EV7127 Module Specification

Module Title: **Ecosystems and ecosystem services**	**Module Code: EV7127** **Level: 7** **Credit: 15** **ECTS credit: 7.5**	**Module Leader**: Jane Fisher Alexandra Hamer
Pre-requisite: none	**Pre-cursor: none**	
Co-requisite: none	**Excluded combinations: none**	**Suitable for incoming study abroad?** N
Location of delivery: CAT/By distance learning:		

Summary of module for applicants:

In this module students will:

a) Gain a critical appreciation of the key roles played by species, populations and healthy ecosystems in provision of essential tangible and intangible services to human society, as well as the need to ensure ecological integrity on appropriate scales.

b) Develop a comprehensive understanding of the environmental impacts of sourcing, management, wise use and reuse of natural resources where appropriate in order to function within resource, ecological and societal constraints, and the lessons to be learned from nature in resource design and processing.

c) Show critical awareness of the varied impacts of land use on environmental quality, biodiversity and ecosystem service provision.

d) Recognise the inherent lack of sustainability in modern, centralised food production and the necessity for ecologically-designed agriculture.

e) Critically evaluate the overriding roles of climate change and industrial expansion in imposing progressive change in ecosystem and resource management, and the imperative for sustainable adaptation.

Main topics of study:

- Ecosystem processes and services, global climate and resource regulation, land use and sustainable agriculture
- Contaminated land
- Water security
- Sustainable waste and sanitation management
- Floodplain strategies and Sustainable Drainage Systems (SuDS).
- Resource production

All these topics will be considered within the context of sustainability and climate change mitigation and adaptation planning

This module will be able to demonstrate at least one of the following examples/ exposures

Live, applied project ☒
Company/engagement visits ☐
Company/industry sector endorsement/badging/sponsorship/award ☐

Learning Outcomes for the module

Where a LO meets one of the UEL core competencies, please put a code next to the LO that links to the competence.

- *Digital Proficiency - Code = (DP)*
- *Industry Connections - Code = (IC)*
- *Social & Emotional Intelligence - Code = (SEI)*
- *Physical Intelligence - Code = (PI)*
- *Cultural Intelligence - Code = (CI)*
- *Community Connections & UEL Give Back - Code = (CC)*
- *Cognitive Intelligence – Code = (COI)*
- *Enterprise and Entrepreneurship (EE)*

At the end of this module, students will be able to:

Knowledge

1. Demonstrate a critical understanding of the ecological and biodiversity foundations of ecosystem functioning and the necessity for ecosystem integrity for provision of services to society, with reference to the published literature. (COI, DP)
2. Show mastery in the comprehensive understanding of the increasing problems caused by direct and indirect societal impacts on ecosystems and biodiversity for the continued provision of ecosystem services. (COI)

Thinking skills

3. Develop critical arguments to analyse the ecological and ecosystem service provision implications of current and future policy for the built environment and offer effective or innovative ecological solutions to the problems of sustainability and adaptation. (COI)
4. Develop critical responses to evidence from the peer-reviewed literature and primary or secondary data to critically evaluate the potential impacts of climate change and biodiversity losses on both current and future ecosystem service provision within an adaptation transformation context. (COI, DP)
5. Evaluate the role and implications of employing an ecosystems services approach to sustainability and adaptation. (COI)

Subject-based practical skills

Skills for life and work (general skills)

6 Effectively communicate complex ideas to a wider audience. [CC; COI; DP]

Teaching/ learning methods/strategies used to enable the achievement of learning outcomes:
For students studying onsite and by distance learning:

The factual content of the module is taught through lectures, seminars, practical workshops, demonstrations and tutorials. Students have access to MS Teams where they can access recorded and written support material, meet with their peers and a tutor to discuss any academic issue. Both theoretical and practical aspects are covered both onsite and through interactive sessions on Teams.

There is a formative learning element to the module to allow the students to receive critical feedback on their work without the pressure of marked assessment.

For distance learning (DL) students, learning will be supported through streamed and recorded Internet-based lectures (of the onsite lectures), situation related practical exercises, seminars and tutorials.

Lectures onsite and through MS Teams highlight key concepts, models and frameworks, and integrate additional resources (such as journal articles). They encourage deep learning through the use of self-assessment questions which encourage students to engage with the topic, to help students understand new topics and skills.

Assessment methods which enable students to demonstrate the learning outcomes for the module; please define as necessary:	**Weighting:**	**Learning Outcomes demonstrated:**
1. Essay (2,400 word max.)	80%	1,2,3,5
2. Individual Presentation 10 min (600 word equivalent)	20%	3,4,6

Reading and resources for the module:

Core

Barker T & Fisher J (2019) 'Ecosystem health as the basis for human health', published with revisions as Chapter 19 in: Selendy J.M.H (editor), *Water and Sanitation Related Diseases and the Changing Environment: Challenges, Interventions and Preventive Measures.* Second edition, Wiley-Blackwell and Horizon International

Recommended

Dasgupta, P. (2021) The Economics of Biodiversity: The Dasgupta Review. (London: HM Treasury). Available from: https://www.gov.uk/government/publications/final-report-the-economics-of-biodiversity-the-dasgupta-review

Diaz S., et al., (2019) Pervasive human-driven decline of life on Earth points to the need for transformative change. Science 366, 6741.

Giller, K.E., Hijbeek, R., Andersson, J.A. and Sumberg, J. (2021) Regenerative Agriculture: An agronomic perspective. Outlook on Agriculture, 1 – 13. DOI: 10.1177/0030727021998063. Available online: https://journals.sagepub.com/doi/10.1177/0030727021998063

Kallis G., Gómez-Baggethun E. & Zografos C. (2013). To value or not to value? That is not the question. Ecological Economics 94 97-105.

Wilkinson D.M. (2007) *Fundamental Processes in Ecology. An Earth Systems Approach*. Oxford UniversityPress, Oxford.

(*) Available as an e-book

Provide evidence of how this module will be able to demonstrate at least one of the following examples/ exposures

Live, applied project
The CAT site will be used to demonstrate the use of natural or semi-natural ecosystems to provide ecosystem services

Company/engagement visits *N/A*

Company/industry sector endorsement/badging/sponsorship/award *N/A*

Indicative learning and teaching time (10 hrs per credit):	**Activity**
1. Student/tutor interaction: 30 hours	Lectures, seminars, tutorials, presentations, practicals / demonstrations **30 hours**
2. Student learning time: 120 hours	Seminar reading and preparation, assignment preparation, background reading, and research activities. **120 hours**
Total hours (1 and 2): 150h	

For office use only. (Not required for Programme Handbook)

Assessment Pattern for Unistats KIS (Key Information Sets)	**Weighting:**
Coursework *(written assignment, dissertation, portfolio, project output)*	
Practical Exam *(oral assessment, presentation, practical skills assessment)*	
Written Exam	

HECoS Code:	
UEL Department:	