School of Biological Sciences

BIOL351 Conservation Biology: Marine and Terrestrial Populations

Subject Outline
Autumn, 2016
On-Campus
Wollongong

Subject Information
Credit Points: 8
Pre-requisite(s): BIOL251 & BIOL252 & STAT252 OR STAT151 & BIOL251 & BIOL252
Co-requisite(s): Nil
Restrictions: Nil
Contact Hours: 2 hrs Lectures, 4 hrs Tutorials/Practicals

Subject Contacts
Subject Coordinator/Lecturer

<table>
<thead>
<tr>
<th>Name:</th>
<th>Prof David Ayre</th>
</tr>
</thead>
<tbody>
<tr>
<td>Location:</td>
<td>Building 35, Room G05</td>
</tr>
<tr>
<td>Telephone:</td>
<td>61 2 4221 3440</td>
</tr>
<tr>
<td>Email:</td>
<td><a href="mailto:david_ayre@uow.edu.au">david_ayre@uow.edu.au</a></td>
</tr>
<tr>
<td>Consultation mode and times:</td>
<td>Email for appointment</td>
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</tbody>
</table>

Lecturer

<table>
<thead>
<tr>
<th>Name:</th>
<th>Dr Ben Gooden</th>
</tr>
</thead>
<tbody>
<tr>
<td>Location:</td>
<td>Building 35, Room 107</td>
</tr>
<tr>
<td>Telephone:</td>
<td>61 2 4221 4310</td>
</tr>
<tr>
<td>Email:</td>
<td><a href="mailto:ben_gooden@uow.edu.au">ben_gooden@uow.edu.au</a></td>
</tr>
<tr>
<td>Consultation mode and times:</td>
<td>Email for appointment</td>
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</tbody>
</table>

Lecturer

<table>
<thead>
<tr>
<th>Name:</th>
<th>Ms Amy Gilpin</th>
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</thead>
<tbody>
<tr>
<td>Location:</td>
<td>Building 35</td>
</tr>
<tr>
<td>Telephone:</td>
<td></td>
</tr>
<tr>
<td>Email:</td>
<td><a href="mailto:amg871@uowmail.edu.au">amg871@uowmail.edu.au</a></td>
</tr>
<tr>
<td>Consultation mode and times:</td>
<td>Email for appointment</td>
</tr>
</tbody>
</table>

Technical Officer – Ms Chloe Rich  rm 43.107  ph. 42981275  chloe@uow.edu.au

Student Support and Advice
For general enquiries please contact the StudentHub 41:
Location: 41.138B
Telephone: 61 2 4221 3492
Email: smah-students@uow.edu.au
Student Consultation and Communication

University staff receive many emails each day. In order to enable them to respond to your emails appropriately and in a timely fashion, students are asked to observe basic requirements of professional communication.

Please ensure that you include your full name and student number and identify your practical class or tutorial group in your email so that staff know who they are communicating with and can follow-up personally where appropriate.

Consider what the communication is about
- Is your question addressed elsewhere (e.g. in the subject outline or, on the eLearning site)?
- Is it something that is better discussed in person or by telephone? This may be the case if your query requires a lengthy response or a dialogue in order to address. If so, see consultation times above and/or schedule an appointment.
- Are you addressing your request to the most appropriate person?

Specific email subject title to enable easy identification of issue
- Identify the subject code of the subject you are enquiring about (as staff may be involved in more than one subject) put this in the email subject heading. Add a brief, specific query reference after the subject code where appropriate.

Professional courtesy
- Address the staff member appropriately by name (and formal title if you do not yet know them).
- Use full words (avoid ‘text-speak’ abbreviations), correct grammar and correct spelling.
- Be respectful and courteous.
- Allow 3 – 4 working days for a response before following up. If the matter is legitimately urgent, you may wish to try telephoning the staff member (and leaving a voicemail message if necessary) or inquiring at the School Office.
Table of Contents

Section A: General Information ............................................................................................................... 4
   Subject Learning Outcomes................................................................................................................ 4
   Subject Description ............................................................................................................................. 4
   Graduate Qualities ............................................................................................................................ 4
   eLearning Space ................................................................................................................................. 4
   Lecture, Tutorial, Laboratory Times .................................................................................................... 4
   Readings, References and Materials .................................................................................................. 5
      Textbooks ........................................................................................................................................ 5
      Prescribed Readings (includes eReadings) .................................................................................... 5
      Materials .......................................................................................................................................... 5
      Recommended Readings .................................................................................................................... 5
   Recent Changes to this Subject .......................................................................................................... 6
   Ethical Objection to the Use of Animal and Animal Products ............................................................. 6
   Laboratory Safety Guidelines .............................................................................................................. 6
   Schedule of Learning* ......................................................................................................................... 7

Section B: Assessment ........................................................................................................................... 9
   Assessment Summary ........................................................................................................................ 9
   Details of Assessment Tasks .............................................................................................................. 9
   Minimum Requirements for a Pass in this Subject ........................................................................... 11
      Minimum Student Attendance and Participation ........................................................................... 11
   Scaling ............................................................................................................................................... 11
   Late Submission ................................................................................................................................ 11
      Late Submission Penalty .................................................................................................................. 11
   Supplementary Assessments ............................................................................................................. 11
   System of Referencing Used for Written Work .................................................................................. 12
   Use of Internet Sources ..................................................................................................................... 12
   Plagiarism .......................................................................................................................................... 12
   Submission of Assessments ................................................................................................................. 12
   Assessment Return ............................................................................................................................. 12

Section C: General Advice ..................................................................................................................... 13
   University Policies ............................................................................................................................ 13
   Student Support Services and Facilities ............................................................................................ 13
   Student Etiquette ............................................................................................................................... 13
Section A: General Information

Subject Learning Outcomes

<table>
<thead>
<tr>
<th>On completion of this subject, students should be able to:</th>
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</thead>
<tbody>
<tr>
<td>1. Understand the factors that contribute to biological variability.</td>
</tr>
<tr>
<td>2. Interpret demographic data and to plan a simple demographic study.</td>
</tr>
<tr>
<td>3. Describe the factors determining the genetic composition of populations.</td>
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<tr>
<td>4. Explain the ecological, genetic and evolutionary consequences of human modification of ecological processes.</td>
</tr>
<tr>
<td>5. Justify the need for conservation of biodiversity, and identify the major threats to the viability of threatened natural populations.</td>
</tr>
<tr>
<td>6. Apply effective sampling design and methodology to the assessment of biological populations.</td>
</tr>
<tr>
<td>7. Apply algebraic and statistical methods in genetics and ecology and to use simple mathematical models to predict population processes in conservation biology.</td>
</tr>
<tr>
<td>8. Critically evaluate the methodology and conclusions of conservation biology studies.</td>
</tr>
<tr>
<td>9. Clearly communicate an understanding of relevant published literature.</td>
</tr>
<tr>
<td>10. Clearly communicate and prepare an analytical critique of published literature.</td>
</tr>
<tr>
<td>11. Clearly communicate and present an oral presentation based on published literature (e.g. paper analysis, poster, or seminar).</td>
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</tbody>
</table>

Subject Description


eLearning Space

This subject has materials and activities available via eLearning. To access eLearning you must have a UOW user account name and password, and be enrolled in the subject. eLearning is accessed via SOLS (student online services). Log on to SOLS and then click on the eLearning link in the menu column. For information regarding the eLearning spaces please use the following link:  
http://uowblogs.com/moodlelab/files/2013/05/Moodle_StudentGuide-1petpo7.pdf

Lecture, Tutorial, Laboratory Times

All timetable information is subject to variation. Check latest timetabling information on the 'Current Student' webpage on UOW website or log into SOLS to view your personal timetable prior to attending classes.


Timetable information can be accessed from

Key University Dates can be accessed from
Readings, References and Materials

Textbooks
The following text(s) will need to be purchased by students enrolled in this class.


Prescribed Readings (includes eReadings)
The following readings are prescribed for this subject, but students are not expected to purchase these. They are available to students through the library on the subjects eLearning site.


Materials
Nil

Recommended Readings
The following references complement the prescribed readings and textbooks:


Short Loans in the Library:

Highly Recommended


Recommended readings are not intended as an exhaustive list, students should use the Library catalogue and databases to locate additional resources.
Recent Changes to this Subject

1. Reinclusion of field camp and associated changes to continuous assessment

Ethical Objection to the Use of Animal and Animal Products

In order to achieve specific learning objectives, the use of animals, animal tissues, and or animal-derived products (such as sera) is inherent and unavoidable. Students with conscientious objections to this use should not enrol in this subject.

Students who intend to avoid a particular learning activity on the basis of conscientious objection should notify the subject coordinator in writing as soon as possible and not later than the end of Week 1 of the session. Students who do not participate in a particular learning activity are required to complete an alternative exercise (a CD-ROM is available) or attend the practical and “observe”. The material involved is examinable and the prac must be written up and completed in your workbook. For further information, refer to http://www.uow.edu.au/about/policy/UOW058708.html

Laboratory Safety Guidelines

The rules below are general rules that are required in laboratories.

- Before commencing your project you are to ensure that you understand specific procedures for the laboratory in which you work.
- You will need to fill out a risk assessment form before commencing any experiments (confer with your laboratory supervisor).
- Never use any equipment or attempt any experiment without checking the safety implications with your laboratory supervisor or experienced delegated laboratory worker.
- Undergraduate students are not permitted to work after hours unless there is appropriate approval and supervision.
### Schedule of Learning*

<table>
<thead>
<tr>
<th>Week</th>
<th>Lecture 1 (1 h)</th>
<th>Lecture 2 (1 h)</th>
<th>Tutorial (1 h)</th>
<th>Practical (3 h)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<td>Fri 13:30 to 14:30</td>
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<td></td>
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<td></td>
<td>Fri 14:30 to 17:30</td>
<td></td>
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</tbody>
</table>

#### Part I: Introduction to Conservation Biology

**Week 1 (29/2)**
- Introduction Ecology meets genetics (DJA)
- Genetics and Diversity (DJA)
- No tutorial
- No Prac

#### Part II: Genetics and Conservation

**Week 2 (7 Mar)**
- Genetics and Extinctions (DJA)
- Conservation of Large Populations (DJA)
- Poster Presentation and critiques (DJA)
- No Prac

**Week 3 (14 Mar)**
- Inbreeding /Founder Events (DJA)
- Genetic Drift/Selection (DJA)
- Field Camp Pre-lab (DJA)
- Stats and data analysis (BG)

**Week 4 (21 Mar)**
- Gene Flow & estimation of population (DJA)
- Ancient versus Current Gene Flow (DJA)
- Good Friday
- Good Friday

#### Part II: Population Demography and Conservation

**Week 5 (28 Mar)**
- “Pure” meets “applied” ecology (BG)
- Introduction to demography (BG)
- Demography (BG)
- No Prac

**Week 6 (4 Apr)**
- Demographic sampling techniques (BG)
- Life tables I: Life cycles & life histories (BG)
- Field Camp
- Demography I (BG)

#### Part III: Community Conservation Biology: Preventing Extinction

**Week 7 (11 Apr)**
- Life tables II: How to do them (BG)
- Life tables III: Using life tables in conservation (BG)
- Field Camp (DJA/BG)
- Field Camp 12.30 15/4 to 6pm 17/4 (DJA/BG)

**Week 8 (18 Apr)**
- Landscape fragmentation and conservation (BG)
- Reserve design (BG)
- Field Camp post lab (DJA)
- No prac

**MID SESSION RECESS 25 Apr – 29 Apr**

**Week 9 (2 May)**
- Invasive species (BG)
- Restoration ecology (BG)
- Demographic Models (BG)
- Demography II (BG)

**Week 10 (9 May)**
- Conservation biology in practice (BG)
- Case Studies in Conservation (BG)
- Simple Genetic data Analyses (AMG)
- Simple Genetic data Analyses (AMG)

#### Part V: Integrating Genetics and Ecology
<table>
<thead>
<tr>
<th>Week 11 (16 May)</th>
<th>Allozymes vs DNA markers (AMG)</th>
<th>Quantitative traits: what should we measure? (AMG)</th>
<th>Genalex/ Microsatellite DNA (AMG)</th>
<th>Genalex Analysis/ (DJA)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Week 12 (23 May)</td>
<td>Case Study (AMG)</td>
<td>Genomics (AMG)</td>
<td>Conservation Genetics Posters I (AMG)</td>
<td>Conservation Genetics Posters I / Microsatellite DNA (AMG)</td>
</tr>
<tr>
<td>Week 13 (30th May)</td>
<td>Applications inbreeding and outbreeding (AMG)</td>
<td>Applications Translocations (AMG)</td>
<td>Conservation Genetics Posters II (AMG/</td>
<td>Conservation Genetics Posters II (if needed)(AMG)</td>
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Section B: Assessment

Assessment Summary

<table>
<thead>
<tr>
<th>Assessment Item</th>
<th>Form of Assessment</th>
<th>Due Date</th>
<th>Return/Feedback Due Date</th>
<th>Weighting</th>
</tr>
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<tbody>
<tr>
<td>Assessment 1</td>
<td>Oral Presentation</td>
<td>15/4/16</td>
<td>22/4/16</td>
<td>5</td>
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<tr>
<td>Assessment 2</td>
<td>Critique of paper for genetics poster</td>
<td>15/4/16</td>
<td>29/4/16</td>
<td>7.5%</td>
</tr>
<tr>
<td>Assessment 3</td>
<td>Scientific Paper</td>
<td>16/5/16</td>
<td>3/6/16</td>
<td>20%</td>
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<tr>
<td>Assessment 4</td>
<td>Genetics Poster as power point slide</td>
<td>20/5/16</td>
<td>6/6/16</td>
<td>17.5%</td>
</tr>
<tr>
<td>Assessment 5</td>
<td>Final Examination</td>
<td>During Exam Period</td>
<td>Release of Results</td>
<td>50%</td>
</tr>
<tr>
<td>Total Marks</td>
<td></td>
<td></td>
<td></td>
<td>100%</td>
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Details of Assessment Tasks
Assessment tasks will be marked using explicit criteria that will be provided to students prior to submission.

Assessment 1
Oral presentation
Due date: 15th April (to be presented on field camp)
Weighting: 5%
Submission: Oral Presentation
Type of Collaboration: Individual Assessment
Length: 5 minutes maximum
Details: Each student will be given a brief outline of a key concept in population biology. They will explain this concept drawing on current examples.
Style and format: Short oral presentation using simple aids but no computer
Subject Learning Outcomes: 1,4,5,8,9,11
Marking Criteria: Assessment based on clarity of presentation, demonstrated understanding of topic and evidence of background research

Assessment 2
Critique of paper for genetics poster
Due date: 15/4/16
Weighting: 7.5%
Submission: Submit an electronic copy of your assessments via upload to eLearning
Type of Collaboration: Individual Assessment
Length: N/A
Details: Each student will be assigned an article from a recent issue of “Conservation Genetics” Their critique should have demonstrated their understanding of the paper and its strengths and weaknesses.
Style and format: Two page maximum critique as a journal article review
Subject Learning Outcomes: 3,5,8,10
Marking Criteria: The marking criteria will be made available on your eLearning site by week 1 of session.

Assessment 3
Demography Scientific Paper
Due date: 16/5/16
Weighting: 20%
Submission: Submit an electronic copy of your assessments via upload to eLearning
Type of Collaboration: Individual Assessment
<table>
<thead>
<tr>
<th>Length</th>
<th>As per instruction to authors for Austral Ecology</th>
</tr>
</thead>
<tbody>
<tr>
<td>Details</td>
<td>This paper will use data sets generated on this and perhaps previous years BIOL351 field camps to test demographic hypotheses. The paper should be presented as an original article for the journal Austral Ecology.</td>
</tr>
<tr>
<td>Subject Learning Outcomes</td>
<td>1,2,4,5,6,7,9,11.</td>
</tr>
<tr>
<td>Marking Criteria</td>
<td>The marking criteria will be made available on your eLearning site by week 1 of session.</td>
</tr>
</tbody>
</table>

**Assessment 4**  
Genetics Poster as power point slide  
Due date: 1.30 pm 20/5/16  
Weighting: 17.5%  
Submission: Via Flash Drive to subject TO  
Type of Collaboration: Individual Assessment  
Length: Single PowerPoint slide

**Details**  
Posters have become one of the key means of scientific communication and are an effective means of communicating if they are planned carefully and designed to be eye catching.

The aim of this exercise will be to allow you to learn the skills of poster preparation and to broaden your own and class’s knowledge of conservation genetics.

Your task. You will each be given a recent paper in the area of ecological or conservation genetics and your task will be to use this as the basis for communicating an important concept in this field.

The key to success will be making sure that you use the paper to display either a key and interesting element of your assigned paper or a related topic. You MUST start early and do the background reading.

Your poster must be prepared and displayed electronically (as a powerpoint file) display will be in week 12 and 13 prac classes. These poster sessions are compulsory and you will be required to answer questions about your poster.

All of the posters will be available via the web and will be examinable material. They are a source of examples required for exam answers.

**Style and format**  
Poster

**Subject Learning Outcomes**  
1,3,5,8,9,11

**Marking Criteria**  
The marking criteria will be made available on your eLearning site by week 1 of session.

**Assessment 6**  
Final Examination  
Due date: During Exam Period  
Weighting: 50%  
Submission: Exam papers and answers must be submitted at the conclusion of the exam.

**Type of Collaboration**  
Individual Assessment  
Length: 3 hours  
Details: TBA  
Style and format: Final Exam  
Subject Learning Outcomes: 3,4,8,11  
Marking Criteria: Essay or long answer questions
Minimum Requirements for a Pass in this Subject

To receive a clear pass in this subject a total mark of 50% or more must be achieved. In addition, failure to meet any of the minimum performance requirements is grounds for awarding a Technical Fail (TF) in the subject, even where total marks accumulated are greater than 50%.

The minimum performance requirements for this subject are:

- attempt all assessment tasks
- Achieve a mark of at least 45% in the final exam
- meet the minimum participation requirements set out below.

Minimum Student Attendance and Participation

It is expected that students will allocate 12 hours per week to this subject, including any required class attendance, completion of prescribed readings and assessment tasks.

Student attendance at tutorials, practicals, seminars and/or simulations is compulsory and students must attend at least 100% of classes. Absences will require the submission of an application for Academic Consideration via SOLS and the presentation of suitable documentation, for example a Medical Certificate, to Student Central as soon as practical. For further details about applying for academic consideration visit the Student Central webpage:

Scaling

Scaling will not occur in this subject

Late Submission

Late submission of an assessment task without an approved extension of the deadline is not acceptable. If you are unable to submit an assessment due to extenuating circumstances (e.g. medical grounds or compassionate grounds), you can make an application of academic consideration. Not all circumstances qualify for academic consideration. For further details about applying for academic consideration visit the Student Central webpage:

Late Submission Penalty

Late submission of an assessment task without an approved extension of the deadline is not acceptable. Marks will be deducted for late submission at the rate of 10% of the total possible marks for that particular assessment task per day. This means that if a piece of work is marked out of 100, then the late penalty will be 10 marks per day (10% of 100 possible marks per day). The formula for calculating the late penalty is the total possible marks x 0.10 x number of days late. For the purposes of this policy a weekend (Saturday and Sunday) will be regarded as two days.

No marks will be awarded for work submitted after the assessment has been returned to the students.

Supplementary Assessments

Supplementary assessment may be offered to students whose performance in this subject is close to that required to pass the subject, and are otherwise identified as merit or an offer of a supplementary assessment. The precise form of supplementary assessment will be determined at the time the offer of a supplementary assessment is made.

Students can log on to SOLS and click on the link titled “Supplementary Assessment” to view any applicable offers. Addition information on supplementary assessments is available at:
System of Referencing Used for Written Work
The Author-Date (Harvard) referencing system should, unless otherwise specified for a particular assessment (check Details of Assessment Tasks), be utilised. A summary of the Harvard system can be accessed on the Library website at: http://public01.library.uow.edu.au/refcite/style-guides/html/

Use of Internet Sources
Students are able to use the Internet to access the most current information on relevant topics and information. Internet sources should only be used after careful critical analysis of the currency of the information, the role and standing of the sponsoring institution, reputation and credentials of the author, the clarity of the information and the extent to which the information can be supported or ratified by other authoritative sources.

Plagiarism
The full policy on Academic Integrity and Plagiarism is found in the Policy Directory on the UOW website.

"The University's Academic Integrity and Plagiarism Policy, Faculty Handbooks and subject guides clearly set out the University's expectation that students submit only their own original work for assessment and avoid plagiarising the work of others or cheating. Re-using any of your own work (either in part or in full) which you have submitted previously for assessment is not permitted without appropriate acknowledgement. Plagiarism can be detected and has led to students being expelled from the University.

The use by students of any website that provides access to essays or other assessment items (sometimes marketed as ‘resources’), is extremely unwise. Students who provide an assessment item (or provide access to an assessment item) to others, either directly or indirectly (for example by uploading an assessment item to a website) are considered by the university to be intentionally or recklessly helping other students to cheat. This is considered academic misconduct and students place themselves at risk of being expelled from the University."

Submission of Assessments
Refer to the submission requirements under the details of the individual assessments. Students should ensure that they receive a receipt acknowledging submission. Students will be required to produce this in the event that an assessment task is considered to be lost. Students are also expected to keep a copy of all their submitted assessments in the event that re-submission is required.

Assessment Return
Students will be notified when they can collect or view their marked assessment. In accordance with University Policy marked assessments will usually only be held for 21 days after the declaration of marks for that assessment.
Section C: General Advice

Students should refer to the Faculty of Science, Medicine and Health website for information on policies, learning and support services and other general advice.

University Policies

Students should be familiar with the following University policies:

a. Code of Practice – Teaching and Assessment

b. Student Charter

c. Academic Integrity and Plagiarism Policy

d. Student Academic Consideration Policy

e. Course Progress Policy

f. Graduate Qualities Policy

g. Academic Complaints Policy (Coursework and Honours Students)

h. Policy and Guidelines on Non-Discriminatory Language Practice and Presentation

i. Workplace Health and Safety, where relevant

j. Intellectual Property Policy

k. Policy on Ethical Objection by Students to the Use of Animal and Animal Products in Coursework Subjects, where relevant

Student Support Services and Facilities

Students can access information on student support services and facilities at the following link. This includes information on “Academic Support”, “Starting at University, “Help at University” as well as information and support on “Career’s and Jobs”. http://www.uow.edu.au/student/services/index.html

Student Etiquette

Guidelines on the use of email to contact teaching staff, mobile phone use in class and information on the university guide to eLearning ‘Netiquette’ can be found at
## Version Control Table

<table>
<thead>
<tr>
<th>Version Control</th>
<th>Release Date</th>
<th>Author/Reviewer</th>
<th>Approved By</th>
<th>Amendment</th>
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<tr>
<td>1</td>
<td>20160226</td>
<td>Prof David Ayre</td>
<td>Mrs Sonia Losinno – ADE Nominee</td>
<td>Final BIOL351 Autumn 2016 Subject Outline</td>
</tr>
</tbody>
</table>