This is a packed six day course for IB Diploma Biology students giving them the opportunity to visit a different country and experience its ecology and culture.

Students will cover ecology from Topics 4 and 5 and Option C, developing their practical skills and enabling them to prepare for the exam.

The course also allows students to develop individual investigation skills and provides an opportunity for some to use this for Internal Assessment.
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| 1   |         | **Arrive afternoon**  
Introduction to the Centre.  
Hire of waterproof clothing/boots  
Dinner.  
If earlier arrival the introduction session could start before dinner. | **What is Ecology (Topic 4.1)**  
Students will familiarize themselves with key ecological terminology and issues around the design of ecological investigations.  
Session objectives will be set for the whole course which will:  
- make links to the IB syllabus  
- consider wider global and local environmental issues  
- consider values and skills of working ecologists and conservationists  
- set personal learning goals (linked to IB learner profile)  
*This session may include evening fieldwork dependent on the time of arrival and time of year.* |
| 2   | **Energy Flow (Topic 4.2)**  
Students will sample and count animals from an aquatic environment. They will make observations of behaviour and adaptations and will use and construct dichotomous keys to identify specimens. They will research the feeding roles and trophic levels of each species. Using both quantitative sample data and information provided on energy values of each species, they will construct food webs and pyramids of energy. Sampling methods will be evaluated to develop skills in student-led enquiry.  
*This session can also incorporate setting up ‘sealed mesocosms’ to try to establish ecosystem sustainability. Time will be allocated for daily monitoring of the mesocosms (Practical 5).* | **Classification of Biodiversity (Topic 5.3)**  
Using local and global fieldwork examples students will:  
- Classify one plant and one animal from domain to species level (using the binomial system)  
- Recognise features of major phyla from the plant and animal kingdoms.  
Choose from:  
- **Climate Change (Topic 4.4)**  
- **Impacts of Humans on Ecosystems (Option C: C.3)**  
- **Advanced Field Surveying**  
- **Chromatography (Topic 2.9- Practical 4)** |
| 3   | **Species, Communities and Ecosystems (Topic 4.1)**  
Students will collect presence/absence data using random quadrat sampling to test for the association between two species in two contrasting areas within an ecosystem. The data can be analysed using a chi-squared test. Students will learn to identify patterns, trends and discrepancies in the data. They will be able to understand how to choose appropriate statistics tests and understand significance levels. Sampling methods will be evaluated to develop skills in student-led enquiry.  
**Conservation and Biodiversity (Option C: C.4)**  
The species diversity of the two contrasting areas will be calculated using Simpson’s reciprocal index of diversity. The importance of indicator species in calculating biotic indices will be considered. | **Individual Investigations: Personal Engagement and Exploration**  
Students will carry out research for an individual investigation based on a research question they have formulated. Safety, ethical and environmental issues will be identified. |
| 4   | **Species, Communities and Ecosystems (Option C: C.1)**  
Students will collect systematic transect data to correlate the distribution and abundance of plant and animal species within a community. They will discuss any patterns, trends or discrepancies found in relation to limiting factors and abiotic variables. Interactions between species, which determine fundamental and realised niches, will be considered. The data may also be used to illustrate ecological processes such as succession and/or zonation. Data analysis can include graphical representation and calculations such as arithmetic means. Students will learn how to choose appropriate statistics tests and understand significance levels. Sampling methods will be evaluated to develop skills in student-led enquiry. | **Individual Investigations: Analysis, Evaluation, Communication**  
Students will analyse and evaluate their data. |
| 5   | **Individual Investigations: Data Collection and Recording**  
Students will carry out their planned individual investigation in selected habitats or on selected organisms using the skills and knowledge developed during the course. Students are encouraged to assess their methodology and modify it during the investigation as appropriate. | **Individual Investigations: Analysis, Evaluation, Communication**  
Students will analyse and evaluate their data. |
| 6   | **Depart**  
A final farewell from FSC staff as the students depart after breakfast. | **Please note:** to ensure safe and quality learning experiences for students, the timetable may alter depending on weather conditions and local factors at Centres. |
Evening Options

On Day 3 please select from the following options for the evening session (we can of course be flexible and re-arrange these sessions to match your own requirements):

**Climate Change (Topic 4.4)**

Students will evaluate real ecological data sets collected from local or national databases to assess claims that human activities are producing climate change.

**Impacts of Humans on Ecosystems (Option C: C.3)**

Students will have the opportunity to learn about and research some of human impacts on the ecosystems studied during this course, as well as on a national or global level, such as: introduction of alien invasive species, biomagnification of pollutants in ecosystems and the accumulation of macro- and micro-plastic debris in marine environments.

**Advanced Field Surveying**

This is a great opportunity for students to experience an additional practical technique outside the scope of the standard course. Techniques may include: estimating population size using the Lincoln Index, moth trapping and identification, small mammal sampling, bat detecting and sampling and observation of small aquatic invertebrates using microscopes. These skills may be useful when students develop research questions for internal assessment.

**Chromatography (Topic 2.9 – Practical 4)**

In this session students will complete Practical 4: separation of photosynthetic pigments by chromatography e.g. using leaves from shade-tolerant and shade-intolerant plants or leaves of different colours.

TEACHING DELIVERY: FSC courses are delivered using current best practice in teaching pedagogy and take an enquiry-based conceptual student led approach to teaching and learning. The overarching theme of Nature of Science is embedded in learning in the field and classroom.

INDIVIDUAL INVESTIGATIONS and INTERNAL ASSESSMENT OPPORTUNITIES: The individual investigation could be used for the Internal Assessment for some students. Investigations can draw on skills and subject knowledge outside of Topics 4, 5 and Option C (see list below). Even if students choose not to use this investigation for Internal Assessment, it will still allow them to develop transferable skills for Internal Assessment carried out back at school. For schools/students who wish to carry out Internal Assessment, the Field Centre can provide pre-course information and resources to assist students in formulating research questions prior to the visit.