

Summary Information

Module Code	7506CATSCI
Formal Module Title	Ecosystems and ecosystem services
Owning School	Biological and Environmental Sciences
Career	Postgraduate Taught
Credits	15
Academic level	FHEQ Level 7
Grading Schema	50

Module Contacts**Module Leader**

Contact Name	Applies to all offerings	Offerings
Sarah Dalrymple	Yes	N/A

Module Team Member

Contact Name	Applies to all offerings	Offerings
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Partner Module Team

Contact Name	Applies to all offerings	Offerings
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Teaching Responsibility

LJMU Schools involved in Delivery
LJMU Partner Taught

Partner Teaching Institution

Institution Name
Centre for Alternative Technology

Learning Methods

Learning Method Type	Hours
Lecture	19
Practical	7
Seminar	4

Module Offering(s)

Offering Code	Location	Start Month	Duration
APR-PAR	PAR	April	12 Weeks

Aims and Outcomes

Aims	<p>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;</p> <p>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;</p> <p>c) Show critical awareness of the varied impacts of land use on environmental quality, biodiversity and ecosystem service provision;</p> <p>d) Recognise the inherent lack of sustainability in modern, centralised food production and the necessity for ecologically-designed agriculture;</p> <p>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.</p>
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Learning Outcomes

After completing the module the student should be able to:

Code	Description
MLO1	Have 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.
MLO2	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.
MLO3	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.
MLO4	Develop critical responses to evidence from the peer-reviewed literature and primary or secondary data critically evaluate the potential impacts of climate change and biodiversity losses on both current and future ecosystem service provision within an adaptation transformation context.

Module Content

Outline Syllabus

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 within the context of sustainability and climate change mitigation and adaptation planning.

Module Overview

Additional Information

Indicative references:

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

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*. OUP.

Assessments

Assignment Category	Assessment Name	Weight	Exam/Test Length (hours)	Learning Outcome Mapping
Essay	Essay	80	0	MLO1, MLO3, MLO2
Presentation	Presentation	20	0	MLO4, MLO3