1. **Title of the module**

BIOS5470 (BI547) - Plant Physiology and Adaptation

1. **School or partner institution which will be responsible for management of the module**

Biosciences

1. **The level of the module (Level 4, Level 5, Level 6 or Level 7)**

Level 5

1. **The number of credits and the ECTS value which the module represents**

15 credits (7.5 ECTS)

1. **Which term(s) the module is to be taught in (or other teaching pattern)**

Spring

1. **Prerequisite and co-requisite modules**

None

1. **The programmes of study to which the module contributes**

Biology and related programmes (core)

1. **The intended subject specific learning outcomes.  
   On successfully completing the module students will be able to:**
2. Demonstrate knowledge of plant specific features of cellular organisation and processes.
3. Demonstrate an understanding of the process and regulation of photosynthesis.
4. Demonstrate an understanding of plant hormones and their role in the life cycle and responses to the environment.
5. Demonstrate an understanding of how plants respond and adapt to environmental conditions.
6. **The intended generic learning outcomes.  
   On successfully completing the module students will be able to:**

Have:

1. Demonstrate written communication skills
2. Demonstrate the ability to generate, analyse and report experimental data
3. Use problem solving skills
4. **A synopsis of the curriculum**

Plant specific features of cellular organisation and processes – cell wall synthesis, cell division, endoreduplication, plasmadesmata

Photosynthesis – mechanism and regulation of photosynthesis, photorespiration, C3, C4 and CAM.

Plant hormones and signalling – e.g. auxins, gibberellins, cytokinins etc and their roles in tropism, photoperiodism, and flowering.

Adaptation and stress response – environmental stress, acclimatisation and adaptation.

1. **Reading list (Indicative list, current at time of publication. Reading lists will be published annually)**

* Introduction to Plant Physiology (4th edition) W.G. Hopkins and N.P.A. Hunter, Wiley Publishing (2008)
* Plant Biology, A.M. Smith, G. Coupland, L. Dolan, N. Harberd, J. Jones, C. Martin, R. Sablowski, A. Amery, Garland Science (2010)
* Plant Physiology and Development (6th edition) L. Taiz, E. Zeiger, I. M. Møller, and A. Murphy, published by Sinauer Associates. (2015)

1. **Learning and teaching methods**

Total contact hours: 30

Private study hours: 120

Total study hours: 150

1. **Assessment methods**
   1. Main assessment methods

Practical (20%)

Problem solving (20%)

Examination (2h) (60%)

13.2 Reassessment methods

like for like

1. **Map of module learning outcomes (sections 8 & 9) to learning and teaching methods (section12) and methods of assessment (section 13)**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Module learning outcome** | *8.1* | *8.2* | *8.3* | *8.4* | *9.1* | *9.2* | *9.3* |
| **Learning/ teaching method** |  |  |  |  |  |  |  |
| Lectures | **X** | **X** | **X** | **X** |  |  |  |
| Workshops |  | **X** | **X** |  | **X** |  | **X** |
| Practicals |  | **X** |  |  | **X** | **X** |  |
| Self study | **X** | **X** | **X** | **X** | **X** | **X** | **X** |
| **Assessment method** |  |  |  |  |  |  |  |
| Practical |  | **X** |  |  | **X** | **X** |  |
| Problem solving | **X** | **X** | **X** | **X** | **X** |  | **X** |
| Examination | **X** | **X** | **X** | **X** | **X** |  |  |

1. **Inclusive module design**

The School recognises and has embedded the expectations of current equality legislation, by ensuring that the module is as accessible as possible by design. Additional alternative arrangements for students with Inclusive Learning Plans (ILPs)/declared disabilities will be made on an individual basis, in consultation with the relevant policies and support services.

The inclusive practices in the guidance (see Annex B Appendix A) have been considered in order to support all students in the following areas:

a) Accessible resources and curriculum

b) Learning, teaching and assessment methods

1. **Campus(es) or centre(s) where module will be delivered**

Canterbury

1. **Internationalisation**

Biosciences is an international discipline. This module presents subject-specific knowledge, research approaches and techniques, generated, developed and refined by scientists around the world. Mastery of the learning outcomes will equip students to apply the theories and techniques of the module in a wide range of international contexts. In compiling the reading list, consideration has been given to the range of texts that are available internationally and a selection has been identified to complement the delivery of the material. The School of Biosciences is an international community of students and staff. Group activities e.g. in practicals, tutorials, workshops and self-study will naturally draw on the international make-up of the student body; the module teaching team includes members with international experience of teaching and research collaboration.

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**Revision record – all revisions must be recorded in the grid and full details of the change retained in the appropriate committee records.**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Date approved | Major/minor revision | Start date of the delivery of revised version | Section revised | Impacts PLOs (Q6&7 cover sheet) |
| 31/01/20 | Minor | Sep 2020 | 8, 9, 13 | No |
|  |  |  |  |  |

Revised FSO Feb 2020