

## Liverpool John Moores University

Title: PLANT SCIENCES  
Status: Definitive  
Code: **5001NATSCI** (112578)  
Version Start Date: 01-08-2014

Owning School/Faculty: Natural Sciences & Psychology  
Teaching School/Faculty: Natural Sciences & Psychology

Team	Leader
David Bourke	Y
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**Academic Level:** FHEQ5      **Credit Value:** 24.00      **Total Delivered Hours:** 62.00  
**Total Learning Hours:** 240      **Private Study:** 178

### Delivery Options

Course typically offered: Standard Year Long

Component	Contact Hours
Lecture	34.000
Off Site	4.000
Practical	6.000
Workshop	16.000

**Grading Basis:** 40 %

### Assessment Details

Category	Short Description	Description	Weighting (%)	Exam Duration
Exam	exam	short answer and essay questions	40.0	2.00
Report	field rpt	Fieldwork report	25.0	
Report	prt rpt1	Practical report	35.0	

### Aims

*To introduce fundamental aspects of plant biology such as resource acquisition, nutrition and growth control and the role of vegetation in the functioning of the Earth System. To develop the skills necessary to identify plants. To identify the importance of plants in modern commercial agriculture and the consequences of agriculture on the surrounding ecosystems.*

## **Learning Outcomes**

After completing the module the student should be able to:

- 1 Explain the global significance of plants and recognize the importance of plant science to human as food, medicine and industry.
- 2 Describe how plants obtain essential resources and manufacture organic molecules from these simple raw materials.
- 3 Discuss environmental influences on plants and competition for limited resources.
- 4 Interpret plant diversity as an outcome of environmental selection pressure.
- 5 Demonstrate laboratory skills appropriate to the study of plant science.

## **Learning Outcomes of Assessments**

The assessment item list is assessed via the learning outcomes listed:

EXAM	1	2	3	4
Field report	4	5		
Practical report	2	3	5	

## **Outline Syllabus**

*Plants and their role in the Earth System. Distribution, adaptability and diversity; influence of environmental selection pressures on plant morphology and function. Photosynthesis, leaf structure, uptake of raw materials, light and pigments; overview of light-dependent and stroma reactions. Environmental and internal influences; C4 and CAM photosynthesis; adaptation to harsh environments. Uptake and transport of water and nutrients. Environmental and internal influences; adaptation to harsh environments. Sensing and responding to environmental stimuli. Symbiotic microbes and fungi. Fungi and lichens: Basic taxonomy and natural history. Lower plants: Basic taxonomy, identification and natural history of selected groups. Higher plants: Basic taxonomy, identification and natural history. Plant conservation including the importance of introduced species. Agriculture and forestry. Intensive arable production systems: Crop species and markets, crop health and pesticides. Harvest systems. Plant breeding and GM crops. Forest and global processes. Forest ecology and forest ecosystems. Integrated pest Management*

## **Learning Activities**

Module delivered using lectures supported by fieldwork and laboratory classes.

### **Notes**

The module focuses on fundamental aspects of plant biology. It describes dynamic life processes such as the acquisition and transport of resources, food manufacture, competition and defence, viewing these from an environmental and evolutionary perspective. It emphasizes the crucial role of vegetation in the Earth system (and hence its importance in understanding human caused global changes) and plant conservation. The adverse environmental impact of agriculture and forestry and the ways in which such problems can be tackled are also considered.