BIOL3410

Plant Biology

Session 2, In person-scheduled-weekday, North Ryde 2023

School of Natural Sciences

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General Information

Unit convenor and teaching staff
Farhad Masoomi-Aladizgeh
farhad.masoomi-aladizgeh@mq.edu.au

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-badge 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

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

**ULO2**: Recall key features of major Australian plant families

**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: Collect, analyse, present and interpret ecophysiological data

General Assessment Information

Requirements to pass the unit

This unit cannot be completed online. Assessment for this unit consists of quizzes, short practical/tutorial reports, a major written report, and a final exam. Submission of all assessments and completion of all exams 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 practicals/tutorials and their associated short reports, as marks accrue throughout the semester.

All assessments will be graded, and we will make marks available within two-three weeks of the assessment’s due date. Marks will be available on Gradebook in iLearn. Feedback on the written assignment will be provided through Turnitin when the marks are released.

To pass this unit you must:

- Participate in the weekly practical classes, which will be on-campus
- Attend one of the fieldwork sessions: either Session 1 on September 2 and 3 or Session 2 on September 9 and 10. The sessions will be held on the weekend.
- Achieve a total mark equal to or greater than 50%

Quizzes on lecture material (10%)

There will be five multiple-choice quizzes throughout the semester, each worth 2%. The quizzes are designed to incentivise staying up to date with lecture material. Quizzes will be held in Weeks 2, 4, 6, 10, 12. Each quiz will open on iLearn on the Wednesday (after the lecture) and close on the Sunday of that week, at midnight. You are allowed two attempts per quiz. Once you start the quiz, you will have 60 minutes per attempt to complete it. 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. They do not require a deep understanding of the lecture material (deeper understanding will be assessed in the exams, and in the major written report).

Short reports on practical classes and tutorials (25%)

We will run weekly practicals/tutorials throughout the semester. In-person attendance for these classes is expected. A short report from five of the classes will require submission through iLearn, either one week after the class (in Weeks 3, 4, 6 and the reports will be due in Weeks 4, 5, 7, respectively) or on the day of the class (in Weeks 10, 11). Each short report will be worth 5% of your grade. 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.

This unit does not have a **Mid-semester Exam**.

**Plant function report (25%)**

Students will submit (through Turnitin) a substantial written report related to field/lab work carried out during the on-campus sessions. The report will be due in **Week 10**, and must be written in the style of a scientific journal article and will require that students conduct a small literature review, analyze data collected during the on-campus sessions, and use this information to test hypotheses regarding plant form and function. Please use the following list to check your assignment before electronic submission:

- Text is the required length
- Text has been proof-read and spell-checked
- References are reputable sources, and are cited at appropriate points within the text
- Formatting of references in the text and the reference list follows the style of the *Austral Ecology* journal.
- Assignment is your own work - not copied verbatim from reference sources or other students. (see note on plagiarism, below, and the relevant University Policy)

More information on this assessment will be provided as the semester progresses.

**Final examination (40%)**

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.

**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
Late assessment submission penalty

From 1 July 2022, Students enrolled in Session-based units with written assessments will have the following university standard late penalty applied. Please see https://students.mq.edu.au/study/assessment-exams/assessments for more information.

Unless a Special Consideration request has been submitted and approved, a 5% penalty (of the total possible mark) will be applied each day a written assessment is not submitted, up until the 7th day (including weekends). After the 7th day, a grade of '0' will be awarded even if the assessment is submitted. Submission time for all written assessments is set at **11:55 pm**. A 1-hour grace period is provided to students who experience a technical concern.

For any late submission of time-sensitive tasks, such as scheduled tests/exams, performance assessments/presentations, and/or scheduled practical assessments/labs, students need to submit an application for **Special Consideration**.

Assessments where Late Submissions will be accepted

In this unit, late submissions will be accepted as follows:

- Assessment Quizzes – YES, Standard Late Penalty applies
- Assessment Short Reports – YES, Standard Late Penalty applies
- Assessment Plant Function Report – YES, Standard Late Penalty applies
- Assessment Final Exam – NO, unless Special Consideration is Granted

Plagiarism

Students are required to write 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.
**Special considerations**

The [Special Consideration Policy](https://unitguides.mq.edu.au/unit_offerings/156007/unit_guide/print) aims to support students who have been impacted by short-term circumstances or events that are serious, unavoidable and significantly disruptive, and which may affect their performance in assessment.

*Written Assessments:* If you experience circumstances or events that affect your ability to complete the written assessments in this unit on time, please inform the convenor and submit a Special Consideration request through ask.mq.edu.au.

*Weekly practice-based tasks:* To pass the unit you need to demonstrate ongoing development of skills and application of knowledge in 8 out of 10 of the weekly practical classes. If you miss a weekly practical class due to a serious, unavoidable and significant disruption, contact your convenor ASAP as you may be able to attend another class that week. If it is not possible to attend another class, you should still contact your convenor for access to class material to review in your own time.

Note that a Special Consideration should only be applied for if you miss more than two of the weekly practical classes.

**Assessment Tasks**

<table>
<thead>
<tr>
<th>Name</th>
<th>Weighting</th>
<th>Hurdle</th>
<th>Due</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quizzes on lecture &amp; prac material</td>
<td>10%</td>
<td>No</td>
<td>Weeks 2, 4, 6, 10, 12</td>
</tr>
<tr>
<td>Short reports on pracs/tutes</td>
<td>25%</td>
<td>No</td>
<td>Weeks 4, 5, 7, 10, 11</td>
</tr>
<tr>
<td>Plant function report</td>
<td>25%</td>
<td>No</td>
<td>10/10/23</td>
</tr>
<tr>
<td>Final exam</td>
<td>40%</td>
<td>No</td>
<td>TBD</td>
</tr>
</tbody>
</table>

**Quizzes on lecture & prac material**

Assessment Type 1: Quiz/Test

Indicative Time on Task 2: 24 hours

Due: **Weeks 2, 4, 6, 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
- Summarise major features of photosynthesis, respiration, plant water use and nutrient
use, both at physiological and ecosystem scales
• Recall key features of major Australian plant families
• Demonstrate in-depth understanding of plant morphological and physiological adaptations to major environmental factors

Short reports on pracs/tutes
Assessment Type: Report
Indicative Time on Task: 15 hours
Due: Weeks 4, 5, 7, 10, 11
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
• Collect, analyse, present and interpret ecophysiological data

Plant function report
Assessment Type: Report
Indicative Time on Task: 30 hours
Due: 10/10/23
Weighting: 25%

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
• Collect, analyse, present and interpret ecophysiological data

Final exam
Assessment Type 1: Examination
Indicative Time on Task 2: 26 hours
Due: TBD
Weighting: 40%

Final invigilated exam will be held during the formal examination period

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
• Recall key features of major Australian plant families
• Demonstrate in-depth understanding of plant morphological and physiological adaptations to major environmental factors

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

On-campus attendance is required for all offerings of this course.

Week 1 classes

Lectures and practicals will be delivered from Week 1. The first lecture will be delivered on 24 July 2023, and the first practical session will be held on 24 and 25 July 2023.
Methods of communications

We will communicate with you via your university email and through announcements on iLearn. Queries to convenors can be sent to the unit convenor via the contact email on iLearn. General queries can be placed on the iLearn discussion board, which will be monitored by the unit convenor.

Requirements for practical classes

The work carried out during practical/tutorial classes is an important and integral part of the course. You must read and either download the practical notes on a laptop or tablet or print them to bring to each class. Laptops are also available for short-term use during the practical class.

Laboratory requirements

- 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)
- Enclosed shoes (you cannot be present in the lab or field without these)
- No food or drink in University laboratories
- Please switch mobile phones off

Field requirements

- Pencils/pens for notes
- Appropriate clothing (walking shoes or boots, rain jacket, sun protection, trousers and long-sleeved shirt)
- Water bottle and lunch/snacks
- Small backpack to carry your equipment
- First aid kits will be supplied

NOTE 1: During the on-campus sessions, there will be a 15-minute walk into the Macquarie (MQ) Ecology Reserve and working in uneven terrain. Any students with medical issues or requiring assistance should indicate this on their fieldwork participation form. All students must submit this form; otherwise, they cannot participate in the fieldwork. Please submit this form, via iLearn, by the due date advertised closer to the time.

NOTE 2: Ticks and leeches can occasionally be present at the MQ Ecology Reserve, especially near the creek. Neither insect carries disease, but they are certainly a nuisance. To minimize chances of problems you need to wear suitable clothing (as described above). We suggest tucking your pants into your socks, shirts into pants, etc, and liberally applying insect repellent to your shoes, clothes and exposed skin.
Recommended reading

There is no set textbook for this subject. Recommended books (all available from the library as eBooks or hardcopies) that, between them, cover many of the topics dealt with in lectures include:


Most 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. Please note that many of these readings are available online as eBooks.

Technology used and required

All course content will be made available via the iLearn unit webpage (the URL for iLearn is: [http://ilearn.mq.edu.au/](http://ilearn.mq.edu.au/)). You are expected to use iLearn for:

• Regularly checking subject announcements;
• Downloading lecture and reference materials;
• Submitting assignments;
• Checking your grades;

Students will be required to use appropriate software, particularly Excel and Minitab (or R, if you like), for data analysis and graphing. Minitab is available to download and install on your laptop.
Policies and Procedures

Macquarie University policies and procedures are accessible from Policy Central (https://policies.mq.edu.au). 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
- Assessment Procedure
- Complaints Resolution Procedure for Students and Members of the Public
- Special Consideration Policy

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

To find other policies relating to Teaching and Learning, visit Policy Central (https://policies.mq.edu.au) and use the search tool.

Student Code of Conduct

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

Results

Results published on platform other than eStudent, (e.g. 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

Academic Integrity

At Macquarie, we believe academic integrity – honesty, respect, trust, responsibility, fairness and courage – is at the core of learning, teaching and research. We recognise that meeting the expectations required to complete your assessments can be challenging. So, we offer you a range of resources and services to help you reach your potential, including free online writing and maths support, academic skills development and wellbeing consultations.
Student Support

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

The Writing Centre

The Writing Centre provides resources to develop your English language proficiency, academic writing, and communication skills.

- Workshops
- Chat with a WriteWISE peer writing leader
- Access StudyWISE
- Upload an assignment to Studiosity
- Complete the 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

Macquarie University offers a range of Student Support Services including:

- IT Support
- Accessibility and disability support with study
- Mental health support
- Safety support to respond to bullying, harassment, sexual harassment and sexual assault
- Social support including information about finances, tenancy and legal issues
- Student Advocacy provides independent advice on MQ policies, procedures, and processes

Student Enquiries

Got a question? Ask us via AskMQ, or contact Service Connect.

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

- Lectures will be delivered in person this year. The core lecture material will be essentially the same as in 2022, and we will have a set of guest lectures given by outstanding researchers in the field in the second half of the course.

- Some lectures will be pre-recorded and available online. We will have a Q&A/discussion session with the corresponding week's lecture material during the weekly lecture hour. These sessions will be on campus and will not be recorded. During this session, we will discuss important concepts and questions that will likely be included in the final exam. So, students are highly encouraged to attend the sessions.

- At the end of each lecture, you will be given 5 minutes to write down and submit a question related to the day's lecture. This task will be used to assess your understanding of the topic and will be potentially included in future assessments of the unit.