The Science of Sustainable Food Production

Module Information

2022.01, Approved

Summary Information

Module Code	7510CATSCI
Formal Module Title	The Science of Sustainable Food Production
Owning School	Biological and Environmental Sciences
Career	Postgraduate Taught
Credits	15
Academic level	FHEQ Level 7
Grading Schema	50

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	18
Practical	9
Seminar	3

Module Offering(s)

Display Name	Location	Start Month	Duration Number Duration Unit
APR-PAR	PAR	April	12 Weeks

Aims and Outcomes

Aims	a) Study the biogeography of crops and the importance of geographical climate, soil and water resources, and amendments.b) Study the actual and potential use, and science, of GMOs, energy crops, and food growing approaches (e.g. Permaculture, agroforestry, agroecology, organic agriculture and conventional agriculture).c) Analyse the impacts of different food production methods on greenhouse gas emissions, carbon sequestration, soil health, biodiversity and ecosystem services.d) Use data to analyse food production methods and their impact on the environment.e) Appreciate the key scientific advances, debates and uncertainties in the science of sustainable food production.

After completing the module the student should be able to:

Learning Outcomes

Code	Number	Description
MLO1	1	Demonstrate a critical understanding of underlying biogeographical influences that affect crop choice and yields, including for energy and other non-food crops, and the impact of those crops on environmental quality and local people.
MLO2	2	Evaluate critically the sustainability of different food production methods, e.g. GMOs, organic and conventional agriculture, Permaculture and agroecology.
MLO3	3	Show the ability to analyse the carbon, pollution and biodiversity impacts of food, energy crop or non-food crop production methods.
MLO4	4	Employ appropriate data analysis to support or challenge conclusions about the efficiency of certain crop production methods and their environmental impact.

Module Content

Outline Syllabus	Large scale patterns: biogeography, historical and evolutionary contexts for crop production, including the growth on non-food crops. Impact of crop production on green-house gas emissions, carbon sequestration, soil conservation and ecology, and wider ecosystem services. Science of GMOs, organic agriculture, agroecology, conventional agriculture, Permaculture and other food production methods and technologies.
Module Overview	
Additional Information	This module can be studied onsite or at distance.

Assessments

Assignment Category	Assessment Name	Weight	Exam/Test Length (hours)	Module Learning Outcome Mapping
Report	Scientific Paper Report	80	0	MLO1, MLO3, MLO4
Presentation	Poster presentation	20	0	MLO2, MLO4

Module Contacts

Module Leader

Contact Name	Applies to all offerings	Offerings

Colm Bowe	Yes	N/A

Partner Module Team

Contact Name	Applies to all offerings	Offerings