

Earth Science

Earth Science and employment

Earth Science graduates have a strong track record in gaining employment both within related industries and across a number of different professions and organisations. This is due to the wide range of skills they have developed in the study of the subject through hands-on learning activities such as fieldwork, laboratory work and team-based projects. Working in the natural environment provides opportunities and constraints on project work that are different, unexpected and more challenging than those found in classroom-based activities.

The skills and qualities developed through studying Earth Science are highly transferable into a variety of roles and different working environments, and form the basis of the real contributions highly motivated and able employees can make to an organisation. In particular, the abilities to think through issues, analyse situations and problems and come up with creative solutions, and to work with others in sometimes difficult and tight timeframes, and in unfamiliar environments, are common skills to Earth scientists. As a result, they have a highly desirable suite of skills which are of a premium to all types of organisations.

What is Earth Science?

Earth Science is the study of past and present processes operating in the solid Earth, its waters and the atmosphere. It includes the scientific study of physical, chemical and biological processes, the history of the Earth over geological timescales, and the structure and composition of the Earth and other planets. Earth scientists develop their knowledge through accurate observation and recording in the field, and fieldwork and other forms

of hands-on learning are key features of higher education degree programmes.

Knowledge, skills and competencies

Like all graduates, Earth scientists should possess the following skills and qualities: communication, organisation, critical thinking, research skills, critical analysis, presentation, ability to work under pressure, self-management, interpersonal skills, confidence and a willingness to learn.

More specifically, a typical Earth scientist can offer advanced knowledge and skills in many or all of the following:

Knowledge

- Natural hazards/disasters (e.g. volcanoes, earthquakes and tsunami), resources (e.g. water, minerals, fuels), mining, waste disposal etc, and the issues regarding the exploitation and conservation of these natural resources; this knowledge leads to an understanding of the natural environment at small, medium and large-scales, irrespective of political boundaries.

Thinking skills

- Ability to think in an integrated and holistic way and to work with and appreciate complexity and change.
- Capability to think flexibly between different spatial representations (2D – 3D; maps to cross sections) and time-scales (milliseconds to millions of years).
- Decision making – often on the basis of limited information.

Practical skills

- By routinely working in teams on laboratory, desk and research, earth scientists are versed in project management including planning, execution and evaluation; this involves skills such as time-management, risk-assessment, problem solving and analysis.
- Earth Scientists generate and work with numerical, textual and graphical data. They therefore have well-developed numeracy, graphicacy and image processing skills (including mapping) and they are accustomed to manipulating and presenting these various data using a range of ICT formats.
- The field-based 'real-world' nature of Earth Science research requires earth scientists to be flexible and adaptable – they must have the confidence and initiative to be able to deal with the unexpected.

To check the growing range of resources produced by the Subject Centre to support employability and the use of this profile (including the Skills and Attributes map), go to www.gees.ac.uk.

This profile, produced in 2005, is based on the QAA benchmark to be found at www.qaa.ac.uk/academicinfrastructure/benchmark/honours/default.asp.