

HR924-10 Biodiversity, Conservation and Ecosystem Services

23/24

Department

Life Sciences

Level

Taught Postgraduate Level

Module leader

Robin Allaby

Credit value

10

Module duration

2 weeks

Assessment

100% coursework

Study location

University of Warwick main campus, Coventry

Description

Introductory description

Humankind harnesses a multitude of natural resources for the provision of food, materials, energy and recreation.

any of these resources have become over-exploited or under severe pressure in both wild and managed landscapes. Our capacity to respond is limited by an associated loss of biodiversity.

Conservation of natural and

domesticated systems is essential, but it must also be managed in ways that allow the biodiversity to be exploited for the benefit of all.

[Module web page](#)

Module aims

Conservation of natural resources (biodiversity and habitat) is vitally important for the future. This concept will be examined by exploring what makes plants and animals vulnerable and devising strategies for conservation of habitats and key species (both in situ and ex situ.), and how practical conservation management is achieved.

Biodiversity and its conservation need to be considered at a range of levels; habitat, species and

genetic. There is also a need to consider how these interact with each other. The course will include consideration of, for example, the evolutionary roles of key species within natural ecosystems and introduce the concepts of ecosystem functions, ecosystem services, biogeography, population dynamics and adaptation to climatic change.

Both biodiversity and conservation are vital to the continuing successes of breeding programmes and greater understanding of natural population dynamics. Both are essential to adaptation to changing climatic conditions. The module will deliver knowledge, analysis skills and policy awareness to allow for their continued responsible, reliable development in the future.

Outline syllabus

This is an indicative module outline only to give an indication of the sort of topics that may be covered. Actual sessions held may differ.

Lecture 1: What is biodiversity? Robin Allaby

Lecture 2: The Historical Context of biodiversity: evolution & climate change RA

Lecture 3: The ecosystem approach Rosemary Collier

Lecture 4: Examples of ecosystem services RC

Lecture 5: Valuing ecosystem services RC

Lecture 6: Reducing the environmental burdens of land use RC

Lecture 7: Where next with the ecosystem approach? RC

Lecture 8: Blueprint for biodiversity and sustainable development Phil Fermor

Lecture 9: Environmental Consultancy: Ecology & Development (3h) PF

Lecture 10: Environmental Consultancy: Habitat creation (3h) PF

Lecture 11: Marine conservation: coral reefs Charles Sheppard

Lecture 12: Marine conservation: ocean acidification CS

Lecture 13: Conservation genetics: fundamental principles RA

Lecture 14: Conservation genetics: population management RA

Practical: Quadrant survey of field margins and nature reserve using biodiversity indices to assess and interpret structure of diversity. Dave Chandler

Learning outcomes

By the end of the module, students should be able to:

- Discuss the main types of biodiversity and how they interact, and the importance of biodiversity as a resource.
- Critique the concept and components of an ecosystems approach.
- Analyse, and evaluate strategies for the conservation of biodiversity based on a thorough understanding of ecological concepts of population.
- Solve problems relating to biodiversity and conservation by applying evolutionary thinking.
- Use practical approaches to measure and assess biodiversity in the field.

Indicative reading list

Groom, Meffe & Carroll (2006) *Principals of Conservation Biology*. Sinauer Ass. ISBN-13:978-0-

87893-518-5

Pullin (2007) Conservation Biology. CUP. ISBN-13 978-0521-64482-2

Frankham, Ballou & Briscoe (2013) Introduction to Conservation Genetics. CUP ISBN 978-0-521-70271-3

E.O. Wilson, editor ; Frances M. Peter, associate editor (1998) Biodiversity. National Forum on BioDiversity. National Academy Press.

Michael Begon, Colin R. Townsend, John L. Harper (2006) Ecology : from individuals to ecosystems Blackwell Publishing

John N. Thompson (2005) The geographic mosaic of coevolution. University of Chicago Press.

Jonathan Silvertown (2008) Demons in Eden: the paradox of plant diversity. University of Chicago Press.

Nicholas Harberd (2007) Seed to seed: the secret life of plants. Bloomsbury

The Millenium Ecosystem Assessment documents
<http://www.millenniumassessment.org/en/index.html>

UK National Ecosystem Assessment documents <http://uknea.unep-wcmc.org>

[View reading list on Talis Aspire](#)

Subject specific skills

Use practical approaches to measure and assess biodiversity in the field.

Transferable skills

Problem solving, evaluation and analysis.

Study

Study time

Type	Required
Lectures	23 sessions of 1 hour (31%)
Practical classes	1 session of 8 hours (11%)
Private study	44 hours (59%)
Total	75 hours

Private study description

Research

Costs

No further costs have been identified for this module.

Assessment

You do not need to pass all assessment components to pass the module.

Assessment group A2

	Weighting	Study time
Assessed Practical	100%	25 hours
Extended practical write-up with review of biodiversity.		

Feedback on assessment

- Essay. Feedback is provided by both the first and second marker and returned to the student in a structured way within 20 days of assessment date.
 - Field practical. Marking is undertaken by a single assessor and second marked by a second assessor. Feedback is provided within 20 days of submission
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Availability

Courses

This module is Core for:

- Year 1 of THRA-D4A1 Postgraduate Taught Environmental Bioscience in a Changing Climate

This module is Core optional for:

- THRA-D4A3 Postgraduate Taught Food Security
 - Year 1 of D4A3 Food Security
 - Year 1 of D4A3 Food Security
- Year 1 of THRA-D4A2 Postgraduate Taught Sustainable Crop Production: Agronomy for the 21st Century