

BS248-12 Plant Molecular Development

20/21

Department

Life Sciences

Level

Undergraduate Level 2

Module leader

Isabelle Carre

Credit value

12

Module duration

5 weeks

Assessment

100% exam

Study location

University of Warwick main campus, Coventry

Description

Introductory description

This module provides a broad introduction to the molecular genetic analysis of plant development and leads to a discussion of potential implications for food security and a more sustainable agriculture.

[Module web page](#)

Module aims

This new, single term module will be introduced in order to offer an additional term 1 option for GSD students.

This module corresponds to part A of the LF217 module (Multicellular System). This in effect reinstates the discontinued BS248 module.

Outline syllabus

This is an indicative module outline only to give an indication of the sort of topics that may be covered. Actual sessions held may differ.

1-2. The Plant Cell I and II (LF)

1. Establishment of the embryonic body plan (IC)
2. Meristems and their maintenance (IC)

5-6. Plant hormones. Auxin and its role in shaping plant growth (IC)

1. Light responses and photomorphogenesis (IC)
2. Photoreceptors and downstream signalling pathways (IC)
3. The life cycle of higher plants. Plant gametes and fertilization (JFG-M)
4. Seed development. Role of maternal tissue (JFG-M)
5. Control of germination and seedling establishment (JFG-M)
6. Sensing and responding to the environment in roots (MLG)
7. Symbiotic nitrogen fixation (MLG)
8. How plants cope with a stressful and changing environment (MLG)
9. Plants under attack: defense against pathogens (MLG)

Learning outcomes

By the end of the module, students should be able to:

- Students will learn about key aspects of plant development, and how this is affected by environmental signals such as light, temperature, drought, nitrogen availability or pathogen attacks. They will gain an understanding of potential strategies to generate more resilient and more productive crops.

Indicative reading list

"Plant Biology". Smith et al. (2009) Garland Science. ISBN 978-0-8153-4025-6
Taiz and Zeiger, Plant Physiology, 5th edn. (Sinauer Associates, 2010)

Subject specific skills

Outline the key differences between plant and animal development

Explain the mechanisms underlying pattern formation and tissue differentiation during development

Discuss the roles of different plant hormones and their mechanisms of action.

Describe how plants alter their development in response to environmental signals and explain the underlying mechanisms.

Transferable skills

Self directed learning, group learning, adult learning, technology enhanced learning, quantitative skills.

Study

Study time

Type	Required
Lectures	15 sessions of 1 hour (12%)
Private study	105 hours (88%)
Total	120 hours

Private study description

Self directed learning and revision for end of year exam

Costs

No further costs have been identified for this module.

Assessment

You do not need to pass all assessment components to pass the module.

Assessment group B1

	Weighting	Study time	Eligible for self-certification
Assessment component			
In-person Examination	100%		No
<ul style="list-style-type: none">Answerbook Green (8 page)			

Reassessment component is the same

Feedback on assessment

Model answers will be provided via Moodle.

[Past exam papers for BS248](#)

Availability

Courses

This module is Optional for:

- Year 2 of UIPA-C1L8 Undergraduate Life Sciences and Global Sustainable Development