



Course Outline

BIOS3171

Evolution

Biological, Earth and Environmental Sciences

Faculty of Science

T3, 2019

1. Staff

Position	Name	Email	Consultation times and locations	Contact Details
Course Convenor and Lecturer	Russell Bonduriansky	r.bonduriansky@unsw.edu.au	By appointment, Biological Sciences room 5101	53439
Lecturer	Michael Kasumovic	m.kasumovic@unsw.edu.au	By appointment, Biological Sciences room 5105	58091

2. Course information

Units of credit: 6

Pre-requisite(s): Evolutionary and Physiological Ecology - BIOS2011

Teaching times and locations: 2-hour tutorial/seminar each week on campus; 5-day field-trip to Smith's Lake Field Research Station.

<http://www.timetable.unsw.edu.au/2019/BIOS3171>

2.1 Course summary

BIOS3171 Evolution is an advanced course covering the core concepts and research techniques of modern evolutionary biology. This course is also designed to help students develop their scientific communication skills. Students will participate in a 5-day field-trip to Smith's Lake field research station where they will learn hands-on by making observations and collecting biological data. Students will analyse their data, write a research paper, and create a short video to communicate their findings.

2.2 Course aims

To prepare students for independent research at the Honours level (and possible HDR studies)

To help students to gain a deeper understanding of the core concepts of evolutionary biology

To help students learn evolutionary research techniques and improve their analysis skills

To help students improve their scientific communication skills

2.3 Course learning outcomes (CLO)

At the successful completion of this course you (the student) should be able to:

1. Be able to apply key concepts of evolutionary biology and generate valid evolutionary research questions
2. Be able to collect and analyse biological data using established techniques of evolutionary research
3. Be able to write a scientific paper
4. Be able to communicate their findings through a video targeted at a broad audience

3. Strategies and approaches to learning

3.1 Learning and teaching activities

2-hour tutorials:

These meetings will include lectures and discussions of foundational concepts prior to the field-trip, and activities designed to help students with their major projects after the field-trip (i.e., data analysis, writing). Each 2-hour tutorial will begin with a quiz designed to help students gauge their understanding of the material.

Students will also submit the Evolutionary Film Criticism Assignment prior to the field-trip. This assessment is designed to help students understand and apply evolutionary concepts.

5-day field-trip to Smith's Lake Field Research Station:

In the field, students will participate in structured observations, collect data, and give group presentations to the class on their observations. Students will use the data collected on the field-trip in their major project (an empirical research paper) and research video. The major project and video assignment will help students to deepen their understanding of evolutionary ideas, learn to analyse and interpret data, and improve their scientific communication skills.

3.2 Expectations of students

Students will be expected to attend all tutorials on campus, and the field-trip to Smith's Lake FRS. Students will be expected to participate in class discussions on campus and during the field-trip.

4. Course schedule and structure

Week [Date/Session]	Topic [Module]	Activity [Learning opportunity]	Related CLO
Week 1	Basic concepts	Class discussion, Quiz	1
Week 2	Basic concepts	Class discussion, Quiz	1
Week 3	Evolutionary research	Class discussion, Quiz DUE: Evolutionary Film Criticism	1
Week 4	Developing a research question	Class discussion, Quiz	1
Week 5	Research methods, field observations, data collection	4-day field trip (Smith's Lake) DUE: Research Proposal	1, 2, 3, 4
Week 6	Analysing data and writing a research paper	Class discussion, Quiz	1, 2, 3
Week 7	Analysing data and writing a research paper	Class discussion, Quiz	4
Week 8	Effective science communication	Class discussion, Quiz DUE: Research Video	1, 2, 3, 4
Week 9	Unanswered questions in evolutionary biology	Class discussion, Quiz DUE: Research Paper	1
Week 10	Applying evolutionary ideas	Class discussion, Quiz	1

5. Assessment

5.1 Assessment tasks

Assessment task	Length	Weight	Mark	Due date (normally midnight on due date)
Assessment 1: Evolutionary Film Criticism	1 page	10%	20	Week 3
Assessment 2: Research Video	5-min video	10%	20	Week 8
Assessment 3: Research Paper	2,500 words	60%	10 (proposal) + 50 (paper) = 60	Proposal due week 5 Paper due week 9
Assessment 4: Weekly quizzes	10 questions	20% total	10 x 10 = 100	Weeks 1, 2, 3, 4, 5, 6, 7, 8, 9, 10

Further information

UNSW grading system: <https://student.unsw.edu.au/grades>

UNSW assessment policy: <https://student.unsw.edu.au/assessment>

5.2 Assessment criteria and standards

Evolutionary Film Criticism

Assessment criteria	Marks
Original and interesting critique	4
Demonstrates understanding of at least one evolutionary principle	10
Engagingly written, with correct grammar and spelling	6
TOTAL	20

Research Video

Assessment criteria	Marks
<p>Content</p> <ul style="list-style-type: none"> - Presents the research question in an interesting, logical manner. - Explains technical concepts in an easy-to-understand manner, without being condescending - Provides enough background that the audience understands why the question is important. - Evidence of your own ideas and/or critical thought - Demonstrates a clear understanding of the processes by which evolution works. 	10
<p>Video style</p> <ul style="list-style-type: none"> - Avoids jargon - Enthusiasm. Sounds interested in the topic and holds the audience's interest - Eye contact with the audience (if applicable) 	5
<p>Quality of video</p> <ul style="list-style-type: none"> - Appropriate length - Images are used properly - Any text isn't obtrusive, and if used, easily read - Does not use excessive animation or have spelling mistakes - Visually appealing layout without the feeling of being hurried 	5
TOTAL	20

Research Paper

Assessment criteria	Marks
Proposal Outlines a clear research question, explains why the question is interesting and important, proposes a suitable methodology, written in good scientific English	10
Title - Appropriate title that summarizes the aims of the project	1
Abstract - Clear summary of the question, methods and findings	4
Introduction - Explains why this research is necessary and how it will improve our understanding of the field. - Articulates a clear research question	10
Methods - Clearly outlines how the data were collected - Clearly explains how the data were analysed - Explains why the methods are appropriate to answer the research question	10
Results - Clearly describes what was found - Reports statistical results (if any) correctly	10
Discussion - Links results back to the research question posed in the Introduction - Places findings in broader context of previous research - Clearly connects the findings to evolutionary principles	10
References - Cites at least 6 (preferably 10) relevant references to provide background for your project - Uses referencing and in-text citations correctly, and in an appropriate and consistent format	5
TOTAL	60

Weekly quizzes

Correct answers to questions.

5.3 Submission of assessment tasks

The Evolutionary Film Criticism assignment and Research Paper will be submitted through Turnitin.

The Research Video will be uploaded to Youtube, and students will email the link to their video to the lecturers.

5.4. Feedback on assessment

Written feedback will be provided through Turnitin on the Evolutionary Film Criticism assignment and Research Paper.

The Research Video will be shown to other students and feedback will be provided orally during class time by classmates and the lecturers. The rubric will also be returned to students with their marks.

6. Academic integrity, referencing and plagiarism

Referencing is a way of acknowledging the sources of information that you use to research your assignments. You need to provide a reference whenever you draw on someone else's words, ideas or research. Not referencing other people's work can constitute plagiarism.

Further information about referencing styles can be located at <https://student.unsw.edu.au/referencing>

Academic integrity is fundamental to success at university. Academic integrity can be defined as a commitment to six fundamental values in academic pursuits: honesty, trust, fairness, respect, responsibility and courage.¹ At UNSW, this means that your work must be your own, and others' ideas should be appropriately acknowledged. If you don't follow these rules, plagiarism may be detected in your work.

Further information about academic integrity and **plagiarism** can be located at:

- The *Current Students* site <https://student.unsw.edu.au/plagiarism>, and
- The *ELISE* training site <http://subjectguides.library.unsw.edu.au/elise/presenting>

The *Conduct and Integrity Unit* provides further resources to assist you to understand your conduct obligations as a student: <https://student.unsw.edu.au/conduct>.

Students will be expected to use the referencing style of the journal *Evolution*.

7. Readings and resources

Required readings will be provided on Moodle. The textbook *Evolution* 4th edition (D. Futuyma and M. Kirkpatrick) is recommended as a resource.

¹ International Center for Academic Integrity, 'The Fundamental Values of Academic Integrity', T. Fishman (ed), Clemson University, 2013.

8. Administrative matters

School information	<p>School website: http://www.bees.unsw.edu.au/</p> <p>School office – The Biosciences Student Office is where to go for administrative matters relating to BEES courses. It is located on the ground floor of the biological sciences building, room G27. BEESinfo@unsw.edu.au</p>
Occupational Health and Safety	<p>Information on relevant Occupational Health and Safety policies and can be found on the following website: http://www.bees.unsw.edu.au/health-and-safety</p> <p>UNSW OHS Home page: http://safety.unsw.edu.au/</p>
Equity and Diversity	<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 http://www.studentequity.unsw.edu.au/).</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>
Student complaint procedure	<p>http://student.unsw.edu.au/complaints</p> <p>School contact</p> <p>Dr Jes Sammut j.sammut@unsw.edu.au</p> <p>Faculty contact</p> <p>A/Prof Chris Tisdell, Associate Dean (Education) cct@unsw.edu.au, Tel: 9385 6792</p> <p>University contact</p> <p>Student Conduct and Appeals Officer (SCAO) within the Office of the Pro-Vice-Chancellor (Students) and Registrar. Telephone 02 9385 8515, email studentcomplaints@unsw.edu.au</p>

9. Additional support for students

- The Current Students Gateway: <https://student.unsw.edu.au/>
- Academic Skills and Support: <https://student.unsw.edu.au/academic-skills>
- Student Wellbeing, Health and Safety: <https://student.unsw.edu.au/wellbeing>
- Disability Support Services: <https://student.unsw.edu.au/disability-services>
- UNSW IT Service Centre: <https://www.it.unsw.edu.au/students/index.html>

BIOS3171 Outline at a Glance

Weekly tutorials: Mondays 10am-12pm, Matthews Building room 227
Field-trip: Smith's Lake Field Research Station, 16-20/10/2019

Note: Students are required to attend all tutorials and the field-trip. Attendance will be taken, and each tutorial will include a quiz (included in the combined quiz mark). Tutorials involve interactive, problem-based, and “flipped classroom” learning activities. Data for the Research Paper will be collected during the field-trip, and skills required to write the Research Paper will be taught during weekly tutorials. Resources provided on-line cannot not replace these learning activities. Students who miss tutorials (without a valid excuse) are therefore unlikely to pass the course.

Week 1: Tutorial-Basic concepts

Week 2: Tutorial-Basic concepts

Week 3: Tutorial-Evolutionary research
DUE: Evolutionary film criticism

Week 4: Tutorial-Developing a research question
DUE (11/10): Research Proposal

Week 5: Tutorial-Research methods
Field-trip (16-20/10/2019)

Week 6: Tutorial-Analysing data and writing a research paper

Week 7: Tutorial-Analysing data and writing a research paper

Week 8: Tutorial-Effective science communication
DUE: Research Video

Week 9: Tutorial-Unanswered questions in evolutionary biology
DUE: Research Paper

Week 10: Tutorial-Appling evolutionary ideas

Assessments:

Evolutionary film criticism:	10%
Research Video:	10%
Research Paper (including proposal):	60%
Quizzes (weeks 1-10 combined):	<u>20%</u>
	100%