

The geological history of Britain

Start date 11 May 2018**End date** 13 May 2018**Venue** Madingley Hall
Madingley
Cambridge**Tutor** Dr Peter Sheldon**Course code** 1718NRX055**Director of Programmes** Emma Jennings**For further information on this course, please contact** Public Programmes Co-ordinator, Clare Kerr
clare.kerr@ice.cam.ac.uk or 01223 746237**To book** See: www.ice.cam.ac.uk or telephone 01223 746262

Tutor biography

Dr Peter Sheldon is an Honorary Associate in the School of Environment, Earth and Ecosystem Sciences at the Open University, where he was a Senior Lecturer in Earth Sciences until 2015. He has given over 75 residential courses in geology, palaeontology and evolution for the University of Cambridge Institute of Continuing Education since 1979. From 2008 to 2011 he was External Examiner for Scientific Studies at Oxford University's Department for Continuing Education, where he has given over 40 day-schools since 1993. His teaching style combines fieldwork, hands-on study of real specimens of rocks, minerals and fossils, and interactive lectures. He chaired the Open University course on *Geology* and has contributed to many other OU courses, including *Fossils and the History of Life*, *Evolution*, *Earth's Physical Resources*, *Discovering Science*, *The Geological History of the British Isles* and *Earth Science*.

Course Programme

Friday 11 May 2018

Please plan to arrive between 16:30 and 18:30. You can meet other course members in the bar which opens at 18:15. Tea and Coffee making facilities are available in the study bedrooms.

- 19.00 Dinner
- 20.30 – 22.00 **Introduction: how rocks reveal ancient history.
The oldest rocks in Britain, the Iapetus Ocean and colliding continents.**
- 22.00 Terrace bar open for informal discussion

Saturday 12 May 2018

- 07.30 Breakfast
- 09.00 – c.09.40 **40-minute talk followed by field excursion to at least one local quarry.**
- Please bring stout footwear (essential; preferably walking boots (to give good ankle support), or wellington boots), waterproof clothing in case of bad weather, and, if you wish, a thermos flask which can be filled at breakfast. See also 'Equipment Required'.*
- A packed lunch will be provided.
- Return by 17.30
- 18.30 Dinner
- 20:00 – 21:30 **Eroding mountains, tropical seas, swampy forests and baking deserts.**
- 21:30 Terrace bar open for informal discussion

Sunday 13 May 2018

- 07.30 Breakfast
- 09.00 – 10.30 **Practical session – yesterday's finds (1 hour).
Continuing the slow move north. Events in the Mesozoic Era.**
- 10.30 Coffee
- 11.00 – 12.30 **Events in the Cenozoic Era. Climatic havoc, glaciers and the future.
Overview and final summing up.**
- 12.45 Lunch

The course will disperse after lunch

Course syllabus

Aims:

This course aims to:

1. Provide a wide-ranging, practical introduction to the geology of Britain, including first-hand experience of rocks, minerals and fossils in the field and teaching room.
2. Stimulate a continuing interest in geology, especially the geological history of Britain.
3. Give course members sufficient basic understanding and practical skills to enable them to begin to pursue their geological interests for themselves.

Content:

We live on a part of the Earth's crust that has had an immensely long and eventful history. For its size, Britain probably reveals a greater variety of rock types than anywhere else in the world. Almost everywhere in the country has at some stage been torn by earthquakes and scorched by volcanoes, covered with seas or raised to high mountains. But how do we know these things? The clues are in the rocks around us and with a bit of training it is surprisingly easy to read the signs that reveal ancient environments so different from those of Britain today.

A major part of the course is an excursion to get first-hand experience of rocks, minerals and fossils in the field.

Topics to be covered in the sessions at Madingley Hall will be:

- basic geological principles, including how evidence from rocks, minerals and fossils can be used to unravel the geological past;
- the main igneous, sedimentary and metamorphic rocks of Britain, how they formed and how to recognise them;
- the key events in the dramatic and complex geological history of Britain;
- what the future might hold, geologically speaking.

N.B. Level of fitness required Participants will at times need to be able to walk continuously for about 15-20 minutes within quarries and over very rough and quite steep ground for short distances.

No previous background in geology is needed for the course, and no reading is required in advance.

Programme Please note that the field trip on Saturday may be subject to modification, depending on weather, state of the quarry and so on.

Presentation of the course:

The course will employ a wide variety of teaching and learning methods, including a field excursion, lectures with slides, and the opportunity to pick up and personally examine a large number of British rocks, minerals and fossils put out on tables in the teaching room. On Sunday morning, participants are invited to put out their own specimens found on the excursion, so that everyone can examine, identify and learn from each other's finds.

As a result of the course, within the constraints of the time available, students should be able to:

1. Identify a few of the common rocks, minerals and fossils of Britain.
2. Explain in simple terms some of the ways in which geological history can be pieced together by studying the occurrence and features of rocks, minerals and fossils.
3. Outline some of the key events in the geological history of Britain.

Equipment Required:

Warm and waterproof clothing — **ESSENTIAL**. Please note that quarries stipulate that, for safety reasons, shorts or skirts should not be worn.

Walking boots (preferably, as they support your ankles) or wellington boots — **ESSENTIAL**. **N.B.** Ordinary walking shoes or trainers are *not* acceptable. Quarries are nearly always wet and muddy in places, and adequate foot protection is required within working areas, near machinery, etc. Bear in mind that wellington boots can be rather hot to wear in summer (compared with walking boots).

Thermos flask — you might find this to be a good idea.

Notebook, pen, pencil, rubber.

Hand-lens (optional) — you'll find your enjoyment and understanding of fossils and rocks increases if you have a hand-lens. Some hand-lenses should be available for purchase from Peter Sheldon for only £2 during the course. Hand-lenses can be also bought from stamp shops (philatelists) and some hobby shops. Magnification x 10 is recommended.

Plastic bags (a few strong, medium-sized shopping bags); paper — to wrap specimens.

A geological hammer (optional) — if you have one, it could be useful; otherwise we will lend out a few to share for the trip. Much study can be done without one and there is **NO** need to obtain a geological hammer for the course. (Note that an ordinary hammer should *not* be used to break open rocks; the metal is too brittle and metal chips may fly off.)

N.B. In addition to suitable footwear (see above), visitors to quarries have to wear standard safety helmets and high-visibility waistcoats. We will supply these items on loan.

Reading:

No reading is required in advance and no books need to be bought (or consulted) for the course. Many useful books on general and specific aspects of geology will be available for people to look at during the weekend, and a detailed and extensive booklist will be provided.

Currently there are no particularly good books that cover the geological history of Britain at Level 1. There are, however, many fine books available on the whole spectrum of geology. Here is just one (though it is certainly **not** necessary for the course):

Understanding Earth. J. Grotzinger and T. Jordan. (2014, 7th Edition). An outstanding, clearly written, widely used introduction to Earth Sciences with many colour illustrations. A global perspective and probably the best overview of its kind. Freeman. ISBN 9781464138744. £53.99.

Website Addresses:

Among the many excellent websites you may wish to explore if you have access to the Internet are the following, which have links to a vast number of other relevant sites:

<http://www.geolsoc.org.uk> - The Geological Society of London.

<http://www.bgs.ac.uk> - British Geological Survey.

<http://www.nhm.ac.uk> - The Natural History Museum, London.

Note Students of the Institute of Continuing Education are entitled to 20% discount on books published by Cambridge University Press (CUP) which are purchased at the Press bookshop, 1 Trinity Street, Cambridge (Mon-Sat 9am – 5:30pm, Sun 11am – 5pm). A letter or email confirming acceptance on to a current Institute course should be taken as evidence of enrolment.

Information correct as of 28 October 2017