GD109-15 Biodiversity and Ecology

26/27

Department
Global Sustainable Development
Level
Undergraduate Level 1
Module leader
Jessica Savage
Credit value
15
Module duration
5 weeks
Assessment
100% coursework
Study location
University of Warwick main campus, Coventry

Description

Introductory description

This module will offer an introduction to ecological principles and environmental experimental design to first year students enrolled on the Global Sustainable Development single honours course. With the understanding that many students will not have a background in biology or ecology, this module will provide the basic knowledge surrounding ecological principles, theories and applications to allow them to interpret and make connections between humans and the environment from a global sustainable development context.

Module web page

Module aims

This course aims to equip students with an understanding of experimental design, data collection techniques, and associated quantitative analysis. Students will complete a mini-research project; from the identification of a research gap, through to the write-up of a scientific paper.

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.

This module is designed to provide students enrolled on global sustainable development degree programme an introduction to relevant ecological principles and how to conduct environmental research.

The course is constructed using two concurrent themes, taught simultaneously. The first is focussed on ecological principles, and the second on environmental research methods.

Lectures

1. Introduction to Ecological Principles
2. Species, communities and populations
3. Habitats, states & phase shifts
4. Diversity and ecosystem health
5. Detecting change in ecosystems
6. Forest Ecosystems and Management
7. Cycles and connectivity
8. Academic writing
9. Data analysis and Presentation
   10.A global perspective
   Seminars
10. Our natural environment
11. Life and death in a changing world
12. Experimental design
13. Population dynamics in the modern world
14. Designing an environmental study
15. Forest Ecosystems (Visit to HOEF)
16. Research project data collection
17. Research project data collection
18. Data analysis and Presentation

Learning outcomes

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

- Principal learning outcomes have two main focuses. Firstly, developing an understanding of ecological systems, and secondly building students' knowledge and skills in experimental design, data collection, analysis and reporting. 1. Following the completion of this module students will be able to interpret key factors of ecological system dynamics relating to species and habitat interactions, and how these relate to the sustainable use of natural resources. 2. By the end of this module, students will understand the positive and negative concepts surrounding environmental change, and its associated sustainable use, management, mitigation and monitoring. 3. Upon completion of this module the student will be able to apply key ecological principles and theories to real-world sustainability problems. 4. By the end of this module, students will have experience in the identification of a research gap, formulation of a research question, and subsequently how to appropriately design an appropriate research project. 5. Following this module students will be able to collect, store, analyse and interpret community data and understand the applications for the analysis of population dynamics and change and apply this to sustainability issues. 6. After completing

this module students will be able to conduct basic quantitative statistical analysis on data sets and report that

Research element

Research skills are embedded into the teaching strategy of the module.
By the end of the module students will have gained experience in the identification of a research gap, formulation of a research question, and subsequently how to design an appropriate research project. They will learn how to collect, store, analyse and interpret community data and understand the applications for the analysis of population dynamics and change and apply this to sustainability issues.

Interdisciplinary

This is an optional module on the Global Sustainable Development course which adopts an interdisciplinary approach spanning the arts, humanities, social and natural sciences fields in order to engage with the major global challenges facing contemporary society, explore these 'big problems,' from a variety of perspectives and consider a range of possible solutions.

International

This is an optional module on the Global Sustainable Development course which offers a unique trans-disciplinary and international learning experience that allows students to achieve breadth and depth of knowledge.

Subject specific skills

Ability to:
critically assess and analyse sustainability issues that need to be addressed, including real-life examples
use and apply established frameworks and methodologies for analysing the impact(s) of a behaviour or process
generate and evaluate different models of sustainable development to assess their likely impact
actively implement or contribute to changes that promote sustainable development within the scope of own learning experience
engage with real-life problems relevant to sustainable development
use historical knowledge and an understanding of the consequences of past actions to envision how futures may be shaped
identify the importance of empowering individuals and organisations to work together to create new knowledge
employ leadership for sustainable development by challenging assumptions and negotiating alternatives to unsustainable current practices
identify the opportunities to support and develop a progressive and resilient culture that encourages citizens, professions and institutions to put learning into practice

Transferable skills

Written communication skills
Oral communication skills
Working with others
Problem solving
Information technology
Numeracy
Research across various disciplines
Peer review

Study

Study time

Type	Required
Lectures	9 sessions of 2 hours (12%)
Seminars	9 sessions of 2 hours (12%)
Fieldwork	(0%)
Private study	114 hours (76%)
Total	150 hours

Private study description

Reading and research in preparation for seminars and fieldwork

Other activity description

External visit: Visit to Heart of England Forest- Forest ecology and management.

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 A4

	Weighting	Study time	Eligible for self-certification

Assessment component

Online Multiple Choice Quizzes	20%		No

The quizzes will be conducted through the Moodle platform, at three-week intervals. Students will be given 1 week to complete the quiz, but will only be allowed one attempt.

Reassessment component is the same

Assessment component

Data interpretation and analysis worksheet	20%		Yes (extension)

This will be linked to the population dynamics seminar, in which students will be required to collect data during the seminar, and then use that data to conduct basic statistical analysis on the data they have collected.

Reassessment component is the same

Assessment component

Group Project Proposal	20%		No

In groups (4-6), the students will develop a project idea, and produce a project proposal. The project will be focussed on the environmental status of the university campus. This proposal will include a literature review, the development of aims and objectives, and proposal of a methodology. This assessment will be conducted in conjunction with seminars, in which students will learn about different aspects of experimental design, and be guided through the process of how to design an appropriate experiment- 2,000 words.

Reassessment component

Individual Project Proposal			Yes (extension)

The student will develop a project idea, and produce a project proposal. The project will be focussed on the environmental status of the university campus. This proposal will include a short literature review, the development of aims and objectives, and proposal of a methodology. This assessment will be conducted in conjunction with seminars, in which students will learn about different aspects of experimental design, and be guided through the process of how to design an

	Weighting	Study time	Eligible for self-certification

appropriate experiment- 1,000 words.

Assessment component

Individual Final Report	40%	Yes (extension)

Following the development of a group research proposal, the students will work together to collect the data. They will then be responsible for analysing their data individually, and producing an individual journal style report to present their results.

Reassessment component is the same

Feedback on assessment

Feedback will be communicated electronically via Tabula; individual face-to-face feedback will also be offered to all students.

Availability

Courses

This module is Optional for:

- Year 1 of UIPA-L8A1 Undergraduate Global Sustainable Development