Ecology Module Guide - Year 1

Module 1: Evolution & Diversity

The ecology stream starts by exploring the evolution of life on Earth.

This module described the diversity of form and function in living things, focusing on fundamental principles and modern analytical approaches, including morphometrics and phylogenetics.

You will develop expertise in microscopy, dissection, and structured data collection.

Module 2: Ecology & Evolution

A summary of fundamental ecological concepts: how individuals interact in populations, how populations interact to form communities, how communities form ecosystems, and how humans influence these processes

You'll train in fieldwork skills and ecological modelling, and you'll learn – at least in outline – how the diversity of life on Earth arose and how it underpins healthy ecosystems.

Ecology Module Guide - Year 2

Essentials of Ecology

A solid foundational understanding of core ecological knowledge showing how this can be used to address real-world problems.

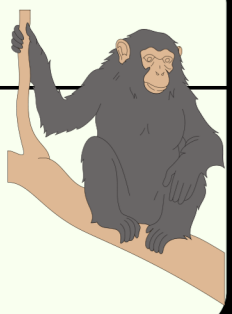
This course is a bridge between Y1 and subsequent courses, building in bio-complexity from individuals to populations, and higher organisational levels such as food webs and entire ecosystems.

Cell & Developmental Biology

Find out about the many fascinating and intricate mechanisms that organisms have evolved to control cellular functions and to coordinate development of their body plans.

The focus is on eukaryotes, including comparisons between mechanisms in animals and plants.

Behavioural Ecology



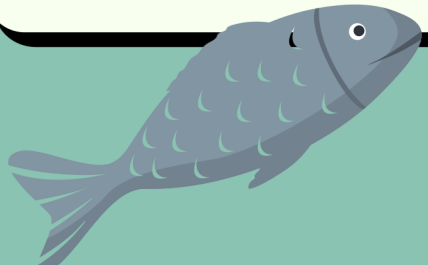
Want to learn more about animal behaviours like foraging, communication, sexual selection and habitat choice? This module explains how and why such behaviours evolve, and how they are shaped by complex interactions between behaviour, ecology and evolution.

There is plenty of opportunity for practical work and experimentation, with training in experimental design to study animal behaviour.

Vertebrate Form & Evolution

Want to know how animals evolved from deep time to the present day? This module provides thorough training in the fundamentals of animal evolution, with a focus on vertebrate anatomy and physiology.

You'll learn how to interpret fossil data and how to use phylogenetic trees to test evolutionary hypotheses. You'll also get first-hand experience with important specimens, allowing you to make and interpret your own observations.



Ecological Field Skills

Field skills are a core element of research and handy for a range of environmental careers. This module will give you training in the basic skills needed for successful ecological fieldwork, starting with planning and designing studies, through to measuring and analysing data, and finally to evaluating and communicating results.

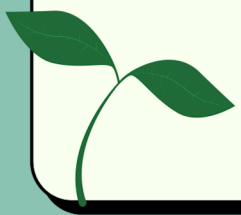
You will practice taxonomic and survey methods, experience the application of these tools during field work in marine and terrestrial environments, and learn to present your findings effectively.

Ecology Module Guide - Year 3

Evolutionary Applications

You will receive training in the application of evolutionary principles to study the diversity of life and address global problems, with a focus on analysing and interpreting genomic data.

Symbiosis, Plant Immunity & Disease



In-depth coverage of the molecular features of plant-microbe interactions, with an emphasis on laboratory and computer-based approaches. Strong connection to applied agricultural methods.

African Biology Field Course

Want to take an exciting journey to see spectacular African landscapes?

This module focuses on the ecology, evolution and conservation of South Africa's fauna and flora. A great chance to develop field skills!

Biodiversity Genomics

Learn how cutting-edge genomics — and other 'omics such as transcriptomics, proteomics, metabolomics etc. — can be used to unravel the evolutionary history of life on Earth.

The Microbiome

Microbes! Learn about the incredible diversity and fundamental dynamics of microbial communities, focusing on key ecological and evolutionary processes. Ideal for lab skills.

Biodiversity & Conservation Ecology

This module offers a panoramic overview of the history and uncertain future of life on Earth, with an emphasis on ecological processes underpinning biodiversity and associated ecosystem function. Lab based coursework focuses on phylogenetic and macroecological analyses using global datasets.

Global Change Biology

Want to learn about human impacts on ecosystems and how to mitigate them? This module explores how land-use change, pollution, and climate change act in combination in aquatic and terrestrial realms.

Disease Ecology & Epidemiology

You will learn about how ecological and evolutionary principles guide out understanding of disease outbreaks, transmission, epidemics and control mechanisms. Fun computer-based coursework includes modelling zombie outbreaks!

Ecology Module Guide - Overview

YEAR 1 - The Fundamentals

Year 1 modules get you up-to-speed with fundamental concepts in Ecology and Evolution. You will study how evolutionary processes have given rise to biological diversity, and how this diversity is organised in turn by ecological processes into populations, communities and, ultimately, ecosystems. Coursework is designed to develop your lab work and scientific writing skills.

YEAR 2 - Specialist topics 1

This year allows you to build on knowledge acquired in Year 1 by specialising in topics that you're particularly interested in. This is where you start to develop greater independence by shaping the content and trajectory of your course as a whole.

Key themes of Year 2 include biodiversity, cell biology, animal behaviour and field techniques. The focus is on developing the skills needed to become a successful ecologist, with plenty of opportunity for hands-on work alongside top scientists in your chosen fields.

YEAR 3 - Specialist topics 2

Now it's time to delve deeper. The unique topics offered in Year 3 allow you to explore a wide range of themes from genomic techniques to global change. Through projects, field trips and intensive coursework you can strengthen your lab, field, statistical and computational skills, and expand your ecological knowledge. By this stage of the course, you have total control over the modules you choose to study, and you get to produce your own research in collaboration with top scientists.

Next steps - Masters courses (see below)

For further information:

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Master's degrees: www.imperial.ac.uk/silwood-park/prospective-students/msc-and-mres-courses