, and the world around it, have seen many changes. But the medieval core of King's College has remained constant. Over the centuries we've continued to add and innovate, growing our campus to the ideal blend of old and new you'll find today.

To keep breaking boundaries in education and research, we need to keep innovating. We are committed to investing in our campus to provide the very best learning resources for our students.

Our iconic Sir Duncan Rice Library is so much more than a study space. With social and collaborative spaces, a public lending library and museum, the Library embodies our foundational promise to be open to all in the service of others.

A community committed to inclusion and progress

At Aberdeen, you'll make friends and connections that will last a lifetime. Aberdeen has been voted one of the safest and most affordable cities (Complete University Guide 2022) and the University of Aberdeen voted 2nd for value for money (StudentCrowd University Awards 2023). When you come to Aberdeen you'll be well looked after, and part of a close-knit community known for its outstanding support.

Welcome to Geology and Geophysics

Geologists study the Earth, exploring how its deep internal processes are connected to surface volcanism and earthquakes; and how its surface environments and climates have changed through 'deep time', co-evolving with life.

They tackle major scientific and environmental challenges such as climate change, natural hazards, finding sustainable sources of natural resources, and driving the energy transition.

Geology at Aberdeen

Our programmes in geology teach you how to explore the Earth, from its 'deep time' history to finding modern sustainable resources, using the latest fieldwork, laboratory and digital skills. You will learn to extract valuable information that is recorded in rocks, minerals and fossils - an archive that holds the keys to many current societal and environmental problems.

Our programmes are essential to understanding how we can better manage natural resources, transition to sustainable energy sources, protect our environment, tackle natural hazards including earthquakes and volcanoes, and combat climate change

Sustainability is at the heart of what we do at Aberdeen and here you will learn how to develop sustainable environmental practices, as well as the key subsurface skills required for the rapidly evolving energy transition sector.

Degree Programmes

Our programmes are essential to understanding how we can better manage natural resources, transition to sustainable energy sources, protect our environment and combat climate change.

You can choose to study:

- BSc Geology
- BSc Geoscience
- BSc Geology and Physics

Please refer to **www.abdn.ac.uk/ug/geology** for the latest programme information.

Why Aberdeen?

- We are ranked 1st in the UK for overall student satisfaction in Earth Sciences in the National Student Survey 2024.
- Geology students are taught in a purpose-built dedicated lab in the new Science Teaching Hub, opened in 2022, which offers the most modern laboratory-based teaching facilities and equipment in the UK.
- Field study is a major part of our teaching, and our location means easy access to wonderful field locations throughout Scotland, from Fife, to Caithness, to the North West Highlands
- You will gain experience using specialist software to create virtual models of geological features and processes.
- You can also study the geology and atmospheres of the earth, planets and satellites of the solar system thanks to our collaboration with the Department of Planetary Sciences.
- You will have the opportunity to join professional societies to expand your knowledge, skills and professional networks beyond the classroom.
- The flexibility and breadth of our programmes across the School of Geosciences mean there are many possibilities to transfer between programmes until the end of the 2nd year.

Frankie Butler
Geology Graduate, 2023

Aberdeen teaches such an exciting variety of geology, with amazing field trips, specimens, equipment, and teaching that the hard part has been deciding 'where do I specialise!?' You learn such practical transferrable skills that applying for internships and working in the field really does become easy. I felt I had a step ahead from so many applicants.

World Class Facilities

You will have access to the School of Geoscience's world-class equipment and laboratories, including:

- 3D Seismic Interpretation Facilities
- ACEMAC Nano Scale Electron Microscopy and Analysis Facility
- Dirty and Clean Sedimentary Laboratories
- Geochemistry Laboratory
- GIS Equipment
- Hydrology Laboratory
- Petrographic and Stereomicroscopes
- Petrophysics Laboratory

Students get hands-on experiences in our research facilities during their studies.

Geoscience Society

There are over 100 clubs and societies to choose from at Aberdeen. The Geoscience Society provides numerous networking and learning opportunities through guest lectures, fieldwork excursions and social events.

Other related societies such as the **Aberdeen AAPG Student Chapter** and the local **Aberdeen Geological Society** are a great way to meet other students who share your passion for geology, develop your career, and have lots of fun.

Find out more about the Geoscience Society at:
www.facebook.com/geoscienceabdn

Science Teaching Hub

Our new polarizing, 5-objective microscopes, are equipped with state-of-the-art cameras linked to a provided laptop, which allows you to capture high-quality images for reports, assessments and for your own use.

All microscopes are linked to the laboratory network enabling sharing of images with instructors, other students, and the rest of the class.

All students get hands-on with our extensive fossil collections, assembled over more than 100 years, including for example trilobites, ammonites, corals, ichthyosaurs, dinosaur footprints, world-famous examples of Devonian fish, and earth's earliest preserved terrestrial ecosystem from the nearby Rhynie Chert ancient hot-spring site.

Our equally impressive collections of thousands of minerals and rocks from all over the world are also extensively used in our research-led teaching.

You can learn more about our state-of-the-art Science Teaching Hub at: **abdn.ac.uk/study/student-life/sth.php**

Fieldwork

Fieldwork is fundamental to geology and at Aberdeen we enjoy easy access to numerous world-class sites, for which Scotland is globally envied.

Through fieldwork you will learn professional skills and techniques, including:

- recording and interpreting environmental changes archived in sedimentary rocks
- exploring geological structures related to tectonics
- presenting and understanding geological data on maps
- recognising the character of igneous, metamorphic, and sedimentary rocks at scale
- conducting fieldwork safely, effectively, and responsibly.

Virtual Outcrops

The School of Geosciences is a world-leader in the adoption and application of digital technology, combining the latest virtual tools and resources with our unrivalled field study locations on our doorstep here in Scotland and overseas.

V3Geo has been developed by Aberdeen geoscientists as a bespoke public repository and viewer for 3D virtual geoscience models, with a focus on virtual geological outcrops from localities around the world. The long-term goal is to have high-quality representations of all the world's significant geological sites.

As well as being a key research tool to enable observation of difficult-to-reach locations, V3Geo is also a very powerful educational tool for geoscientists at all levels of study. Current undergraduate students are utilizing virtual outcrops from around the world to learn key field skills that they will be able to apply to real fieldwork later in their studies or careers.
www.v3geo.com

Planetary Geology

The exciting recent establishment of the Department of Planetary Sciences within the School of Geosciences means that as part of their Honours curriculum, Geology students can apply their acquired skills to explore 4.5 billion years of history of the Earth, Mars, and other planets and satellites in our solar system.

Profs Javier Martin-Torres and Maria-Paz Zorzano of the Department of Planetary Sciences have joined forces with Drs Alex Brasier and Malcolm Hole of the Department of Geology & Geophysics to deliver a 15-credit module that allows students to study aspects of lunar and planetary geology using real data acquired by NASA, ESA and other space agencies.

During this module students have the opportunity to study:

- The Geology of the Moon
- The Geology of Mars, and
- The Geology of Another Planet or Moon

Students are able to choose an aspect of each of these areas that interests them, with guidance from our experts.

Mission to Mars

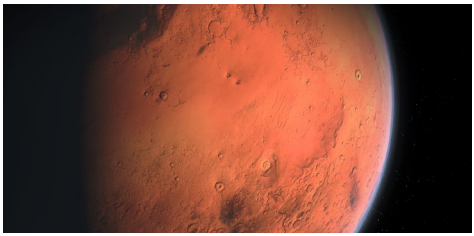
Our planetary scientists have developed an instrument known as HABIT (HabitAbility: Brine, Irradiation, and Temperature) which will be included in a forthcoming Japanese mission to Mars – estimated to take place between 2028 and 2032.

The quest about the habitability of present-day Mars is still an open challenge and a crucial aspect for the future human space exploration.

Liquid water has never been seen on the surface of Mars. The working scientific theory is that there are unique salts on the planet's surface which absorb water from the atmosphere and produce liquid water (in the form of brines) at night when the temperature is lowest. The HABIT instrument will attempt to record this process on Mars for the first time.

HABIT will become the first ever European in-situ resource utilisation (ISRU) instrument to be deployed on the surface of another planet.

www.abdn.ac.uk/planetary-sciences



Geology Careers

Geologists play a fundamental role in sustaining the modern world. Many employers look favourably upon geology graduates because of their diverse training, and for the skills in independent problem solving they have developed throughout their studies. In comparison with other scientific and technical careers, many jobs available to geologists attract high salaries, and a wide range of possible careers offer opportunities to work locally, nationally, and globally.

Geologists are essential in supporting the energy sector through exploring for and assisting in the production of earth resources, in mining the critical minerals needed to resource the energy transition, and in prospecting for noble gasses and hydrogen. They also survey the seabed that hosts wind farms and the transmission infrastructure that brings energy to people. Geologists are also involved in the environment sector, researching and delivering innovative ways of drawing down atmospheric CO_2.

They also help to develop and maintain the integrity of water resources and help with the remediation of contaminated land.

Geologists are not just explorers and producers. In financial and insurance sectors, they help to make critical investment decisions. Almost all significant civil engineering projects involve geologists, from keeping critical infrastructure open to tunnelling, bridge-building, and constructing defences against rising sea-levels and flash floods.

Geologists are an essential part of teams that assess risk to communities and their infrastructure not only from the climate emergency but also due to natural disasters such as earthquakes, tsunamis and volcanic eruptions. They help to build resilience and are important members of regulatory bodies which ensure compliance with environmental standards.

Previous graduates have gone into a variety of roles such as field geologist, environmental consultant, research assistant, volcanologist, project co-ordinator, logging geologist, and teacher. Graduates are also well-equipped to continue their studies at a graduate level.

Learn more about careers in geology on The Geological Society of London's website **www.geolsoc.org.uk/Geology-Career-Pathways/Careers/Job-Sectors**

Louis Hazelwood
Geology Graduate, 2022

Before I started studying Geology, I didn't really know what it entailed other than looking at rocks; however, I quickly realised how multidisciplinary the subject was. This degree gives you the opportunity to go into so many industries all over the world. I had a fantastic time studying Geology at the University of Aberdeen and would highly recommend it to anyone with an interest in science.

University of Aberdeen

The University of Aberdeen is the fifth oldest university in the UK, dating back to 1495. For more than 525 years we have proudly offered our students life-changing opportunities by proving true to our Foundational Purpose: 'open to all and dedicated to the pursuit of truth in the service of others'.

Our vast experience in teaching – along with our modern, 21st century outlook – enables us to offer the same great opportunity to you today.

Our rich heritage, world-leading research and learning excellence has contributed to our association with five Nobel Prize winners and our ranking in the Top 15 UK Universities.*

We now warmly invite you to join our Aberdeen family and become part of the next chapter in our history.

www.abdn.ac.uk/study

*Guardian University Guide 2025 and The Times and Sunday Times Good University Guide 2025.

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