Course costs: £650 for sole occupancy, £495 for a shared room, and £380 for the course and dinner each day but no B&B.

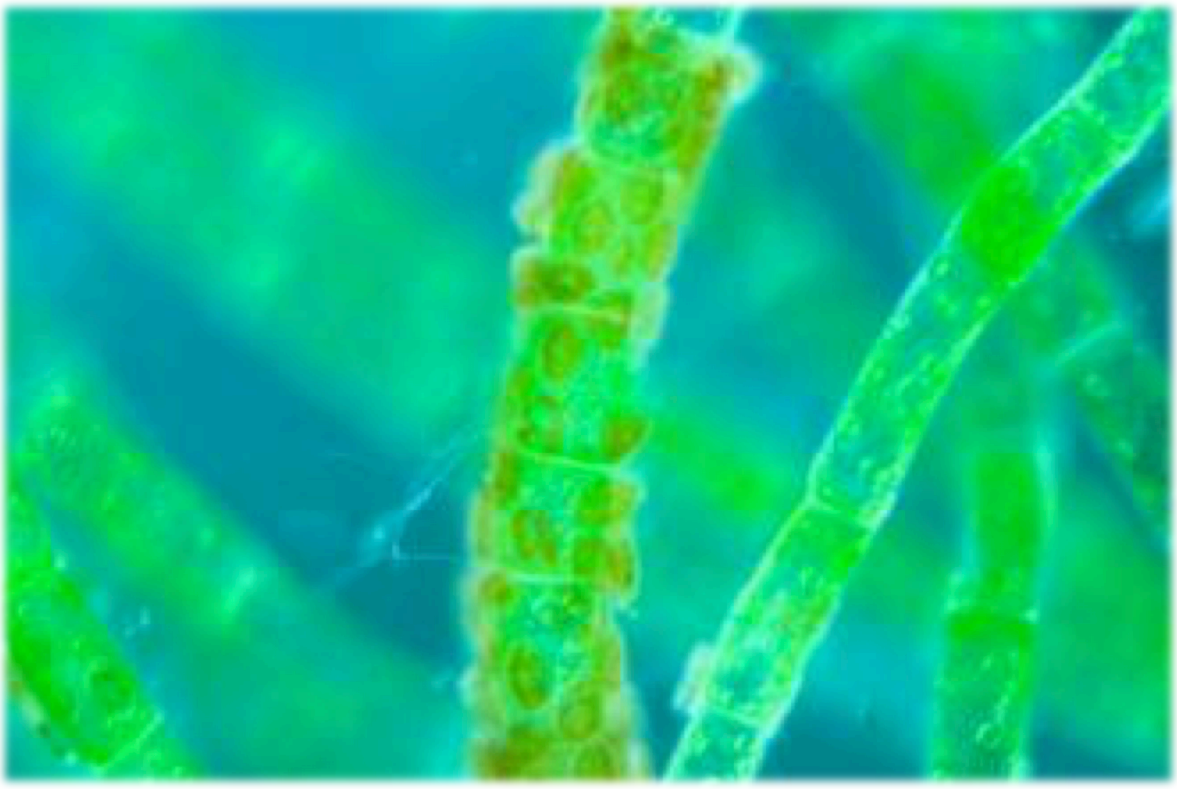
Freshwater Algae

FSC
Bringing Environmental Understanding To All

Nestled in the Scottish Highlands, Kindrogan is within close reach of some of the most secluded parts of the UK, allowing for inspiring landscapes and rich wildlife to feature in their courses.

Course Overview

This course provides an introduction to the diversity and identification of freshwater algae and involves informal lectures, field collection from a variety of sites and microscope work.
A basic knowledge of biology is required.



Cocconeis sp on filamentous algae
(courtesy Elliot Shubert)

Course Description

The area around Kindrogan provides a diversity of habitats for freshwater and sub-aerial algae, offering many opportunities to learn about this fascinating and ecologically important group of organisms.

We shall take full advantage of this excellent range of local aquatic and terrestrial habitats in this beautiful area of Highland Perthshire to provide a sound introduction to the recognition, identification and ecology of freshwater algae. Emphasis will be placed on the use of the microscope and taxonomic keys for the identification of algae to generic and species level, but ecological considerations will not be ignored.

For those with some prior experience of the algae, we hope that the opportunity to study samples from a range of habitats will broaden their knowledge and/or allow them to focus on particular groups.

Field trips, on foot or by road, will be varied, but not strenuous and will be complemented by laboratory work, illustrated talks and class discussion.

The course focuses on how to become familiar with the major algal groups and get to grips with identification, while providing an overview of algal morphology, structure, reproduction, and classification (morphological and molecular). The course has been part of our programme at Kindrogan for over 20 years.

Provisional Programme

Friday			**Evening** : Briefing about Kindrogan Field Centre; general introduction about the course and get-to-know session.
Saturday	**Morning :** Introduction to the algae (Elliot). Familiarisation with microscopes, collecting from Kindrogan Pond, how to identify algae and the use of keys (Eileen)	**Afternoon :** Algal identification and using taxonomic keys	**Evening** : Algal identification.
Sunday	**Morning :** Diatoms (Eileen), algal identification	**Afternoon :** Collecting from the River Ardle, algal identification.	**Evening :** Algal identification / Informal presentations.
Monday	**Morning :** Unicellular, colonial and filamentous green algae and cyanobacteria (Elliot), algal identification.	**Afternoon :** Algal identification	**Evening :** Guest Lecture on Cyanobacteria, Prof Geoff Codd
Tuesday	**Morning and afternoon:** Collecting trip to Loch Faskally, Tummel River, Loch Rannoch, Carie Burn, Lochan an Daim, Loch Kinardochy; visit to distillery and brief shopping/comfort stop in Pitlochry.		**Evening :** Algal identification / Informal presentations
Wednesday	**Morning :** Other non-green eukaryotic algae (Eileen)	**Afternoon :** Algal identification	**Evening** Algal identification / Informal presentations
Thursday	**Morning :** Phytoplankton – ID and counting techniques (Dr Laurence Carvalho)	**Afternoon :** Algal identification, general discussion and summary of finding; course evaluation	**Evening** Clean up laboratory, pack up microscopes and books; algal charades in the bar.
Friday	**Morning :** Departure after breakfast		

About the Tutors

Eileen Cox is Head of Post Graduate Studies at the Natural History Museum, London, with an extensive research background and a particular interest in the taxonomy and ecology of diatoms. She has published over 100 scientific papers and completed a key to the identification of live diatoms. She has run a number of courses and workshops on algae with particular emphasis on algal diversity and the identification of genera and species. Eileen is currently Editor for *Diatom Research*, on the Editorial Board of *Fottea*, Leader of the Working Group on Diatom Terminology and Co-Editor of two special volumes on Ecology of Springs and of a book on Long-term Ecosystem Study of the Breitenbach.

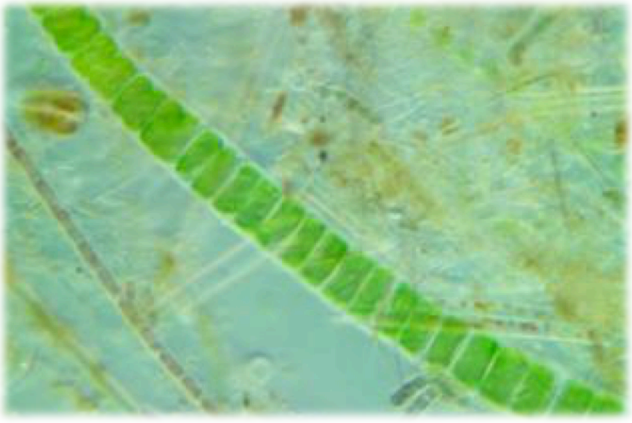
Elliot Shubert is Editor-in-Chief of *Systematics and Biodiversity* at the Natural History Museum, London. His research interests are phenotypic plasticity, gene expression and cell wall chemistry in the freshwater green alga, *Desmodesmus*. Previously, he was Professor of Biology at the University of North Dakota USA for 21 years where he taught undergraduate and post-graduate courses on algae. He has published over 60 research articles, and has produced a revised chapter on "Nonmotile coccoid and colonial green algae" for the 2nd edition of "Freshwater Algae of North America". Elliot is Treasurer of the Federation of European Phycological Societies (FEPS).

Guest Lecturers and tutors

Geoff Codd is Professor Emeritus at the University of Dundee. He is a recognised world expert on cyanobacterial toxins and he is widely sought as an invited speaker for international scientific meetings.

Dr Laurence Carvalho, Centre for Ecology and Hydrology, will give a presentation on the EU Water Framework Directive with special reference to lakes and will describe their counting methods.

Nostoc sp
(courtesy Elliot Shubert)



Ulothrix sp
(courtesy Elliot Shubert)

What to bring

- Lunch Box, vacuum flask
- Permanent marking pen
- Notebook
- Stout penknife (for scraping rocks, bark, etc.)
- Plenty of spare warm clothing
- Any keys or guides (but not necessary)
- Polythene bags & screw cap vials for collecting

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.

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 Kindrogan. Departure is after breakfast on the final 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 you 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)