

The geological history of Britain

Start date Friday 11 November 2022 **End date** Sunday 13 November 2022

Venue Madingley Hall
Madingley
Cambridge
CB23 8AQ

Tutor **Dr Peter Sheldon** **Course code** 2223NRX008

Director of ISP and LL Sarah Ormrod

For further information intenq@ice.cam.ac.uk

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. He has given over 80 residential courses in geology, palaeontology and evolution for the University of Cambridge Institute of Continuing Education since 1979. He has also taught for the Cambridge International Summer Programme. 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. His teaching style usually combines fieldwork, hands-on study of real specimens of rocks, minerals and fossils, and interactive lectures.

Dr Sheldon 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*. He is well known for research on evolutionary patterns in the fossil record and the relationship between evolution and environmental change.

Course programme

Friday 11 November 2022

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 – key aspects of geology and how rocks can reveal a history of changing environments. The oldest rocks in Britain.
22:00	Terrace Bar open for informal discussion

Saturday 12 November 2022

07:30	Breakfast (for residents only)
09:00 – 10:30	The lapetus Ocean, volcanoes and colliding continents
10:30	Coffee
11:00 – 12:30	Practical Session (45 mins). Eroding mountains and tropical seas (45 mins).
13:00	Lunch
14:00 – 16:00	Free time
16:00	Tea
16:30 – 18:00	Britain crosses the equator. Swampy forests, baking deserts and drying up seas.
18:00 – 18:30	Free time
18:30	Dinner
20:00 – 21:30	The Jurassic Period and its life, from ammonites to dinosaurs
21:30	Terrace Bar open for informal discussion

Sunday 13 November 2022

07:30	Breakfast (for residents only)
09:00 – 10:30	The Cretaceous Period, its life and the mass extinction 66 million years ago (1 hr). Practical session (30 mins).
10:30	Coffee
11:00 – 12:30	Events in the Cenozoic Era. The Quaternary Ice Age – climatic havoc, ice sheets and glaciers. What might the future hold?
12:45	Lunch

The course will disperse after lunch

Course syllabus

Aims:

This course aims to:

- provide a wide-ranging, practical introduction to the geology of Britain, including first-hand experience of rocks, minerals and fossils in the teaching room
- stimulate a continuing interest in geology, especially the geological history of Britain
- give course members sufficient basic understanding 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 and ages than anywhere else in the world. Almost everywhere in the country has at some stage been torn by earthquakes and scorched by volcanoes, scraped by ice, 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 possible to read the signs that reveal ancient environments so different from those of Britain today.

Topics to be covered 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 use of geological maps;
- key events in the dramatic and complex geological history of Britain;
- the role that plate tectonics has played in determining this history;
- what the future might hold, geologically speaking.

No previous background in geology is needed for the course.

Presentation of the course:

The course will involve lectures with slides, and the opportunity to pick up and personally examine a large number of rocks, minerals and fossils put out on tables in the teaching room. Questions and discussion will be encouraged throughout.

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 how an understanding of geological history and ancient environments 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 and the part played by plate tectonics in them.

Reading and resources list

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 (with brief comments on each book) will be provided.

The following full-colour paperback is a useful and engagingly written summary of geology and the geological history of Britain, with many clear, bright diagrams and photos. It doesn't detail specific geological walks but forms a good basis for anyone interested in British geology. The book is not necessary for the course.

Geology for Walkers. (2021). Steve Peacock. Independently published. 171 pp. ISBN 979-8595445283. £16.50 (RRP but probably available cheaper).

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 large number of other relevant sites. Further websites will be given on the booklist provided during the course (mentioned above).

<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.