

Module Code:	7510CATSCI	Version No:	1
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Module Title:	The Science of Sustainable Food Production	Authorisation:	
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School:	NSP	Date version starts:	
		Archived Date:	
		Dormant Date:	
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Module Leader

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Level: 7**Credit Rating: 15**Indicative Time Allowances(hours):

Lec	Tut	Sem	Prt	Wrk	Fld	Other	Deliv. Tot	Exam	Private Study	Tot. Learning Hours
18	0	3	9	0	0	0	30	0	120	150

Semester Delivery: (Select one only)Semester 1 Semester 2 Runs twice (S1 & S2) Year Long Summer Other Pre-requisites: n/aRecommended Prior Study: n/aCo-requisites: n/aBarred Combinations: n/aAims:

- 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.

Learning Outcomes: After completing the module the student should be able to:

- 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.
- 2 Evaluate critically the sustainability of different food production methods, e.g. GMOs, organic and conventional agriculture, Permaculture and agroecology.
- 3 Show the ability to analyse the carbon, pollution and biodiversity impacts of food, energy crop or non-food crop production methods.
- 4 Employ appropriate data analyses to critically evaluate conclusions about the efficiency of certain crop production methods and their environmental impact.

Learning Activities:

This module will comprise a series of lectures, supported by interactive seminars and practical activities lasting more than a day. Lectures will draw on a wide variety of theoretical and applied topics with a wide use of case studies throughout.

Distance learners will have access to the lectures via the VLE, and take part in interactive seminars via skype. Data from the practical activities will be provided, along with written and videoed information illustrating the practical aims, methods and outcomes. Distance learners will be required to use these data as part of their assessments.

Outline Syllabus:

Large scale patterns: biogeography, historical and evolutionary contexts for crop production, including the growth of non-food crops. Impact of crop production on greenhouse 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.

Assessment Details:

- | | |
|---|---|
| 1 | Coursework: 80% Coursework: Scientific paper report of 2,400 words |
| 2 | Coursework: 20% Coursework: Poster presentation (600 word equivalent) |

Weighting between E and CW: 0% 100%

Relationship between learning outcomes and assessment tasks:

	Learning Outcomes			
	1	2	3	4
Component 1	X		X	X
Component 2		X		X

Minimum Pass Mark (%): 50

Module Notes:

This module can be studied onsite or at distance.