BIOS 2032 PLANT PHYSIOLOGY

Credit Points 10

Legacy Code 300865

Coordinator Oula Ghannoum (https://directory.westernsydney.edu.au/search/name/Oula Ghannoum/)

Description Plants are the primary producers of terrestrial ecosystems and moderators of climate change. This subject introduces students to how plants grow and interact with their environment. Students will learn how leaves turn sunlight energy into sugars; stems transport water, solutes and organic compounds; roots acquire water and mineral nutrients by themselves or in association with soil microbes; and hormones regulate plant development and responses to the environment. This knowledge set is crucial for managing our Century's key challenges of food security and climate change. Students will be required to travel to the Hawkesbury campus where the practicals take place.

School Science

Discipline Botany

Student Contribution Band HECS Band 2 10cp

Check your HECS Band contribution amount via the Fees (https://www.westernsydney.edu.au/currentstudents/current_students/fees/) page.

Level Undergraduate Level 2 subject

Equivalent Subjects LGYA 5946 - Introductory Plant Physiology BIOS 2033 - Plant Physiology

Assumed Knowledge

Sound knowledge of biology and chemistry equivalent to undergraduate Level 1 subjects.

Learning Outcomes

On successful completion of this subject, students should be able to:

1. Describe the basic plant structures: cell, leaf, stem, root
2. Explain the fundamental processes of photosynthesis, including the light-dependent and light-independent reactions
3. Explain the principles of leaf gas exchange, including how the environment regulates the trade-off between carbon gain and water loss in higher plants
4. Explain the principles of plant water relations, and of water and nutrient uptake and transport
5. Describe the main principles of plant mineral nutrition, and explain the role of key plant-microbe interactions in plant nutrition
6. Describe the basic principles of plant growth and development, including the role of hormones in controlling plant growth, development and environmental responses.
7. Record accurate and valid measurements, critically analyse experimental results and synthesise findings to reach valid conclusions.
8. Communicate orally and in writing the findings of scientific investigations and contemporary issues in plant physiology incorporating findings from the literature through literature surveys on a specific topic

Subject Content

1. Module 1: Leaf structure and function
a. Leaf structure
b. Light-dependent and independent reactions of photosyntheses
2. Module 2: Leaf ecophysiology
c. Leaf gas exchange and the environment
d. Photosynthetic pathways and ecology
3. Module 3: Stem structure and function
a. Stem structure and plant water relations
b. Water and assimilate transport
4. Module 4: Root structure and function
a. Root structure and mineral nutrition
b. Plant-microbe interactions
5. Module 5: Plants and the environment
a. Plant hormones and development
b. Plant hormones and responses to the environment.

Assessment

The following table summarises the standard assessment tasks for this subject. Please note this is a guide only. Assessment tasks are regularly updated, where there is a difference your Learning Guide takes precedence.

Type	Length	Percent	Threshold	Individual/ Group Task
Quiz - In-class quizzes	5 x In-class quizzes worth 4 marks each Completed during a practical/ tutorial session; up to 30 min each, short answers & MCQ	20	N	Individual
Quiz - Online quizzes	2 x Online quizzes worth 10 marks each Completed online, up to 60 min per quiz, short answers & MCQ; covering 1 practical session	20	N	Individual
Report covering practical session 1	Up to 2,000 words	30	N	Individual
Final Exam - MCQ Exam	2 hours	30	N	Individual

Teaching Periods