

Liverpool John Moores University

Title: ECOLOGY FIELD SKILLS
Status: Definitive
Code: **5202NATSCI** (122061)
Version Start Date: 01-08-2021

Owning School/Faculty: Biological and Environmental Sciences
Teaching School/Faculty: Biological and Environmental Sciences

Team	Leader
David Bourke	Y
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Academic Level: FHEQ5 **Credit Value:** 20 **Total Delivered Hours:** 60
Total Learning Hours: 200 **Private Study:** 140

Delivery Options

Course typically offered: Semester 1

Component	Contact Hours
Lecture	8
Off Site	27
Online	16
Workshop	9

Grading Basis: 40 %

Assessment Details

Category	Short Description	Description	Weighting (%)	Exam Duration
Report	GIS_Report	Habitat Mapping & GIS	50	
Presentation	Squir_Pres	Squirrel Oral Presentation	50	

Aims

- To demonstrate the theoretical and practical aspects of ecology fieldwork methods

of plants and animals across a range of habitats, with particular emphasis on ecological surveys and censuses of specific organismal groups.

- *To apply a range of species identification techniques in ecology surveys.*
- *To develop skills using geographical information systems (GIS) to organise and analyse spatial data in ecology.*

Learning Outcomes

After completing the module the student should be able to:

- 1 Identify surveys and census methods that are most appropriate for specific ecological assessments and identify the main factors that will affect their reliability.
- 2 Execute field sampling programmes appropriate to different organismal groups and habitats.
- 3 Critically analyse, interpret and discuss data from field sampling programmes with reference to factors such as human impacts, environmental management and environmental variation.
- 4 Use GIS to organise and analyse spatial data.
- 5 Apply species identification in ecological surveys.
- 6 Undertake scientific investigations in a responsible, safe and ethical manner.

Learning Outcomes of Assessments

The assessment item list is assessed via the learning outcomes listed:

Habitat Mapping & GIS	1	2	3	4	5	6
Squirrel Oral Presentation	1	2	3	5	6	

Outline Syllabus

A. Principals of sampling

What are ecological surveys and why do we need them?

Sampling Theory: What is a sample? Quadrats, transects, random samples, stratified random samples, grid samples, etc.

Species-area curves, e.g. the effect of quadrat size and number of replicates on estimates.

B. Vegetation & Habitat Surveys

Vascular plant ID

Habitat classification survey methods (e.g. Phase 1 Habitat Surveys and/or UK

Habitats Classification)

Lichen ID and their use as indicators of pollution

Plotless sampling methods (e.g. application in woodlands to estimate tree densities)

Habitat suitability assessments

C. Animal Census Methods

Comparison of animal census techniques

Invertebrate and small mammal surveys

Estimating population sizes – long-term monitoring programmes

Learning Activities

The module is delivered through lectures, online workshops (GIS), data analysis workshops, field trips (covering a range of taxonomic groups and habitats) and directed study.

Notes

This module examines a range of standardised methods used for ecological censuses and surveys. The primary delivery of learning will be in the field comparing methods for a variety of taxonomic groups across a range of habitats. This hands-on experience in the field will be complemented by focused data analysis sessions analysing data collected during the field trips in addition to other freely available data sources. Importantly, GIS will be used to manage spatial datasets employing a landscape ecology approach to analysing ecological survey data.