



Edexcel A-Level Biology

At Rhyd-y-creuau we pride ourselves on our flexible approach when designing fieldwork to meet the learning needs of students. The options listed here are popular with our groups and are designed to meet the requirements of your specification. However, if your requirements are not catered for in the suggested outlines below please contact us to discuss possible alternatives.

The Drapers' Field Centre
Betws-y-coed
Conwy Valley
North Wales
LL24 0HB

01690 710494

enquiries.rc@field-studies-council.org



Please visit

<http://www.field-studies-council.org/rhydycreuau/>

for alternative KS2, KS3, GCSE and A-level options, including Adventurous Activities and student and teacher resources



At Rhyd-y-creuau you can opt for either a flexible course or a fixed programme. These courses all aim to prepare students for or revise the AS Unit 2, and cover content from the A2 Unit 4 whilst facilitating student’s completion of the Unit 6 individual Investigation. Here we have outlined our most popular fieldwork investigations for our flexible courses. Please contact us to discuss how we can tailor a course to meet your specific requirements.

- **Flexible courses** give you a greater choice of options and days. We will plan the course with you in advance to ensure we match your exact requirements.
- **Programmes** are predesigned to meet the specification requirements; they have a fixed content (outlined below) and fixed start and end times.

Linked to the curriculum, popular modules for our flexible courses are outlined below.

Possible Day Investigations:

Content of Edexcel Modules	Notes	Possible Half Day
<p>Freshwater sampling techniques, Trophic structure & Pollution</p> <p>Students will undertake a fieldwork investigation to examine the effect of abiotic factors on invertebrate distribution (4.5.10/ 4.10.11/HSW1a). Students will carry out a risk assessment of the investigative fieldwork (HSW4). Density of invertebrates will be sampled using kick sampling and abiotic (physical & chemical) factors, such as velocity, will be measured. Organisms will be identified in the laboratory using microscopes dichotomous keys, and classified using the five kingdoms system to Family level.</p> <p>In the afternoon, samples will be collected from further downstream, below a source of organic pollution. Levels of pollution will be measured using Biotic Index and nutrient content analysis. Data will be collated and analysed using scatter graphs and Spearman’s Rank Correlation (HSW3/5a/6). This will be the basis for a discussion on NPP calculations and explanation of relationship between NPP, GPP & plant respiration (4.5.7/HSW2b/2c/6). The efficiency of energy transfer will also be considered (4.5.8/ HSW2b/2c/6).</p>	<p>Links to: Unit 4: The Natural Environment and Species Survival Unit 6: Practical Biology & Research Skills</p> <p>Field site(s): Rhyd-y-creuau stream or the River Conwy (10 minutes walk)</p>	<p>Yes (without the pollution study)</p>
<p>Succession: Sand Dunes</p> <p>An investigation of primary succession of plant communities (pioneer to climax community) across a developing dune system (4.5.13/HSW1a). Collection of biotic data along a belt transect, using point quadrats, to assess the distribution of plant communities in relation to abiotic (climatic & edaphic) gradients (4.5.11/ HSW2c).</p> <p>Interpretation of biotic and abiotic data using spreadsheets and graphical techniques, including kite diagrams (HSW5a). Discussion of plant communities, using named examples, and their relation to the abiotic factors, including adaptations e.g. nitrogen fixation (4.5.10).</p> <p>Discussion of the effects of management and conservation on Harlech Dune system, including the impact of climate change in determining climax communities (4.5.15).</p>	<p>Links to: Unit 4: The Natural Environment Unit 6: Practical Biology</p> <p>Field site(s): Morfa Harlech National Nature Reserve (1 hour drive)</p> <p>Toilets at Car park, and a small shop</p>	

Content of Edexcel Modules continued	Notes	Possible Half Day
<p>Management, Conservation & Global Warming in an Upland Ecosystem</p> <p>A visit to an upland Nature Reserve and nearby organic farm to look at the impact of human activity and global warming on the landscape (4.5.15). A case study of the Tufted Saxifrage, a rare arctic alpine, will highlight climate change issues (4.5.15/HSW1a/). Students will see evidence of management practices and their effect on succession in exclusion plots across the area.</p> <p>In the evening, students will take part in a role play which will focus on change in habitats in the area (4.5.14/4.5.15/4.5.18/4.5.19/4.5.20/ HSW1b).</p>	<p>Links to: Unit 4: The Natural Environment</p> <p>Field site(s): Cwm Idwal NNR (30 minutes drive)</p>	Yes
<p>Ecology Sampling Techniques: Woodlands</p> <p>A series of short investigations, in a woodland ecosystem, to explore sampling techniques and ecological theory (4.5.10/ HSW1a/2c). This will include development of appropriate terminology and ecological definitions (eg. Habitat, population etc).</p> <p>Investigation 1: The use of belt transects to investigate the zonation of bryophytes on oak trees (4.5.11/HSW1a). This will include the use of keys to identify species and data collection using quadrats. Discussion of niche, competition and the effects of biotic and abiotic factors in determining numbers and distribution of organisms in a habitat (2.4.12/ 4.5.10/ 4.5.12/ HSW2c). Students will present the data collected using graphical techniques (HSW2c/3/5a).</p> <p>Investigation 2: Random sampling and percentage cover measurements using quadrats to compare the distribution of Lichens on two species of tree, Oak and Birch (4.5.10/ 4.5.11/ HSW1a). Analysis and interpretation of data using graphical techniques and the Mann Whitney U test (HSW3/5a/5b). Students will evaluate methodology, data & evidence (HSW6).</p>	<p>Links to: <i>Revisits AS Unit 2</i> Unit 4: The Natural Environment and Species Survival Unit 6: Practical Biology and Research Skills</p> <p>Field site(s): Coed Hafod, a nearby Ancient oak woodland. (20 minutes walk)</p>	
<p>Introduction to individual investigations - Planning & Pilot studies</p> <p>Students will be given support and resources to enable them to research and form a hypothesis(es), which will be the basis of their individual scientific investigation (6/ HSW1a/2b/2c). Pilot studies can be carried out in order for students to assess the methods and techniques which they will need to use (6/ HSW3). Following this, students work within a tutor led timeframe, to complete a thorough and well researched plan, including choice and justification of methods and analyses, and risk assessment (HSW3/4/5a/5b).</p>	<p>Links to: Unit 4: The Natural Environment Unit 6: Practical Biology</p> <p>Field site(s): Various within walking distance from centre</p>	Yes
<p>Individual Investigations</p> <p>Students will implement and revise their plans, to collect valid and reliable data (HSW3). On return to the centre, students will be supported through handling and analysis of their data (HSW3/5a). Data interpretation and evaluation of methodology, data & evidence, including sources of error, may be carried out during the evening session (HSW5b/6).</p>	<p>Links to: Unit 4: The natural environment and species survival Unit 6: Practical Biology & research skills</p>	

Content of Edexcel Modules continued	Notes	Possible Half Day
<p>Zonation and Adaptations: Rocky Shore</p> <p>Field work focuses on the zonation of plants and animals down a rocky shore. Students will identify organisms and quantify them using abundance scale on a vertical belt transect.</p> <p>Students present data graphically and use this as a basis to discuss the distribution of organisms with respect to biotic and abiotic gradients. This will include interspecific and intraspecific competition, using Barnacle species as an example. The behavioural, physiological and anatomical adaptations of organisms to harsh conditions will also be considered.</p> <p>Possible visit to Aber falls to observe coppice management of woodland (depending on tide times).</p>	<p>Links to: Unit 4: The natural environment and species survival</p> <p>Field site(s): Penmon Point and Aber Falls NNR (1 hour drive)</p>	
<p>Plant Sampling and Associations: Moorlands</p> <p>Students will carry out an investigation to identify plant communities, in respect to the physical properties of an area of managed moorland habitat. The association of plant communities will be analysed using Chi² association analysis. The results will be the basis for discussion of key ecological concepts e.g. niche, and adaptations to both biotic and abiotic conditions considered. The change in plant communities in relation to climatic variation will be considered. Students will also be able to see how conservation of habitats involves management of succession.</p>	<p>Field site(s): Llyn Bodgynydd (20 minutes drive)</p>	

Content of other Evening Sessions	Notes
<p>Estimating Populations</p> <p>Mark-Release-Recapture technique will be used to determine population size, through the calculation of the Lincoln Index . Trapping of local small mammal populations using Longworth traps.</p>	<p>Links to: Unit 4: The Natural Environment</p>
<p>Plant Sampling Game</p> <p>Use and evaluation of a variety of sampling techniques to estimate species richness, species percentage cover and density of species in an ecosystem. (4.5.11).</p>	<p>Links to: Unit 4 and Unit 6</p>
<p>Climate change and Dendrochronology</p> <p>Using samples from felled trees, students will investigate the link between tree ring growth and climate, in order to better understand biological indicators of climate change. This session fits well with the 'Management, Conservation and Global warming' module outlined above.</p>	

Our Tutors

All our staff complete a rigorous training process; including first aid, health and safety sessions, group management in the outdoor classroom, site specific training relating subject knowledge to our outdoor environments and curriculum content.

About the Centre

At the gateway of Snowdonia National Park, the centre itself is a Georgian house set in two hectares of wooded grounds with Eco Centre status, allowing you to experience a sustainable lifestyle, only 1 hour 50 minutes from Manchester and 3 hours 40 minutes from the M25.

What is included within the fee?

- Up to 10 hours of tuition a day.
- Expert tuition by fully trained staff
- Full board accommodation including a cooked breakfast, picnic lunch, homemade cakes and an evening meal. Vegetarian and other dietary options are available.
- Use of resources including library, workrooms, studios and the Centre grounds.
- Transport to all field sites, where required, during the course.
- Rigorous and proven health and safety procedures including 24 hour emergency cover
- Access to risk assessments
- Specialist equipment and exclusive access to specially developed resources
- E-mail support before and after the course (on request)

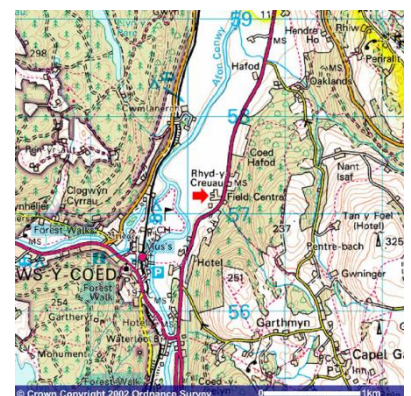
Please remember travel to the field centre and to fieldwork sites is not included in the programme fee.

What to Bring

- (Old) Warm clothes - we may get muddy and wet.
- Waterproof top, waterproof trousers, a comfortable day sack, gloves, cosy hat. (Can be hired from the Centre)
- Note paper, calculator and stationary

Directions to the Centre

We are located on A470, between Betws-y-coed and Llanrwst. If you are coming from the North Wales coast, go through the town of Llanrwst and continue along the A470 towards Betws-y-coed for 3 miles. The Centre is on the right at a bend with woods on both sides.



Alternatively, from the A5 to the south take a right along the A470 just before you go into Betws-y-coed follow this road for a mile and we are on the left.

To book a course, simply:

1. Choose the time of the year you would like to attend
2. Contact us at Rhyd-y-creuau by e-mail at enquiries.rc@field-studies-council.org or by phone (01690) 710494 to check availability and prices.

Why Come to FSC Rhyd-y-creuau?

Some of the most common reasons which our customers give for coming to our popular Field Centre are:

- The centre's stunning situation nestled in the Conwy Valley, at the entrance to Snowdonia National Park.
- We are easily accessible from Manchester, Liverpool and London, with the good coach access to the Centre and Betws-y-coed train station 3 minutes drive away.
- Expert tuition from our tutors who have a passion for the environment and are knowledgeable ecologists and geographers.
- A friendly welcoming place to visit, with hearty meals and clean and comfortable rooms.
- A unique blend of local habitats and environments to visit. Both **coasts** with craggy cliffs and expansive sand dunes and **mountains** shaped by ice and with unique ecological communities.



Quality Tuition

The tutor delivering the content plays a vital role in ensuring successful learning outcomes are achieved.

This is why we have taken great care in developing a qualified team of highly trained and CRB checked field teachers working full time, all year round.

Not only are they experts, they are gifted teachers with a real passion for the subject being taught. FSC field teachers are the reason why many schools return year after year.

Quality Badge awarded by



External Recognition of Quality

Rhyd-y-creuau has been awarded the Quality Badge by The Council for Learning Outside the Classroom. The badge is awarded to organisations that have demonstrated that they consistently deliver high quality teaching and learning experiences and manage risk effectively.

This means that you will have to complete less paperwork when visiting our centre.

Protecting Fieldwork Opportunities

Growing pressures on outdoor learning has led the FSC to take on an important role; championing the rights and opportunities for people of all ages to experience the environment at first hand.

The FSC has led in campaigns to reverse the continuing decline in fieldwork within secondary schools and to build opportunities for out-of-classroom learning. The FSC continues to work closely with the government and other partners to develop out-of-classroom learning.

As a registered charity, the FSC receives no statutory funding. It relies solely on fees charged for courses and membership. Therefore, by visiting an FSC Centre not only are you receiving a high quality educational experience for your students, you are also helping to protect fieldwork opportunities for everybody.