School of Environmental and Life Sciences

ENVS3003: Conservation Biology

Callaghan Semester 2 - 2023



Course Description

The principles of nature conservation and the paradigm of global biodiversity comprise the core of this course. The past and present impacts of urban development, invasive species, disease, and climate change on biodiversity loss in Australian ecosystems and biomes are analysed. Implications of threatening processes for the management of natural systems and wildlife are considered. In this course, you will apply the principles of ecology, genetics, population dynamics and spatial analysis to conservation biology at various landscape scales from the local to continental biomes. You will explore the levels of organisation of biodiversity from genes to populations, species, and ecosystems and how these levels provide context for understanding theory and practice. You will develop an understanding of how human values, attitudes and behaviour can assist conservation practice. You will learn through class work and participation in field studies.

Requisites This course replaces EMGT3030. If you have successfully completed EMGT3030 you cannot enrol in this course.

Assumed Knowledge ENVS2006 Ecology & Management of Australian Fauna (previously EMGT2050) and ENVS2004 Ecology (previously BIOL2070)

Contact Hours Callaghan

Field Study * Face to Face Off Campus 34 hour(s) per Term Full Term

Lecture Face to Face on Campus 16 hour(s) per Term Full Term

Tutorial Face to Face on Campus 2 hour(s) per Term Full Term

Workshop Face to Face on Campus 8 hour(s) per Term Full Term

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* This contact type has a compulsory requirement.

Unit Weighting

Workload

Students are required to spend on average 120-140 hours of effort (contact and non-contact) including assessments per 10-unit course.



www.newcastle.edu.au CRICOS Provider 00109J



CONTACTS

Course Coordinator	Callaghan Prof. Matt Hayward <u>Matthew.Hayward@newcastle.edu.au</u> (02) 4321 7472 Consultation: By appointment
Teaching Staff	Dr Andrea Griffin – <u>Andrea.Griffin@newcastle.edu.au</u>
School Office	School of Environmental and Life Sciences Room C228 Chemistry Building Callaghan Science-SELS@newcastle.edu.au +61 2 4921 5080 9am-5pm (Mon-Fri)

SYLLABUS

Course Content

Topics will be selected from:

- 1. What is Conservation Biology? What is biodiversity? How is biodiversity measured?
- 2. Landscape and spatial scales in Conservation.
- 3. Drivers of extinction of Australian Fauna.
- 4. Species distribution modelling and spatial conservation planning explaining species distributions, connectivity, and reserve design; spatial information systems and databases.
- 5. Invasive species theory; impacts on native fauna; managing invasive species.
- 6. Population modelling and simulation, population dynamics.
- 7. Urban Ecology urban biodiversity patterns, theory, conservation of urban biodiversity.
- 8. Population modelling and simulation, population dynamics.
- 9. Genetics: genetic variation and extinction risks from inbreeding within small populations; genetic rescue; population simulation models.
- 10. Translocation, reintroduction, and assisted colonisation for the restoration of native fauna, ecological communities, and ecosystem services.
- 11. Conservation psychology: the study and role of human attitudes, values, morals, and behaviour in conservation science; human behavioural change; conservation messaging.

Course Learning Outcomes

On successful completion of this course, students will be able to:

- 1. Define and communicate the key paradigms of Conservation Biology relating to theory and practice of the discipline.
- Compile and analyse historical, ecological, and demographic data to identify causes of biodiversity loss.
- 3. Predict how distributions and abundances of populations change through the use of computer simulations.
- 4. Work as a team member on a real conservation project, identifying key roles, displaying effective oral and written communication, time management and individual responsibilities in achieving project outcomes.



COMPULSORY REQUIREMENTS

In order to pass this course, each student must complete ALL of the following compulsory requirements:

Contact Hour Requirements:

- Field Study Induction Requirement - Students must attend and pass the induction requirements before attending these sessions. In order to participate in field work, students must complete a compulsory safety and fieldwork induction delivered during fieldwork hours.

SCHEDULE

Week	Week Begins	Торіс	Learning Activity	Assessment Due		
1	17 Jul	Introduction to Conservation Biology. Biodiversity, Extinction	Lectures. Data Exercise on Australian threatened species.	Written Report - Australian Fauna Extinction Analysis. Due 30/7/23 via Turnitin		
2	24 Jul	Biodiversity monitoring; species distributions; reserve design	Lectures, Computer Exercises.	Computer Assignment - Species distribution modelling and reserve design. Due 6/8/23 via Turnitin		
3	31 Jul	Invasive species; urban ecology	Lectures.			
4	7 Aug	Population modelling;	Lectures, Computer Exercises.	Computer Assignment -		
		conservation genetics; population genetics modelling	Students assigned to groups for various field projects.	Conservation Genetics Due 20/8/23 via Turnitin		
5	14 Aug	Reintroduction biology; conservation psychology	Lectures. Students assigned to groups for various field projects.	Quiz 1 (weeks 1-3 content) due 20/8/23		
6	21 Aug	Content revision and assistance with test preparation.	Students assigned to groups for various field projects. Submission of your project Work Health Safety Risk Assessment Table. Submission online. See Canvas for due date.			
7	28 Aug		Various field projects; students assigned to groups and projects.	Assessment 1 - Field work participation. Ongoing assessment. Quiz 2 (weeks 4-5 content) due 3/9/2023		
8	4 Sep		Various field projects; students assigned to groups and projects.			
9	11 Sep		Various field projects: students assigned to groups and projects.	Quiz 3 (weeks 1-5 content) due 17/9/23		
10	18 Sep		Various field projects: students assigned to groups and projects.			
		Mid Terr	n Break			
		Mid Terr	n Break			
11	9 Oct		Various field projects: students assigned to groups and projects.			
12	16 Oct		Various field projects: students assigned to groups and projects.			
13	23 Oct			Written Report - Field Project Report Due 29/10/23 via Turnitin		
		Examinati	on Period			
Examination Period						



ASSESSMENTS

This course has 4 assessments. Each assessment is described in more detail in the sections below.

	Assessment Name	Due Date	Involvement	Weighting	Learning Outcomes
1	Assessment 1: Computer Assignments	This assessment item has several sections and covers the activities developed during the teaching weeks: separate sections due on different dates. See Schedule for dates.	Combination	30%	2, 3, 4
2	Assessment 2: Multiple quizzes	This assessment item has several sections and covers the activities developed during the teaching weeks: separate sections due on different dates. See Schedule for dates.	Individual	30%	1, 2, 3
3	Assessment 3: Field Work Participation and Engagement	Field projects as per arrangements with Course Co-ordinator	Individual	10%	4
4	Assessment 4: Written Report	This assessment item has several sections and covers the activity(ies) developed during the teaching weeks as well as the field project. Separate sections due on different dates. See Schedule for dates.	Individual	30%	1, 2, 4

Late Submissions The mark for an assessment item submitted after the designated time on the due date, without an approved extension of time, will be reduced by 10% of the possible maximum mark for that assessment item for each day or part day that the assessment item is late. Note: this applies equally to week and weekend days.

Assessment 1 - Assessment 1: Computer Assignments

Assessment Type	Tutorial / Laboratory Exercises
Description	Tutorial/Laboratory Exercises. Computer simulations of species distribution modelling and population genetics.
Weighting	30%
Due Date	This assessment item has several sections and covers the activities developed during the teaching weeks: separate sections due on different dates. See Schedule for dates.
Submission Method	Online
Assessment Criteria	Details on Canvas
Return Method	Online
Feedback Provided	Online -Various dates within 3 weeks of report sections' submission. Feedback on assignments provided electronically via Turnitin and Canvas against learning outcomes

Assessment 2 - Assessment 2: Multiple quizzes

Assessment Type	Quiz
Description	Multiple quizzes will assess knowledge acquisition in the field of conservation biology
Weighting	30%
Due Date	This assessment item has several sections and covers the activities developed during the teaching weeks: separate sections due on different dates. See Schedule for dates.
Submission Method	Online
Assessment Criteria	See Canvas for details
Return Method	Online
Feedback Provided	Online - After quiz is submitted



Assessment 3 - Assessment 3: Field Work Participation and Engagement

Assessment Type	Participation
Description	Participation will be assessed by collating measures of engagement
Weighting	10%
Due Date	Field projects as per arrangements with Course Co-ordinator
Submission Method	Ongoing Assessment
	Field work supervisor/demonstrator will maintain a record of attendance at field work activities
Assessment Criteria	Successful completion of field participation will receive full 10% GRADE
Return Method	Not Returned
Feedback Provided	In Person - Direct feedback to students will be provided if less than 10% grade

Assessment 4 - Assessment 4: Written Report

Assessment Type Description Weighting Due Date	Report Report 30% This assessment item has several sections and covers the activity(ies) developed during the teaching weeks as well as the field project. Separate sections due on different dates. See Schedule for dates.
Submission Method Assessment Criteria Return Method Feedback Provided	Online Details on Canvas Online Online – various dates within 2 weeks of report sections' submission. Feedback on end of semester report will be provided after course grade release. Feedback on assignments provided electronically via Turnitin and Canvas against learning outcomes

ADDITIONAL INFORMATION

Grading Scheme

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Ihis	course	IS	draded	as	follows:	

Range of Marks	Grade	Description
85-100	High Distinction (HD)	Outstanding standard indicating comprehensive knowledge and understanding of the relevant materials; demonstration of an outstanding level of academic achievement; mastery of skills*; and achievement of all assessment objectives.
75-84	Distinction (D)	Excellent standard indicating a very high level of knowledge and understanding of the relevant materials; demonstration of a very high level of academic ability; sound development of skills*; and achievement of all assessment objectives.
65-74	Credit (C)	Good standard indicating a high level of knowledge and understanding of the relevant materials; demonstration of a high level of academic achievement; reasonable development of skills*; and achievement of all learning outcomes.
50-64	Pass (P)	Satisfactory standard indicating an adequate knowledge and understanding of the relevant materials; demonstration of an adequate level of academic achievement; satisfactory development of skills*; and achievement of all learning outcomes.
0-49	Fail (FF)	Failure to satisfactorily achieve learning outcomes. If all compulsory course components are not completed the mark will be zero. A fail grade may also be awarded following disciplinary action.

*Skills are those identified for the purposes of assessment task(s).



Communication Methods	 Communication methods used in this course include: Students will receive communications via the posting of content or announcements on the Canvas course site. Students will receive communications via their student email account. Communication will be provided via face to face meetings or supervision. 			
Course Evaluation	Each year feedback is sought from students and other stakeholders about the courses offered in the University for the purposes of identifying areas of excellence and potential improvement.			
Oral Interviews (Vivas)	As part of the evaluation process of any assessment item in this course an oral examination (viva) may be conducted. The purpose of the oral examination is to verify the authorship of the material submitted in response to the assessment task. The oral examination will be conducted in accordance with the principles set out in the <u>Oral Examination (viva) Procedure</u> . In cases where the oral examination reveals the assessment item may not be the student's own work the case will be dealt with under the <u>Student Conduct Rule</u> .			
Academic Misconduct	All students are required to meet the academic integrity standards of the University. These standards reinforce the importance of integrity and honesty in an academic environment. Academic Integrity policies apply to all students of the University in all modes of study and in all locations. For the Student Academic Integrity Policy, refer to https://policies.newcastle.edu.au/document/view-current.php?id=35			
Adverse Circumstances	 The University acknowledges the right of students to seek consideration for the impact of allowable adverse circumstances that may affect their performance in assessment item(s). Applications for special consideration due to adverse circumstances will be made using the online Adverse Circumstances system where: the assessment item is a major assessment item; or the assessment item is a minor assessment item and the Course Co-ordinator has 			
	 specified in the Course Outline that students may apply the online Adverse Circumstances system; you are requesting a change of placement; or the course has a compulsory attendance requirement. 			
	Before applying you must refer to the Adverse Circumstance Affecting Assessment Items Procedure available at: <u>https://policies.newcastle.edu.au/document/view-current.php?id=236</u>			
Important Policy Information	The Help button in the Canvas Navigation menu contains helpful information for using the Learning Management System. Students should familiarise themselves with the policies and procedures at https://www.newcastle.edu.au/current-students/no-room-for/policies-and-procedures that support a safe and respectful environment at the University.			

This course outline was approved by the Head of School. No alteration of this course outline is permitted without Head of School approval. If a change is approved, students will be notified and an amended course outline will be provided in the same manner as the original.

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