1495 UNIVERSITY OF ABERDEEN

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GO BEYOND BOUNDARIES

Geology and Geophysics

UNDERGRADUATE GUIDE

→ 1ST IN SCOTLAND FOR EARTH SCIENCES

Overall Student Satisfaction, National Student Survey 2023

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 teaching and research is all about building a sustainable future for people and our planet.

Our programmes in geology teach you how to use the latest fieldwork and digital skills to extract valuable information recorded in Earth's rocks, minerals and fossils - an archive that holds the keys to many current societal and environmental problems.

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

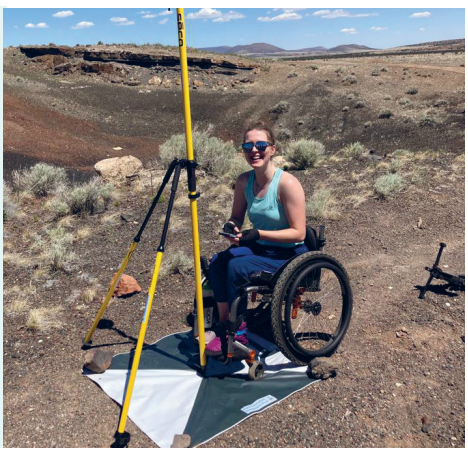
Please refer to
www.abdn.ac.uk/ug.geology
for the latest programme information.

Why Aberdeen?

- We are ranked 1st in Scotland for Earth Sciences based on Overall Satisfaction in the National Student Survey 2023.
- We are ranked 8th in the UK for Geology by The Times and Sunday Times Good University Guide 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 such as Arran, Skye, and the Scottish 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 word-class sites throughout Scotland, such as the Isle of Arran, Skye, and the Scottish Highlands.

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

Our location in Aberdeen and our strong links with the national and international energy sector means our students benefit from unrivalled industry exposure through seminars, guest lectures and participation in field trips and career networking events.

Many of our students are also able to gain direct experience during the course of their degree, through industry-based research projects and placements.

Geology graduates can enter careers directly related to the earth sciences, including finding and maintaining water resources (hydrogeology), energy (including for example geothermal, moving us to a sustainable future), mining (including for the precious metals needed in all modern technology, and for noble gases needed for medical equipment), and environmental management.

As scientists equipped to cope with uncertainty and the absence of data, Geologists are also sought for their transferable skills and knowledge, for example, in the financial sector.

Potential careers include:

- Cartographer
- Environmental Consultant
- Exploration Geologist
- Geologist
- Geophysicist
- Groundwater Modeller
- Hydrographic Surveyor
- Hydrogeologist
- Palaeontologist
- Planning Analyst
- Seismologist
- Surveyor
- Volcanologist

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

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*Guardian University Guide 2024 and The Times and Sunday Times Good University Guide 2024.

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