Earth & Environmental Sciences

www.st-andrews.ac.uk/subjects/earth-environmental-sciences
earthsci@st-andrews.ac.uk

- Discover the science of Earth and other planets, including the processes that build mountains, control climate, drive life in the oceans, and form natural resources.
- Science in the great outdoors: extensive field training across Scotland and Europe, with costs covered.
- Dedicated undergraduate research programmes offer the opportunity to engage with cutting-edge research on planetary formation, the history of life, and climate change.
- Advanced transferable skills training in fieldwork, numerical problem solving, and written and oral presentation.
- Leading graduate employability in mineral resources, energy, and environmental consultancy.

What will I study?
You will study topics from current climate change to the formation of the planets, integrating physical geography, chemistry, physics, and biology to understand the world around us. St Andrews is in many respects the ideal place to study Earth Sciences, being surrounded by beaches, the sea, and world-famous geological outcrops. Most of our students have not studied the subject at school, and choose our degrees based on a love of the environment, the outdoors, and natural science.

All of our undergraduate degree pathways share classes in the first two years. These provide you with a broad foundation in the Earth Sciences, from which you can find your specific interests and strengths before specialising in your final two years.

First year
You will study the fundamental processes that have formed and shaped our planet and its environment. You will also be able to take courses in other subjects.

Second year
You will build a deeper understanding of planetary materials (rocks, minerals and ores) and processes (for example, ocean circulation, plate tectonics). You will investigate pivotal episodes in Earth history and discover how our planet and life evolved. You will develop independent field skills with small group fieldwork in Scotland and Spain.

Third and fourth years (BSc Honours and MGeol)
You will learn state-of-the-art mapping and GIS techniques. BSc Geology students will delve deeper into plate tectonics and rock, mineral, and ore formation. BSc Environmental Earth Sciences students will study climate change and the interaction of life with the evolution of the surface environment.

MGeol students can choose courses from across our degree programmes, and undertake an advanced research project or industrial placement.

Entry requirements
We consider all aspects of every application, including context, equivalent qualifications and the Personal Statement. Offers may be higher or lower than the grades stated here. See also page 169.

www.st-andrews.ac.uk/subjects/entry

First year entry
SQA Highers and GCE A-Levels should include at least two sciences from Biology (or Human Biology), Chemistry, Geography, Geology, Mathematics or Physics.

SQA Highers: AAAB
GCE A-Levels: AAB
International Baccalaureate Points: 36, including at least 2 HL6 in Biology, Chemistry, Computing Science or equivalent, Geography, Geology, Mathematics, Physics, or Psychology.

Direct entry into second year
This option is only offered to students with excellent A-Level or International Baccalaureate qualifications. SQA qualifications without a Geology component will not be accepted (the Geology component was discontinued in 2016).

GCE A-Levels: AAA including Geology.
International Baccalaureate Points: 38, including three subjects at HL6 from the following: Biology, Chemistry, Geography, Physics.
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Direct entry into second year
Direct entry into second year is possible for appropriately qualified students.

Our degree programmes:

**BSc Environmental Earth Sciences**
This degree integrates study of the oceans, atmosphere, biosphere, and geosphere in order to understand the processes and impacts of environmental change.

The degree incorporates insights from across chemistry, physics, and biology to understand Earth’s surface environment both past and present. Teaching is strongly integrated with our leading research programmes, and you can take advantage of laboratory-based research projects to answer questions ranging from the dawn of atmospheric oxygen, to the stability of major ice sheets, and the impact of volcanoes on climate. Applied training focuses on the environmental impact of extraction and use of Earth’s natural resources, and includes hands-on experience with state-of-the-art techniques in the field and laboratory.

**BSc Geology**
This degree emphasises the origin and chemistry of rocks and minerals, geological mapping, and the processes and events that have shaped the rock record. Research-led teaching will introduce you to cutting-edge geological science questions, including the mechanics of plate tectonics, the formation of planets, and the dawn of life. Applied industrial training will provide you with the skills and knowledge required by the energy and mineral industries, and research projects will allow you to undertake independent field research, underpinned by rock and mineral analysis.

**MGeol Earth Sciences – Integrated Masters (five years)**
This degree provides comprehensive training in the Earth Sciences, spanning topics from the formation of the solid Earth to environmental change. The extra year allows you to engage deeply with fundamental questions in Earth Sciences, such as the formation of the planets and the path of future climate change. The broad and flexible structure of the degree introduces you to topics across the Earth Sciences, and provides ample room for the development of specific interests. The programme includes the opportunity for an internship with industry, an extended research project, or a major fieldwork expedition.

**Study abroad**
Earth and Environmental Sciences students may participate in the University-wide St Andrews Abroad programme. For information about study abroad options, please see: www.st-andrews.ac.uk/study-abroad

**International opportunities**
There are opportunities to undertake international placements in industry or research, and international fieldwork. Recent locations have included Greenland, the US, and sites across Europe.

**Careers**
The School is proactive about developing career opportunities, and career activities are provided for all students from first year onwards. Graduate employment prospects are consistently among the best in the UK. There are a wide variety of career options for Earth and Environmental Sciences graduates, both specifically in the energy, natural resources, and environmental sectors, as well as in wider science and policy areas.

Our degrees provide advanced training in a wide range of transferable skills, including both scientific problem solving and written and oral presentation. The high quality of our field training is particularly highly valued by employers.

Recent employers of our graduates include BHP Billiton, BP, Shell, Fugro, Geotechnics Ltd., the Scottish Environmental Protection Agency, Norsk Hydro, the British Geological Survey, and Scottish Natural Heritage.

Many of our graduates undertake further study, both at MSc and PhD level.

**Field training**
Field training is an essential part of Earth and Environmental Sciences degrees. At St Andrews this is achieved with minimal to no financial burden to students, with all costs covered on the majority of field trips run by the School.

“With all the wonders of Scottish geology in its back yard, excellent facilities and engaging staff, it is safe to say St Andrews is the ideal place to study Earth Sciences. Although the content of this programme is often challenging, the staff are always available to lend a helping hand. The small size of the School and the frequent field trips mean you get to know your peers and supervisors very well. The opportunities for going into either research or industry are endless.”

Savannah (Johannesburg, South Africa)