



ACADEMIC SERVICES

MODULE SPECIFICATION

Part 1: Basic Data					
Module Title	Forests and Agricultural Systems				
Module Code	USSK54-15-3	Level	3	Version	1.1
Owning Faculty	Health and Applied Sciences	Field	Biological, Biomedical and Analytical Sciences		
Contributes towards	BSc Wildlife Ecology and Conservation Science BSc Environmental Science BSc Biological Sciences				
UWE Credit Rating	15	ECTS Credit Rating	7.5	Module Type	Standard
Pre-requisites	USSK5F-30-2 Ecology and Ecosystem Protection	Co- requisites	None		
Excluded Combinations	None	Module Entry requirements	N/A		
Valid From	September 2013	Valid to	September 2019		

CAP Approval Date	28/03/2014
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Part 2: Learning and Teaching	
Learning Outcomes	<p>On successful completion of this module students will be able to:</p> <ul style="list-style-type: none"> Describe and critically assess forest and agricultural ecosystems in terms of their nutrient cycling and energy balances, and relate these to the environmental impacts of intensive production systems including pollution, soil degradation, ecological impacts, and disease (assessed in Component A); Critically evaluate a range of forest and agricultural production systems in terms of their long term sustainability, and their robustness and resilience to climate change and other forms of pollution, and to pests and diseases (assessed in Component A); Research and evaluate in detail a specific forest or food production system in terms of its carbon balance and contribution to sustainable resource production (assessed in Component B); Collate, analyse, interpret and present data using advanced analytical techniques, and present these data to a target audience (assessed in Component B); Critically evaluate research in forest and agricultural systems at the cutting edge of the subject (assessed in Component A, B).
Syllabus Outline	<p>Forests and Tree Ecology;</p> <ul style="list-style-type: none"> <u>Introduction to trees and forests</u>: Range of different forest biomes and key features of different tree families; key tree physiological processes including

	<p>water relations, nutrient cycling, photosynthesis and reproduction.</p> <ul style="list-style-type: none"> • <u>Forest ecology</u>: Forest structures and their impact on other forest organisms; niche differentiation and adaptation strategies of forest plants and animals; native, naturalised and exotic species; concepts of wildwood and ancient woodland; the role of large herbivores in woodland structure. • <u>Nutrient Cycling and Climate Change</u>: Nutrient cycling in undisturbed forest ecosystems; carbon sequestration in relation to tree species and management; possible impacts of climate change on forest ecosystems. • <u>Tree Health and Disease</u>: concepts of forest and tree health; causes of poor health in trees including air pollution, soil conditions, pests and diseases; case studies in contemporary tree health issues (eg. ash dieback; effects of ozone on trees). • <u>Forest Management and Protection</u>: methods of forest management including clear felling, selection felling, coppicing and pollarding. Sustainable methods of timber production; Non-timber forest products and their use by indigenous peoples; tree and forest protection at national and global levels. <p>Agricultural Systems</p> <ul style="list-style-type: none"> • <u>Introduction to Food Production Systems</u>: Light capture and nutrient uptake in agricultural systems: Biomass production and efficiency in food production systems including concepts of 'food miles' and carbon footprints; nutrient cycling in farm systems especially nitrogen and phosphorous; • <u>Energy flows and nutrient cycling in agricultural systems</u>: Energy efficiency of different; nutrient cycling in farm systems especially nitrogen and phosphorous; potential sources of pollution and their environmental impacts. • <u>Environmental limits on agricultural production</u>: Temperature and yield. The effects of drought, salinity and flooding on agriculture. • <u>Agriculture and Pollutants</u>: Organic pollutants in food and environment; Inorganic contaminants and food production systems • <u>Agricultural Pest Control</u>: origins and scope of pest problems; methods of pest control including chemical controls (pesticides), biological control, management – their advantages and disadvantages; Integrated Pest Control. • <u>Contemporary methods in food production</u>: GM, vertical farming, hydroponics, biofortification, alternative crops. • <u>Impacts of climate change on food production systems</u>: • <u>Agricultural Ecology</u>: using natural ecosystems to inform agricultural ecosystems; impacts of modern farming systems on ecology; agri-environmental schemes
Contact Hours	<p>The contact hours (36) are distributed as follows:</p> <ul style="list-style-type: none"> • 20 hours interactive lectures • 6 hours field visits • 10 hours workshops/seminars
Teaching and Learning Methods	<p>A variety of learning approaches will be used to allow students to develop field techniques in addition to acquiring contemporary in-depth knowledge in forests and agricultural systems from the materials provided and the timetabled interactive sessions. Taught sessions at UWE will utilise TEL where possible, to support a pedagogy of Inductive Learning where the students will engage in facilitated activities such as interactive lectures, seminars, workshops, debates, case studies, problem based learning etc.</p> <p>Scheduled learning: interactive lectures, seminars and workshops; fieldwork / external visits.</p>

- Scheduled contact time is structured around a series of interactive lectures that introduce the key concepts, identify current levels of understanding and pin-point areas of scientific uncertainty. Theory is under-pinned by case studies drawn from different systems from around the world.
- Interactive lectures will be supported by a series of workshops and seminars that will allow more in-depth analysis and discussion around key concepts. Students will be expected to undertake a significant amount of preparation for these sessions, including undertaking guided reading, textual and web-based research.
- Learning will be enhanced by two field visits which will allow students to explore first-hand aspects of their learning, and to interact with experts and practitioners in the field.
- Revision will be embedded in the workshop sessions, which will offer opportunities to practice past exam questions.

Independent learning includes hours engaged with essential reading, case study preparation, assignment preparation and completion etc. These sessions constitute an average time per level as indicated in the table below. Scheduled sessions may vary slightly depending on the module choices you make.

Key Information Sets Information

Key Information Sets (KIS) are produced at programme level for all programmes that this module contributes to, which is a requirement set by HESA/HEFCE. KIS are comparable sets of standardised information about undergraduate courses allowing prospective students to compare and contrast between programmes they are interested in applying for.

Key Information Set - Module data				
Number of credits for this module				15
Hours to be allocated	Scheduled learning and teaching study hours	Independent study hours	Placement study hours	Allocated Hours
150	36	114	0	150

The table below indicates as a percentage the total assessment of the module which constitutes a -

Written Exam: Unseen written exam

Coursework: Written assignment

Please note that this is the total of various types of assessment and will not necessarily reflect the component and module weightings in the Assessment section of this module description:

Total assessment of the module:	
Written exam assessment percentage	60%
Coursework assessment percentage	40%
	100%

Reading

All students will be encouraged to make full use of the print and electronic resources

Strategy	<p>available to them through membership of the University. These include a range of electronic journals and a wide variety of resources available through web sites and information gateways. The University Library's web pages provide access to subject relevant resources and services, and to the library catalogue. Many resources can be accessed remotely. Students will be presented with opportunities within the curriculum to develop their information retrieval and evaluation skills in order to identify such resources effectively.</p> <p>This guidance will be available either in the module handbook, via the module information on Blackboard or through any other vehicle deemed appropriate by the module/programme leaders.</p>
Indicative Reading List	<p><i>The following list is offered to provide validation panels/accrediting bodies with an indication of the type and level of information students may be expected to consult. As such, its currency may wane during the life span of the module specification. However, as indicated above, CURRENT advice on readings will be available via other more frequently updated mechanisms.</i></p> <p><u>Books:</u> The most recent edition of</p> <p>Akinyemi, O.M. <i>Agricultural production: organic and conventional systems</i>. [online] Enfield: Science.</p> <p>Allaby, M. & Garratt, R. <i>Tropical Forests</i>. (Biomes of the Earth Series) [online]. New York: Chelsea House.</p> <p>Allaby, M. & Garratt, R. <i>Temperate Forests</i>. (Biomes of the Earth Series) [online] New York: Chelsea House.</p> <p>Hester, R.E. & Harrison, R.M. <i>Agricultural Chemicals and the Environment</i>. [online]. Cambridge: Royal Society of Chemistry.</p> <p>Holzman, B.A. <i>Tropical Forest Biomes</i>. [online]. London: Greenwood.</p> <p>Kuennecke, B. <i>Temperate Forest Biomes</i>. [online] London: Greenwood.</p> <p>Lundquist, J. & Hamelin, R.C. <i>Forest pathology: from genes to landscapes</i>. Minnesota, US: American Phytopathological Society.</p> <p>Pretty, J.N. <i>The Earthscan Reader in Sustainable Agriculture</i>. [online]. London: Earthscan.</p> <p>Waring, R.H. & Running, S.W. <i>Forest Ecosystems: analysis at multiple scales</i>. Oxford: Elsevier Academic..</p> <p>Warren, J., Lawson, C. & Belcher, K.W. <i>The agri-environment</i>. Cambridge: Cambridge University Press.</p> <p><u>Journals:</u></p> <ul style="list-style-type: none"> Agriculture, Ecosystems and Environment Agroecology and sustainable food systems Biological control Environmental Pollution Forest Ecology and Management New Phytologist Plant, Cell and Environment Plant and Soil

Part 3: Assessment

Assessment Strategy	<p>The Assessment for this module is designed to test the breadth and depth of students' knowledge, as well as their ability to analyse, synthesise and summarise information critically, including published research and data from the 'grey' literature.</p> <p>The controlled component is a written exam. The exam will be 3 hours duration which is consistent with the Department's assessment strategy for Level 3 modules. This assessment allows students to demonstrate both their ability to research, prioritise information and produced a structured, evidence based answer. This assessment links directly to requests from employers as they require graduates proficient at researching and scientific writing under pressure. The examination provides students with the opportunity to demonstrate their knowledge and understanding of the key concepts and paradigms associated with the subject matter, to use case studies and other evidence critically to support their arguments, and to make evaluations of possible sustainable futures for agricultural and forestry systems.</p> <p>The written assignment provides the opportunity for the student to complete an in-depth analysis of a forest or food-production system in terms of its carbon budget and ecological footprint by utilising a range of research methods including: critical review of published research; 'mining' and analysis of secondary data; scenario-testing; expert and practitioner opinion; public attitude and behaviour surveys.</p> <p>Opportunities for formative assessment and feedback are built into the workshop and seminar series, through discussion of current research, the evaluation of research methods, and review of past exam papers.</p> <p>All work is marked in line with the Department's Generic Assessment Criteria and conforms with university policies for the setting, collection, marking and return of student work. Assessments are described in the Module handbook that is supplied at the start of module.</p>
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Identify final assessment component and element		
% weighting between components A and B (Standard modules only)	A:	B:
	60%	40%
First Sit		
Component A (controlled conditions) Description of each element	Element weighting <i>(as % of component)</i>	
1. Unseen exam (3 hours)	100%	
Component B Description of each element	Element weighting <i>(as % of component)</i>	
1. Written Assignment (2000 words)	100%	

Resit (further attendance at taught classes is not required)		
Component A (controlled conditions) Description of each element	Element weighting <i>(as % of component)</i>	
1. Unseen Exam (3 hours)	100%	
Component B Description of each element	Element weighting <i>(as % of component)</i>	

1. Written Assignment (2000 words)	100%
If a student is permitted an EXCEPTIONAL RETAKE of the module the assessment will be that indicated by the Module Description at the time that retake commences.	