

Great Geology on Great Cumbrae

On the eastern shore of the Isle of Cumbrae, Millport has a great island location with sheltered coastlines to explore and is just an 8 minute ferry ride from the mainland.

Course Overview

The geology of Gt. Cumbrae can be summarised as red sandstone and basaltic dykes, but in fact, there are numerous types of each and there is a major fault crossing the island too. This weekend course will show you how field evidence is used to work this out and what it means. The coastal exposures round the island are fantastic and field evidence is graphic, providing an opportunity for detailed study.

The dykes are spectacular! One, the *Deil's Dyke* which conveniently forms a perimeter wall (or *dyke*) at the FSC Millport site, can be traced all the way back to Mull. The dykes have fascinated visitors for centuries. Some have been artistically enhanced and form prominent landmarks (e.g. Lion Rock), providing fond memories for many generations of holidaymakers.

Gt. Cumbrae's geology is fairly straightforward but fascinating with superb exposures and great scenery. This short, field-based, course investigates dyke swarms and desert sandstones and offers an opportunity to hone your field skills with follow up lectures and practical sessions to put your discoveries into context. This course assumes no prior knowledge of geology and offers a gentle introduction to the subject in an environment full of interesting rocks which tell a fascinating tale.



Milky quartz clast in Devonian conglomerate, Gt.Cumbrae. Photograph F. McGibbon.



Preserved ripples in Carboniferous sandstone, Portachur Point, Gt.Cumbrae. Photograph F. McGibbon.

Course objectives

The order of these activities will be tide and weather dependent and so may change.

(F) = field-based

(C) = classroom based

1. Introduction to the geology of Gt.Cumbrae. **(C)**
2. Introduction to geological fieldwork, gathering and recording geological information. **(C)**
3. Introduction to igneous and sedimentary rocks and how to recognise them in the field. **(C)**
4. Exploring geology of the FSC Millport site, practising outcrop sketching or photography and using the compass clinometer. **(F)**
4. Geological exploration of Millport Bay and Portachur Point. **(F)**
5. Island tour to explore dykes and conglomerates. **(F)**
6. Synthesis – what does all this mean? How we use geological information to interpret the past. **(C)**

Course Description

This course will start at the beginning, assuming no previous geological knowledge. It will primarily be taught outdoors on coastal rock exposures, but will also include a mix of classroom activities (involving short presentations and practical work with rock specimens and maps) all of which will focus on developing an understanding of the geology of the island.

Field skills such as observing and recording rock type and other significant outcrop features, and measuring orientation information will be a major part of this course, helping you to learn how to investigate geology in your own area. Advice and training will be offered on how to develop a field notebook and how to sketch and photograph rocks and scenery to capture geological information.

Field trips will not involve excessive walking or climbing, but keep in mind that rocky coastal outcrops are uneven and will be slippery in places so a reasonable level of fitness will be required and stout footwear like hiking boots will be essential.



Lion Rock, Great Cumbrae. Photograph F. McGibbon.

About the Tutor

Fiona McGibbon is an Open University Associate Lecturer in Earth Sciences and also teaches her own geology courses through Edinburgh University's Open Studies programme. She is an experienced field and classroom teacher and has a long connection with FSC Kindrogan. An expert in petrology, she provides specialist services to archaeologists and works with local artists too.

Recommended Reading

Recommended texts and useful websites for preparatory work if you have time:

SNH/BGS (2012) *Arran and the Clyde Islands – A landscape fashioned by geology*, available as pdf download at: <http://www.snh.org.uk/pdfs/publications/geology/Arran%20and%20the%20Clyde%20Islands.pdf>
 Gillen, C. (2013) *Geology and Landscapes of Scotland*, Dunedin Academic Press Ltd., Edinburgh
 Rothery, D.A. (2010) *Geology, the key ideas (Teach Yourself)*. Hodder Headline
 Webgeology – excellent online interactive geology modules produced by the University of Tromsø
<http://ansatte.uit.no/webgeology/>

What to Bring

- Lunch box and vacuum flask
- Plenty of spare warm clothing (and clothing for sunnier weather just in case!)
- Day sack
- Small, hard-back notebook for field notes
- Hand Lens (x10 magnification)
- Waterproofs and appropriate footwear (wellies & waterproofs can be borrowed from us)
- *Please do not bring geology hammers*

For your own and group safety, Centre staff reserve the right to refuse to take people out on excursions if they are not properly equipped. If you are unsure equipment required, please contact us for advice.



Steeply dipping Carboniferous sandstones, Millport. Photograph F.McGibbon



Carboniferous sandstone outcrops, Millport (Arran in the distance). Photograph F.McGibbon

Arrival and Departure Times

Resident and Non-resident visitors are requested to arrive at the centre before 5pm on the first day of the course. An evening meal will be served between 5:45 and 6:30pm and the course will commence after a brief welcome to the Centre. Departure is on the final afternoon, with tuition until mid-afternoon on this day.

Extra nights

If you are interested in staying at the Centre for additional nights, before or after the course, please contact the Centre for availability and costs which start from £25 for B&B, or £40 full board (we can confirm B&B availability 4 weeks prior to the course). Sunday rate £35.

Partner Rate

For those paying the sole occupancy price, we are offering our guests a special rate for those who would like a twin room for them and their partner not enrolled on an FSC course, at £35 per night for dinner, bed and breakfast.

What is Included

- **Full professional tuition:** usually each full day of our courses has 10+ hours of tuition, including after dinner sessions. (When a course Sunday it usually ends at approximately 3pm).
- **Full board and accommodation:** including cooked breakfast, packed lunch, Tea/Coffee, homemade cakes and an evening meal.
- **Special dietary requirements:** Vegetarian and other dietary options are catered for; we just ask you to notify us at least three weeks in advance of the course if you have special requirements.
- **Centre Facilities:** including use of our lounges, library, wildlife hides and drying room.
- **Travel: when transport is required** to sites during your course this is provided within the fee.
- **Non-resident rate:** includes all of the above apart from Bed and Breakfast and a packed lunch each day.

How to Book

To book a place on this course you can either:

- Complete a booking form from the brochure and send it together with a £50.00 non-refundable deposit (cheque payable to Field Studies Council Limited) or provide us with your debit/credit card number details.
- Book online at www.field-studies-council.org
- Telephone to book directly with FSC Scotland (card payments made over the phone)



*Chilled margin in minor dyke, Portachur Point, Gt.Cumbrae.
Photograph F.McGibbon.*