

HR103-12 Environmental Biology

23/24

Department

Life Sciences

Level

Undergraduate Level 1

Module leader

Hendrik Schaefer

Credit value

12

Module duration

10 weeks

Assessment

100% exam

Study location

University of Warwick main campus, Coventry

Description

Introductory description

Human society is developing against a background of increasing competition for scarce environmental resources and the consequence of climate change. This module will introduce students to the natural and managed environment and to the pressures on the planet that result from man's past and current activities. It will also look at how society can respond to the challenges posed by environmental change.

[Module web page](#)

Module aims

At the end of the module, students will be able to understand the main concepts and issues in environmental biology. These will include biodiversity, its conservation and enhancement along with an understanding of the factors that have an impact on soil and water health and why these are important for society.

They will be aware of the evidence for climate change and knowledge of future scenarios and climate predictions. Man's response to environmental change through mitigation and adaptation strategies will be reviewed, including the opportunities and impacts of bioenergy, exploiting waste and key environmental technologies, including biotechnologies. They will gain knowledge and experience regarding the use of mathematical models in analysing and predicting environmental changes and their consequences.

An important aim is to enable students to frame their own ideas of future consequences and changes, supported by evidence and actively participate in the great environmental debates.

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.

The course is organised into 3 sections plus an introductory lecture and a modelling workshop.

Introduction to Environmental Biology:

1. Why study environmental biosciences?

Humans and other living organisms in the environment:

2. Environment and the individual
3. The water cycle
4. Biodiversity
5. Population ecology
6. Understanding interactions between organisms
7. Community ecology
8. Understanding and exploiting ecological systems

The evolving climate:

9. Evolution of earth systems
10. Microbes and environmental cycles – 1
11. Microbes and environmental cycles – 2
12. The climate system
13. Evidence for change
14. Drivers of change

Learning outcomes

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

- Understand the importance of ecosystems and the environment
- Understand the water cycle and nitrogen cycle
- Understand the basics of biodiversity and evolution
- Understand the impact of climate change on the environment, ecosystem and food chain.
- Understand the basics of modelling environmental factors and outcomes

Indicative reading list

Global Climate Change by Arnold J. Bloom, Sinauer Associates Inc.

First Ecology: Ecological Principles and Environmental Issues by Alan Beeby and Anne-Maria Brennan, Oxford University Press.

Global Warming: The Complete Briefing by John Houghton, Cambridge University Press. Climate Change and Biodiversity, edited by Thomas E. Lovejoy and Lee Hannah,

Yale University Press.

Sustainable Agriculture by John Mason, CSIRO Press.

Biofuels (Energy for the Future and Global Warming) by Andrew Solway, Gareth Stevens Publishing.

What has nature ever done for us? How money really does grow on trees by Tony Juniper, Profile Books.

Do we need pandas? The uncomfortable truth about biodiversity by Ken Thompson, Green Books.

Subject specific skills

Demonstrate an understanding of the key factors driving changes in societal interaction with the natural and managed environment

Demonstrate an understanding of the evidence for the causes of climate change and demonstrate knowledge of future scenarios, climate predictions and potential impacts.

Demonstrate an understanding of the concept of ecosystem services and factors that have an impact on soil and water health, biodiversity and conservation.

Understand the principles of ecology and interactions of organisms at a range of scales from populations to communities.

Demonstrate an understanding of mitigation of and adaptation to climate change, including the use of sustainable energy.

Understand the potential and limitations of using mathematical modelling as analytical and predictive tools in environmental biology

Transferable skills

1. Critical appraisal of source material
2. Self directed learning
3. Adult learning

Study

Study time

Type	Required
Lectures	21 sessions of 1 hour (18%)
Private study	99 hours (82%)
Total	120 hours

Private study description

Self directed learning and revision for end of year exam

Costs

No further costs have been identified for this module.

Assessment

You must pass all assessment components to pass the module.

Assessment group B1

	Weighting	Study time
Online Examination	100%	
CAT Points: 12 (100% examined: 1 hour examination in the summer)- the summer exam will be an MCQ exam		

Feedback on assessment

Instant feedback on MCQ answers will be provided via moodle.\r\n\r\n

[Past exam papers for HR103](#)

Availability

Courses

This module is Core for:

- UBSA-3 Undergraduate Biological Sciences
 - Year 1 of C100 Biological Sciences
 - Year 1 of C100 Biological Sciences
- Year 1 of ULFA-C1A1 Undergraduate Biological Sciences (MBio)
- Year 1 of ULFA-C113 Undergraduate Biological Sciences (with Placement Year)
- Year 1 of ULFA-C1A5 Undergraduate Biological Sciences with Industrial Placement (MBio)

This module is Core optional for:

- UBSA-C1B9 Undergraduate Biomedical Science
 - Year 1 of C1B9 Biomedical Science

- Year 1 of C1B9 Biomedical Science
- Year 1 of C1B9 Biomedical Science
- ULFA-C1A3 Undergraduate Biomedical Science (MBio)
 - Year 1 of C1A3 Biomedical Science
 - Year 1 of C1B9 Biomedical Science
- ULFA-CB18 Undergraduate Biomedical Science with Placement Year
 - Year 1 of CB18 Biomedical Science with Placement Year
 - Year 1 of CB18 Biomedical Science with Placement Year
 - Year 1 of CB18 Biomedical Science with Placement Year
- Year 1 of UIPA-C1L8 Undergraduate Life Sciences and Global Sustainable Development

This module is Optional for:

- UBSA-3 Undergraduate Biological Sciences
 - Year 1 of C100 Biological Sciences
 - Year 1 of C100 Biological Sciences
- UBSA-C1B9 Undergraduate Biomedical Science
 - Year 1 of C1B9 Biomedical Science
 - Year 1 of C1B9 Biomedical Science
 - Year 1 of C1B9 Biomedical Science
- Year 1 of ULFA-C1A3 Undergraduate Biomedical Science (MBio)
- Year 1 of ULFA-C1A7 Undergraduate Biomedical Science with Industrial Placement (MBio)
- Year 1 of ULFA-B142 Undergraduate Neuroscience (MBio)
- Year 1 of ULFA-B143 Undergraduate Neuroscience (with Industrial Placement) (MBio)
- Year 1 of ULFA-B141 Undergraduate Neuroscience (with Placement Year) (BSc)

This module is Option list A for:

- Year 1 of ULFA-B140 Undergraduate Neuroscience (BSc)