BIOL3410

Plant Biology

Session 2, Weekday attendance, North Ryde 2020

Department of Biological Sciences

Contents

Notice

As part of Phase 3 of our return to campus plan, most units will now run tutorials, seminars and ot her small group learning activities on campus for the second half-year, while keeping an online ver sion available for those students unable to return or those who choose to continue their studies onli ne.

To check the availability of face-to-face and onlin e activities for your unit, please go to timetable vi ewer. To check detailed information on unit asses sments visit your unit's iLearn space or consult yo ur unit convenor.

General Information

Unit convenor and teaching staff
Convenor & lecturer
Ian Wright
ian.wright@mq.edu.au
Contact via email
6WW-160

Co-Convenor, lecturer, prac leader
Andrea Westerband
andrea.westerband@mq.edu.au
Contact via email
6WW-162

Lecturer
Brian Atwell
brian.atwell@mq.edu.au
Contact via email

Lecturer & prac leader
Oscar Perez-Priego
oscar.perez-priego@mq.edu.au
Contact via email
6WW-162

Tutor, Quiz-master
Shubham Chhajed
shubham.chhajed@mq.edu.au
Contact via email

Credit points
10

Prerequisites
130cp at 1000 level or above including ((BIOL2410 or BIOL227) or BIOL210 or (BIOL2310 or BIOL228) or (BIOL2210 or BIOL229) or (ENVS266 or ENVS2266))

Corequisites

Co-badged status

Unit description
This unit draws together elements of plant ecology, evolution and ecophysiology, and will be useful for students with interests at many scales, including plant conservation, ecology, and environmental science. Topics will include: An overview of Australian and global plant communities; Basics of plant identification; Plant evolution; Basic physiology of photosynthesis, respiration, nutrient uptake and plant water use; Plant functional traits and ecological strategies; Plant functions and fluxes at ecosystem-scale; Impact of climate change on plants and communities; Future directions in plant functional ecology.

Important Academic Dates

Information about important academic dates including deadlines for withdrawing from units are available at https://www.mq.edu.au/study/calendar-of-dates

Learning Outcomes

On successful completion of this unit, you will be able to:

ULO1: Explain the factors underpinning major patterns of plant distribution globally and within Australia

ULO2: Recall key features of major Australian plant families

ULO3: Summarise major features of photosynthesis, respiration, plant water use and nutrient use, both at physiological and ecosystem scales

ULO4: Demonstrate in-depth understanding of plant morphological and physiological adaptations to major environmental factors

ULO5: Describe the role of plant functional traits in plant ecological strategies

ULO6: Analyse, present and interpret ecophysiological data

General Assessment Information

Students are expected to regularly attend/participate in the twice-weekly online lectures/ discussions, and are expected to attend the weekly prac/tutorial classes.

Assessment for this unit consists of a mixture of quizzes, short prac/tutorial reports, a written assignment, a final exam, and participation marks. Submission of all assessments and completion of all tests is essential for adequate progress, since all assessment tasks are required to master the content of this unit. It will be essential to keep up with the lectures and associated quizzes, and the pracs/tutorials and their associated short reports, as marks accrue throughout the semester.

All assessments will be graded and we will make marks available within three weeks of the assessment due date (but sooner, generally). Marks will be available on Gradebook in iLearn. Feedback on the written assignment will be provided through Turnitin when the marks are released.

Quizzes on lecture and prac material (10%)

There will be five multiple choice quizzes through the semester, each worth 2%. The quizzes are designed to incentivise staying up to date with lecture material and with prac reports. **Quizzes will be held in weeks 2, 4, 7, 10, 12.** Each quiz will open on iLearn on the Wednesday (after the lecture) and close on the Sunday of that week, at midnight. Once you start the quiz you will have 60 minutes to complete it and you are allowed two attempts. The quizzes will be automatically marked, and the marks and correct answers will be released once submissions have been completed.

The questions are designed to ensure that you have ***familiarity*** with the lecture material and with key concepts from the prac classes. They do not require a deep understanding of the lecture material (deeper understanding will be assessed in the Final Exam, and in the written report – a project proposal).

Short reports on practical classes and tutorials (25%)

We will run weekly pracs/tutorials throughout the semester. In-person attendance at these classes is expected, unless the University shifts back to remote-learning mode. A short report from five of the classes will require submission through iLearn, generally (but not always) one week after the class (**in weeks 5, 6, 7, 11, 13**). These reports are designed to test your knowledge of topics covered in these classes, which will generally coincide with topics covered in lectures. More information on these assessments will be provided as the semester progresses.

Plant Function Report (20%)

Students will submit (through Turnitin) a substantial written report in the form of a Project Proposal, aimed at integrating a range of concepts taught throughout the course concerning plant function. More information on this assessment will be provided as the semester progresses.

Final examination (35%)

The final exam will be three hours duration and held in the official university examination period at the end of the session. The exam will consist of short- , medium- and extended-answer questions.

Participation in pracs, tutes and remote-mode classes (10%)

Active participation in face-to-face pracs/tutes, online discussions of lecture material, and online pracs/tutorials (if we revert to remote-learning mode), will be recognised accordingly. Please note, for face-to-face classes, simply turning up will not count as “active participation”; and for remote-mode classes, simply logging in to the session and listening will not count as “active participation”!

Checklist for written assessments

For all written assessments: please use the following list to check your assignments before electronic submission.

- Text is the required length
- Text has been proof-read and spell-checked

- References are reputable sources (not Wikipedia!), and are cited at appropriate points within the text
- Formatting of references follows the style of a standard ecological journal, e.g. *Austral Ecology* or *Functional Ecology*.
- Assignment is your own work – no passages have been copied verbatim from reference sources or from other students. (see note on plagiarism, below, and the relevant University Policy)

Penalties

5% of the marks for the written assignments will be deducted for each day they are late, and assignments will not be accepted for marking if more than 10 days overdue. Exceptions can be granted by the unit Convenors if there are sufficiently serious medical or other extenuating circumstances (**appropriate supporting documentation should be provided, through the University's online system).** For example, if the initial score for an assessment is 67% but it has been submitted one day late, the final score will be 62% (or 57% if two days late, etc).

As outlined in assessment rubrics, penalties will be applied for reports being noticeably over the word limit, and increasingly so the more over the limit they are.

Plagiarism

Students are required to written reports via the plagiarism detection software Turnitin. This can be accessed on the unit's iLearn website. Your assessment task will be automatically compared to work of your classmates, previous students from Macquarie and other universities, and with material available on the Internet. The results of the analysis will be sent to the unit Convenor. Any evidence of plagiarism will be dealt with following University policy. The penalties imposed by the University for plagiarism are serious and may include loss of marks, referral to a Faculty Disciplinary Committee, or even expulsion from the University.

Moderation of assessments

This unit and its assessments are moderated according to departmental and university requirements. For example, where assessments are marked by multiple people, all agree on the marking process and marks are compared to ensure consistency.

Assessment Tasks

Name	Weighting	Hurdle	Due
Quizzes on lecture & prac material	10%	No	Weeks 2, 4, 7, 10, 12
Short reports on pracs/tutes	25%	No	Weeks 5, 6, 7, 11, 13
Plant function report	20%	No	Week 10

Name	Weighting	Hurdle	Due
Final exam	35%	No	Exam period at end of semester
Participation in remote-mode classes	10%	No	No specific due date

Quizzes on lecture & prac material

Assessment Type [1]: Quiz/Test
Indicative Time on Task [2]: 24 hours
Due: **Weeks 2, 4, 7, 10, 12**
Weighting: **10%**

Online quizzes

On successful completion you will be able to:

- Explain the factors underpinning major patterns of plant distribution globally and within Australia
- Recall key features of major Australian plant families
- Summarise major features of photosynthesis, respiration, plant water use and nutrient use, both at physiological and ecosystem scales
- Demonstrate in-depth understanding of plant morphological and physiological adaptations to major environmental factors
- Describe the role of plant functional traits in plant ecological strategies

Short reports on pracs/tutes

Assessment Type [1]: Report
Indicative Time on Task [2]: 15 hours
Due: **Weeks 5, 6, 7, 11, 13**
Weighting: **25%**

Reports from selected pracs and tutorials

On successful completion you will be able to:

- Summarise major features of photosynthesis, respiration, plant water use and nutrient use, both at physiological and ecosystem scales
- Demonstrate in-depth understanding of plant morphological and physiological adaptations to major environmental factors
- Describe the role of plant functional traits in plant ecological strategies

- Analyse, present and interpret ecophysiological data

Plant function report

Assessment Type [1]: Essay
Indicative Time on Task [2]: 30 hours
Due: **Week 10**
Weighting: **20%**

Major written report for the unit

On successful completion you will be able to:

- Explain the factors underpinning major patterns of plant distribution globally and within Australia
- Summarise major features of photosynthesis, respiration, plant water use and nutrient use, both at physiological and ecosystem scales
- Demonstrate in-depth understanding of plant morphological and physiological adaptations to major environmental factors
- Describe the role of plant functional traits in plant ecological strategies

Final exam

Assessment Type [1]: Examination
Indicative Time on Task [2]: 27 hours
Due: **Exam period at end of semester**
Weighting: **35%**

Final exam

On successful completion you will be able to:

- Explain the factors underpinning major patterns of plant distribution globally and within Australia
- Recall key features of major Australian plant families
- Summarise major features of photosynthesis, respiration, plant water use and nutrient use, both at physiological and ecosystem scales
- Demonstrate in-depth understanding of plant morphological and physiological adaptations to major environmental factors

- Describe the role of plant functional traits in plant ecological strategies

Participation in remote-mode classes

Assessment Type [1]: Participatory task
Indicative Time on Task [2]: hours
Due: **No specific due date**
Weighting: **10%**

For active participation in pracs/tutes/remote-learning activities

On successful completion you will be able to:

- Summarise major features of photosynthesis, respiration, plant water use and nutrient use, both at physiological and ecosystem scales
- Demonstrate in-depth understanding of plant morphological and physiological adaptations to major environmental factors
- Describe the role of plant functional traits in plant ecological strategies
- Analyse, present and interpret ecophysiological data

---

[1] If you need help with your assignment, please contact:

- the academic teaching staff in your unit for guidance in understanding or completing this type of assessment
- the Writing Centre for academic skills support.

[2] Indicative time-on-task is an estimate of the time required for completion of the assessment task and is subject to individual variation

Delivery and Resources

Requirements for Practical classes

The work carried out during practical classes is an important and integral part of the course. You must read, download and either print the prac notes to bring to each class, or bring them on a laptop or tablet.

Laboratory requirements

- **Enclosed shoes** (you cannot be present in the lab or field without these)
- Notebook and pencils/pens for notes & diagrams
- Laptop, if you have one, with Excel and Word (or open source equivalents)

- USB data stick to transfer data (recently checked with anti-virus software)
- **Remember, no food or drink** is allowed in University laboratories
- Please switch mobile phones off

Recommended Reading

There is no set textbook for this subject. Recommended books (all available from the library) that, between them, cover many of the lecture topics include:

- Attiwill PM & Wilson B (Eds) (2006). Ecology : An Australian Perspective. Oxford University Press, South Melbourne, Vic.
- Atwell BJ et al (1999). Plants In Action: Adaptation In Nature, Performance In Cultivation. MacMillan Education Australia, Melbourne.
- Chapin FS et al (2002). Principles of Terrestrial Ecosystem Ecology. Springer, New York.
- Garnier E et al (2016) Plant Functional Diversity: Organism traits, community structure, and ecosystem properties. Oxford University Press, Oxford
- Gurevitch J et al (2006). The Ecology of Plants. Sinauer Associates, Inc. Publishers, Sunderland, MA. 2nd Edition.
- Lambers H et al (1998). Plant Physiological Ecology. Springer-Verlag, New York.
- Pugnaire FI & Valladares F (Eds) (2007). Functional plant ecology. CRC Press, Boca Raton. 2nd Edition.
- Raven PH et al (2013). Biology of plants. WH Freeman, New York. 8th Edition. (or 7th edition – published 2005).
- Willis KJ & McElwain JC (2014). The Evolution of Plants. Oxford University Press, Oxford. 2nd Edition.

Leganto link <here>

Many lectures will include a list of key readings (journal articles, book chapters etc). Where possible we will make these available, whether through the Library Reserve or through the unit iLearn page.

Technology Used and required

All course content will be made available via the iLearn unit webpage. You are expected to use iLearn for:

- Regularly checking subject announcements
- Downloading lecture and reference materials
- Accessing the quizzes
- Submitting assignments

Students will be required to use appropriate software, particularly Excel and Minitab or R, for data analysis and graphing. These programs are free to download from University servers or can

be run online via AppStream (https://wiki.mq.edu.au/display/appstream/About).

Unit Schedule

Lectures are timetabled for **Mondays (11am-12pm)** and **Wednesdays (2-3pm)**. Because all lectures will be online and we want to maximise opportunities for student-staff engagement, many lecture slots will be used for discussions of lecture material, **with students required to listen to the lecture in their own time, in advance of the scheduled time, and to come along to the discussion with questions in hand, and willingness to participate in discussions.** A full lecture schedule will be provided at the beginning of semester.

Practical/Tutorial classes will be held weekly, either in the Glasshouse Labs (5WW-428, also known as F5A-428 -- at the top of the F5A car park), or remotely, via Zoom. Students should enrol in either the **Monday class (1-3pm)** or the **Wednesday class (3-5pm).** Further details of prac/tutorial topics will be given at the start of semester.

Policies and Procedures

Macquarie University policies and procedures are accessible from Policy Central (https://staff.mq.edu.au/work/strategy-planning-and-governance/university-policies-and-procedures/policy-central). Students should be aware of the following policies in particular with regard to Learning and Teaching:

- Academic Appeals Policy
- Academic Integrity Policy
- Academic Progression Policy
- Assessment Policy
- Fitness to Practice Procedure
- Grade Appeal Policy
- Complaint Management Procedure for Students and Members of the Public
- Special Consideration Policy *(**Note:** The Special Consideration Policy is effective from 4 December 2017 and replaces the Disruption to Studies Policy.)*

Students seeking more policy resources can visit the Student Policy Gateway (https://students.mq.edu.au/support/study/student-policy-gateway). It is your one-stop-shop for the key policies you need to know about throughout your undergraduate student journey.

If you would like to see all the policies relevant to Learning and Teaching visit Policy Central (https://staff.mq.edu.au/work/strategy-planning-and-governance/university-policies-and-procedures/policy-central).

Student Code of Conduct

Macquarie University students have a responsibility to be familiar with the Student Code of Conduct: https://students.mq.edu.au/study/getting-started/student-conduct

Results

Results published on platform other than eStudent, (eg. iLearn, Coursera etc.) or released directly by your Unit Convenor, are not confirmed as they are subject to final approval by the University. Once approved, final results will be sent to your student email address and will be made available in eStudent. For more information visit ask.mq.edu.au or if you are a Global MBA student contact globalmba.support@mq.edu.au

Student Support

Macquarie University provides a range of support services for students. For details, visit http://students.mq.edu.au/support/

Learning Skills

Learning Skills (mq.edu.au/learningskills) provides academic writing resources and study strategies to help you improve your marks and take control of your study.

- Getting help with your assignment
- Workshops
- StudyWise
- Academic Integrity Module

The Library provides online and face to face support to help you find and use relevant information resources.

- Subject and Research Guides
- Ask a Librarian

Student Services and Support

Students with a disability are encouraged to contact the Disability Service who can provide appropriate help with any issues that arise during their studies.

Student Enquiries

For all student enquiries, visit Student Connect at ask.mq.edu.au

If you are a Global MBA student contact globalmba.support@mq.edu.au

IT Help

For help with University computer systems and technology, visit http://www.mq.edu.au/about_us/offices_and_units/information_technology/help/.

When using the University's IT, you must adhere to the Acceptable Use of IT Resources Policy. The policy applies to all who connect to the MQ network including students.

Changes from Previous Offering

For 2020 we have (reluctantly) dropped the fieldwork component of BIOL3410 and will not run an

On-Campus Session. The major written report is different this year. Rather than being related to fieldwork undertaken during on OCS it will now take the form of a project proposal. Lectures will all be online for this year. The core lecture material will be essentially the same as in 2019, but each year we have a different set of guest lectures given by outstanding researchers working in the Sydney region. The prac/tute classes will be a mixture of classes run in previous years and new classes. This year the final exam will have a stronger emphasis on extended answer questions designed to test student understanding of core concepts, and to synthesise ideas across different parts of the course. For 2020 we have reintroduced participation marks, to more strongly incentivise student engagement.