



**UNSW**  
SYDNEY

**SCHOOL OF BEES**



**BIOS 3061**

**PLANT ECOLOGY**  
Course Outline

Session 2, 2018

## Table of Contents

1. Information about the Course.....	2
2. Staff Involved in the Course .....	2
3. Course Details.....	3
4. Rationale and Strategies Underpinning the Course.....	4
5. Course Schedule.....	5
6. Assessment Tasks and Feedback .....	6
7. Additional Resources and Support.....	7
8. Required Equipment, Training and Enabling Skills.....	7
9. Course Evaluation and Development.....	8
10. Administration Matters.....	9
11. UNSW Academic Honesty and Plagiarism .....	10



*Grevillea buxifolia* (photo: A. Moles)

# Faculty of Science - Course Outline

## 1. Information about the Course

NB: Some of this information is available on the [UNSW Handbook](#)<sup>1</sup>

<b>Year of Delivery</b>	2018			
<b>Course Code</b>	BIOS 3061			
<b>Course Name</b>	Plant Ecology			
<b>Academic Unit</b>	School of Biological, Earth and Environmental Sciences			
<b>Level of Course</b>	Third year			
<b>Units of Credit</b>	6UOC			
<b>Session(s) Offered</b>	Session 2			
<b>Assumed Knowledge, Prerequisites or Co-requisites</b>	BIOS 2051; BIOS 2011			
<b>Hours per Week</b>	5			
<b>Number of Weeks</b>	12			
<b>Commencement Date</b>	27 July, 2018			
<b>Summary of Course Structure (for details see 'Course Schedule')</b>				
<b>Component</b>	<b>HPW</b>	<b>Time</b>	<b>Day</b>	<b>Location</b>
Discussion Groups	2	1-3pm	Friday	Mathews 103
Open Lab (not all weeks)	3	2-5pm	Monday	Bioscience G29
Field trip	5 days		21 <sup>st</sup> -25 <sup>th</sup> September	Kioloa
<b>TOTAL</b>				

## 2. Staff Involved in the Course

Staff	Role	Name	Contact Details	Consultation Times
<b>Course Convener</b>		Prof Angela Moles	Room 450d 93853802 <a href="mailto:a.moles@unsw.edu.au">a.moles@unsw.edu.au</a>	By appointment
<b>Additional Teaching Staff</b>	Lecturer & Facilitator	A/Prof Stephen Bonser	Room 450e, 93853863 <a href="mailto:s.bonser@unsw.edu.au">s.bonser@unsw.edu.au</a>	By appointment
	Technical & Laboratory Staff	Frank Hemmings	Herbarium <a href="mailto:f.hemmings@unsw.edu.au">f.hemmings@unsw.edu.au</a>	

<sup>1</sup> UNSW Online Handbook: <http://www.handbook.unsw.edu.au>

### 3. Course Details

<b>Course Description<sup>2</sup></b> (Handbook Entry)	<p>Topics include: plant-animal interactions, including herbivory, seed dispersal and pollination; biological invasions; disturbance, including life in fire-prone ecosystems and the effects of human influences on plant communities; plant regeneration, including reproduction and mating systems, and seed and seedling ecology; evolutionary radiations; plant ecological strategies. We incorporate evolutionary, population and community approaches to plant ecology, and include examples from Australia, and around the world. The course is not lecture based – rather, weekly meetings will be based on discussions facilitated and led by both lecturers and students.</p> <p>A five day field excursion during mid-session break is compulsory and will involve expense to individual students.</p>	
<b>Course Aims<sup>3</sup></b>	<p>The course is designed to explore current research areas in the ecology and evolution of plants.</p>	
<b>Student Learning Outcomes<sup>4</sup></b>	<p>Students taking this course will explore current research in plant ecology. You will learn to:</p> <ol style="list-style-type: none"> <li>1) Think critically about research and plant ecology.</li> <li>2) Find, read and interpret the primary plant ecology literature.</li> <li>3) Identify directions of important research in plant ecology.</li> <li>4) Conduct research, including having the initial idea, designing the data collection protocol, collecting data in the field, statistical analysis of data, and presenting findings in the form of a scientific paper.</li> <li>5) Communicating science in written and oral formats.</li> </ol>	
<b>Graduate Attributes Developed in this Course<sup>5</sup></b>		
<b>Science Graduate Attributes<sup>5</sup></b>	<b>Select the level of FOCUS</b> <i>0 = NO FOCUS</i> <i>1 = MINIMAL</i> <i>2 = MINOR</i> <i>3 = MAJOR</i>	<b>Activities / Assessment</b>
<b>Research, inquiry and analytical thinking abilities</b>	<b>3</b>	Discussion topic, research project, quizzes
<b>Capability and motivation for intellectual development</b>	<b>3</b>	Discussion topic, field trip research project, quizzes, end of semester test.
<b>Ethical, social and professional understanding</b>	<b>3</b>	Develop understanding of plant ecology discipline through discussion groups and research on field trip. Discussion of controversial topics during class.
<b>Communication</b>	<b>3</b>	Discussion topic facilitation and participation, written field trip research.
<b>Teamwork, collaborative and management skills</b>	<b>2</b>	Group work on field course, and discussion topics presented in small groups or pairs
<b>Information literacy</b>	<b>3</b>	Will learn to locate, understand and critically assess the primary research literature. Developed during discussion topic preparation, quizzes, and field trip research write up.

<sup>2</sup> UNSW Handbook: <http://www.handbook.unsw.edu.au>

<sup>3</sup> [Learning and Teaching Unit: Course Outlines](#)

<sup>4</sup> [Learning and Teaching Unit: Learning Outcomes](#)

<sup>5</sup> Contextualised Science Graduate Attributes: <http://www.science.unsw.edu.au/our-faculty/science-graduate-attributes>

<p><b>Major Topics (Syllabus Outline)</b></p>	<p>The class will choose 12 topics from the following:</p> <p><b>INVASION BIOLOGY</b></p> <p>Q1. Can we predict which species might become serious invaders?  Q2. How severe are the impacts of introduced plant species, and should we be trying to exterminate them all?  Q3. What makes communities susceptible to invasion?</p> <p><b>RESPONDING TO CHANGING ENVIRONMENTS</b></p> <p>Q4. How important is rapid evolution for plants?  Q5. How will factors that limit species ranges impact the capacity to respond to climate change?  Q6. Plasticity and adaptation across generations - why does the maternal environment matter?</p> <p><b>INTERACTIONS BETWEEN PLANTS AND OTHER TAXA</b></p> <p>Q7. Why are the mutualisms between plants and their symbionts stable?  Q8. The overlooked underground of plant ecology: Do below-ground interactions drive ecosystem productivity and diversity?  Q9. Is plant sex different than animal sex?</p> <p><b>DIVERSITY, DISTRIBUTIONS AND COMMUNITIES</b></p> <p>Q10. Do plant communities have highest diversity at intermediate levels of disturbance?  Q11. Does facilitation become more important in stressful environments?  Q12. The evolution of plant strategies – was my ecology textbook wrong?  Q13. Do we spend too much time focussing on rare species?  Q14. Do human activities have negative impacts on community diversity?</p> <p><b>YOUR CHOICE</b></p> <p>Q15. Make up your own topic</p>
<p><b>Relationship to Other Courses within the Program</b></p>	<p>Plant ecology is the advanced plant science course and one of the advanced ecology and evolutionary biology courses. Plant ecology is assumed knowledge for honours research in plant sciences and in other ecology, evolution, and biogeography research fields. Plant Ecology will link with other 3<sup>rd</sup> year courses in biology such as Evolution, Advanced Field Biology, and Life in Arid Lands</p>

#### 4. Rationale and Strategies Underpinning the Course

<p><b>Teaching Strategies</b></p>	<p>Learning and teaching in plant ecology will focus on student driven research. Weekly discussion groups will be primarily led by students. Further, students will undertake independent research projects in a field trip.</p> <p>Discussion groups will require students to engage in current research in plant ecology. Students will work with the course academics to select topics and appropriate readings to post for the class.</p> <p>Independent research projects will be conducted during the field trip. Open labs before the field trip will provide students extra support in developing research ideas prior to the trip. Similarly, open labs after the field trip will provide students support in analysis and interpretation of their field data.</p> <p>Students will be assessed on their discussion groups, an independent research report, an end of session test, and regular quizzes on readings. These assessments are designed to promote progress in research, an understanding of current plant ecological research, and to build a foundation of skills associated with being a research scientist.</p>
<p><b>Rationale for learning and teaching in this course<sup>6</sup>,</b></p>	<p>We treat students as intelligent adults who can make their own decisions and drive their own learning experience. We have therefore done away with traditional lectures and practical work in favour of student led discussions and research. We provide support and guidance where needed, but try not to be heavy-handed or prescriptive.</p>

<sup>6</sup>[Reflecting on your teaching](#)

## 5. Course Schedule

Some of this information is available on the [Online Handbook](#)<sup>7</sup> and the [UNSW Timetable](#)<sup>8</sup>.

Week (date on Monday)	Lectures (Friday), Topics & Lecturers	Discussion question	Practical (Monday)	Assignment and Submission dates (see also 'Assessment Tasks & Feedback')
Week 2 (30 July)	Introduction part 1, and Discussion 1 - Led by Moles / Bonser	Is the biotic interactions hypothesis a zombie idea?	None	
Week 3 (6 Aug)	Introduction part 2 (field trip and major assignment), and Discussion 2 - Led by Bonser / Moles	r-K selection	None	
Week 4 (13 Aug)	Discussion – Led by students	To be decided by students	None	Quiz at start of class
Week 5 (20 Aug)	Discussion – Led by students	To be decided by students	None	Quiz at start of class
Week 6 (27 Aug)	Lecture led by Bonser and Moles	Experimental design and data analysis	Open lab	
Week 7 (3 Sep)	Discussion – Led by students	To be decided by students	Open lab	Quiz at start of class
Week 8 (10 Sep)	Discussion – Led by students	To be decided by students	Open lab	Quiz at start of class
Week 9 (17 Sep)	Discussion – Led by students	To be decided by students	Field course	Quiz at start of class
<b>FIELD TRIP 21<sup>st</sup> to 25<sup>th</sup> September</b> (depart Friday evening) mid-semester break				
Week 10 (1 Oct)	Discussion – Led by students	To be decided by students	Open lab	Quiz at start of class
Week 11 (8 Oct)	Debates	To be advised	Open lab	
Week 12 (15 Oct)	Revision and summary	To be decided by students	None	20 October, Research project (from field trip) due in (hand in to BEES student office)
Week 13 (22 Oct)	End of Semester test		None	27 Oct – end of semester test in class time.

<sup>7</sup> UNSW Virtual Handbook: <http://www.handbook.unsw.edu.au>

<sup>8</sup> UNSW Timetable: <http://www.timetable.unsw.edu.au/>

## 6. Assessment Tasks and Feedback

Task	Knowledge & abilities assessed	Assessment Criteria	% of total mark	Date of		Feedback		
				Release	Submission	WHO	WHEN	HOW
Discussion groups	Appropriate assigned reading, depth of knowledge of research area, peer engagement	Detailed marking schedule available on Moodle.	25	3 Aug	Throughout session	A.Prof Bonser / Prof Moles	After the completion of discussion groups	Written comments and grades
Research project	Quality of submitted report. The submitted report will be similar to a scientific paper.	Detailed marking schedule available on Moodle.	45	3 Aug	17 Oct	A.Prof Bonser / Prof Moles	12 Nov	Written comments and grades
End of session test	General knowledge of research material presented by their peers throughout the session	Graded answers.	10	22 Oct	22 Oct	A.Prof Bonser / Prof Moles	12 Nov	Marks will be posted on Moodle
Quizzes on readings	Understanding of weekly assigned readings.		20	3 Aug	Throughout session	A.Prof Bonser / Prof Moles	Throughout session	Grades

## 7. Additional Resources and Support

<b>Text Books</b>	<p>There is no text book assigned for this course. Rather, we explore the primary peer-reviewed literature (journals) on research in plant ecology.</p> <p>Web of Science and Scopus are excellent resources for searching and exploring the scientific literature. Both of these resources can be accessed through the UNSW library web site. The UNSW library provides electronic access to most relevant journal articles</p>
<b>Course Manual</b>	<p>There is no course manual for plant ecology. Rather, resources (such as these course introduction pages) will be posted on the course Moodle site. A handout with information for the field trip will be provided early in the session.</p>
<b>Required Readings</b>	<p>Readings for discussion groups are available on the course Moodle site. Students are expected to read and discuss the issues raised in these papers.</p>
<b>Additional Readings</b>	<p>Optional additional readings listed in discussion group information</p>
<b>Recommended Internet Sites</b>	<p>N/A</p>
<b>Societies</b>	<p>Ecological Society of Australia (<a href="http://ecolsoc.org.au">ecolsoc.org.au</a>)</p>
<b>Computer Laboratories or Study Spaces</b>	<p>The herbarium on the lower ground floor of the biosciences building E26 is an excellent resource, students will frequently work in the herbarium. Computers are available in Bioscience G29, with all the usual software for assignment preparation.</p>

## 8. Required Equipment, Training and Enabling Skills

<b>Equipment Required</b>	<p>You will need suitable clothing, footwear and sun protection for the field trip. Details given in field trip document on Moodle.</p>
<b>Enabling Skills Training Required to Complete this Course</b>	<p>None</p>

## 9. Course Evaluation and Development

Student feedback is gathered periodically by various means. Such feedback is considered carefully with a view to acting on it constructively wherever possible. This course outline conveys how feedback has helped to shape and develop this course.

Mechanisms of Review	Last Review Date	Comments or Changes Resulting from Reviews
Major Course Review	2011	We have made a range of changes in response to informal student feedback and our own experience, including making the major assignment due earlier, dropping less successful discussion topics, reducing the number of discussion topics, introducing a final revision lecture, making material easier to locate on Moodle, and making expectations clearer throughout.
CATEI <sup>9</sup>	2016	Feedback was generally very good. In response to some comments, we reduced the number of student-led discussion sessions and added extra classes run by Moles and Bonser, replaced written summaries of papers with weekly quizzes, dropped the assessment of the field trip seminar, and replaced our field trip chef.
Other		We welcome comments and suggestions from students at any time.



<sup>9</sup>CATEI process: <http://www.science.unsw.edu.au/our-faculty/course-and-teaching-evaluation-and-improvement-catei>

## 10. Administration Matters

<b>Expectations of Students</b>	<b>Class attendance is required.</b> Since this subject is not offered in distance mode, and student participation in discussion groups and in the field trip is essential. Any alterations to the schedule will be announced in a preceding class. Students whose attendance at classes or assessment is affected by obligatory religious ceremonies or other commitments (representing the university, military service etc.) should discuss ways of dealing with this clash with Prof. Moles prior to the commencement of the course.		
<b>Assignment Submissions</b>	Assignments will be done in class (quizzes, test), or submitted online via Moodle (research project).		
<b>Occupational Health and Safety<sup>10</sup></b>	Information on relevant Occupational Health and Safety policies and can be found on the following website: <a href="http://www.bees.unsw.edu.au/health-and-safety">http://www.bees.unsw.edu.au/health-and-safety</a>		
<b>Assessment Procedures</b> <b>UNSW Assessment Policy<sup>11</sup></b>	Performance in this course is assessed through written assignments, oral presentations, participation, and an end of session test. This test will be designed to assess students' understanding of the discussion group topics. There is no final exam.		
<b>Equity and Diversity</b>	<p>Those students who have a disability that requires some adjustment in their teaching or learning environment are encouraged to discuss their study needs with the course Convenor prior to, or at the commencement of, their course, or with the Equity Officer (Disability) in the Equity and Diversity Unit (9385 4734 or <a href="http://www.studentequity.unsw.edu.au/">http://www.studentequity.unsw.edu.au/</a>).</p> <p>Issues to be discussed may include access to materials, signers or note-takers, the provision of services and additional exam and assessment arrangements. Early notification is essential to enable any necessary adjustments to be made.</p>		
<b>Student Complaint Procedure<sup>12</sup></b>	<b>School Contact</b>	<b>Faculty Contact</b>	<b>University Contact</b>
	Dr Jes Sammut <a href="mailto:j.sammut@unsw.edu.au">j.sammut@unsw.edu.au</a>	A/Prof Chris Tisdell Associate Dean (Education) <a href="mailto:cct@unsw.edu.au">cct@unsw.edu.au</a> Tel: 9385 6792	<p>Student Conduct and Appeals Officer (SCAO) within the Office of the Pro-Vice-Chancellor (Students) and Registrar.</p> <p>Telephone 02 9385 8515, email <a href="mailto:studentcomplaints@unsw.edu.au">studentcomplaints@unsw.edu.au</a></p> <p>University Counselling and Psychological Services<sup>13</sup> Tel: 9385 5418</p>

<sup>10</sup> [UNSW OHS Home page](#)

<sup>11</sup> [UNSW Assessment Policy](#)

<sup>12</sup> [Student Complaint Procedure](#)

<sup>13</sup> [University Counselling and Psychological Services](#)

## 11. UNSW Academic Honesty and Plagiarism

### What is Plagiarism?

Plagiarism is the presentation of the thoughts or work of another as one's own.

\*Examples include:

- direct duplication of the thoughts or work of another, including by copying material, ideas or concepts from a book, article, report or other written document (whether published or unpublished), composition, artwork, design, drawing, circuitry, computer program or software, web site, Internet, other electronic resource, or another person's assignment without appropriate acknowledgement;
- paraphrasing another person's work with very minor changes keeping the meaning, form and/or progression of ideas of the original;
- piecing together sections of the work of others into a new whole;
- presenting an assessment item as independent work when it has been produced in whole or part in collusion with other people, for example, another student or a tutor; and
- claiming credit for a proportion a work contributed to a group assessment item that is greater than that actually contributed.†

For the purposes of this policy, submitting an assessment item that has already been submitted for academic credit elsewhere may be considered plagiarism.

Knowingly permitting your work to be copied by another student may also be considered to be plagiarism.

Note that an assessment item produced in oral, not written, form, or involving live presentation, may similarly contain plagiarised material.

The inclusion of the thoughts or work of another with attribution appropriate to the academic discipline does *not* amount to plagiarism.

The Learning Centre website is main repository for resources for staff and students on plagiarism and academic honesty. These resources can be located via:

[www.lc.unsw.edu.au/plagiarism](http://www.lc.unsw.edu.au/plagiarism)

The Learning Centre also provides substantial educational written materials, workshops, and tutorials to aid students, for example, in:

- correct referencing practices;
- paraphrasing, summarising, essay writing, and time management;
- appropriate use of, and attribution for, a range of materials including text, images, formulae and concepts.

Individual assistance is available on request from The Learning Centre.

Students are also reminded that careful time management is an important part of study and one of the identified causes of plagiarism is poor time management. Students should allow sufficient time for research, drafting, and the proper referencing of sources in preparing all assessment items.

\* Based on that proposed to the University of Newcastle by the St James Ethics Centre. Used with kind permission from the University of Newcastle

† Adapted with kind permission from the University of Melbourne