

ENVS3003: Conservation Biology

Callaghan

Semester 2 - 2025



THE UNIVERSITY OF
NEWCASTLE
AUSTRALIA

OVERVIEW

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 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.

Academic Progress Requirements

Nil

Requisites

Course Replacement:
You cannot enrol if you have successfully completed any of the following course(s):
EMGT3030

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

In order to participate in field work, students must complete a compulsory safety and fieldwork induction delivered during fieldwork hours.

Lecture

Face to Face On Campus
2 hour(s) per week(s) for 4 week(s) starting Week 1

Lecture

Face to Face On Campus
2 hour(s) per week(s) for 4 week(s) starting Week 3

Tutorial

Face to Face On Campus
2 hour(s) per week(s) for 1 week(s) starting Week 1

COURSE OUTLINE

www.newcastle.edu.au

CRICOS Provider 00109J

Workshop

Face to Face On Campus

2 hour(s) per week(s) for 4 week(s) starting Week 1

* This contact type has a compulsory requirement.

**Unit Weighting
Workload**

10

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

CONTACTS

Course Coordinator**Callaghan**

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Consultation: By appointment

Teaching Staff

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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;
2. 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 conservation project, identifying key roles, displaying effective oral and written communication, time management and meeting individual responsibilities in achieving project outcomes.

Course Materials

COMPULSORY REQUIREMENTS

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

Contact Hour Requirements:

- Field Study Has compulsory attendance

Course Assessment Requirements:

-

Compulsory Placement and WHS Requirements:

-

SCHEDULE

Week	Week Begins	Topic	Learning Activity	Assessment Due
1	21 Jul	Introduction to Conservation Biology and fundamental concepts of biodiversity and extinction. Introduction to field projects and WHS (risk assessment process) (Griffin)	Lectures. Data Exercise on Australian Fauna Extinction Analysis.	
2	28 Jul	Biodiversity monitoring; species distributions; reserve design (Southwell)	Lectures, Computer Exercises (SDM)	Assessment 1. Tutorial/Laboratory Exercises - Australian Fauna Extinction Analysis. Due 3/8/25 via Turnitin (Griffin)
3	4 Aug	Invasive species. Urban ecology (Griffin)	Lectures	Assessment 1. Tutorial/Laboratory Exercises- Species distribution modelling and reserve design. Due 10/8/25 via Turnitin (Southwell)
4	11 Aug	Population modelling; conservation genetics; population genetics modelling (Southwell)	Lectures, Computer Exercises (Genetics). Students assigned to groups for various field projects.	Assessment 2 - Quiz available 11/8/25 to 24/8/25 via Turnitin (Griffin/Southwell)
5	18 Aug	Reintroduction biology. Conservation psychology (Griffin)	Lectures. Students assigned to groups for various field projects.	Assessment 1. Tutorial/Laboratory Exercises - Conservation Genetics. Due 24/8/25 via Turnitin (Southwell)
Recess				
6	1 Sep	Content revision and assistance with quiz preparation (Griffin/Southwell)	Students assigned to groups for various field projects. Submission of your project Work Health Safety Risk Assessment Table. Due 7.9.25 submission online.	Assessment 2 - Quiz available 1/9/25 to 14/9/25 via Turnitin (Griffin/Southwell)
7	8 Sep		Various field projects;	Assessment 3 - Field

			students assigned to groups and projects.	work participation. Ongoing assessment.
8	15 Sep		Various field projects; students assigned to groups and projects.	Assessment 2 - Quiz available 15/9/25 to 28/9/25 via Turnitin (Griffin/Southwell)
9	22 Sep		Various field projects; students assigned to groups and projects.	
Recess				
10	6 Oct		Various field projects; students assigned to groups and projects.	
11	13 Oct		Various field projects; students assigned to groups and projects.	
12	20 Oct		Various field projects; students assigned to groups and projects.	
13	27 Oct			Assessment 4 Report - Field Project Reports. Due 27/10/25 via Turnitin (Griffin/Southwell)
Exams				
Exams				

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	Computer Assignments	This assessment item has several sections and covers the activities developed during the teaching weeks. Separate sections are due on different dates. See Schedule for dates.	Group	30%	2, 3, 4
2	Multiple quizzes will assess knowledge acquisition in the field of conservation biology	This assessment item has several sections and covers the activities developed during the teaching weeks. Separate sections are due on different dates. See Schedule for dates.	Individual	30%	1, 2, 3
3	Field Work Participation and Engagement	Field projects as per arrangements with Course Coordinator	Individual	10%	4
4	Written Reports	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 up to 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 - Computer Assignments

Assessment Type	Tutorial / Laboratory Exercises
Description	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 are 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 each sections' submission. Feedback on assignments provided electronically via Turnitin and Canvas
Opportunity to Reattempt	Students will not be given the opportunity to reattempt this assessment.

Assessment 2 - Multiple quizzes will assess knowledge acquisition in the field of conservation biology

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 are due on different dates. See Schedule for dates.
Submission Method	Online
Assessment Criteria	Details on Canvas
Return Method	Online
Feedback Provided	Online - Immediately after each quiz is submitted.
Opportunity to Reattempt	Students will not be given the opportunity to reattempt this assessment.

Assessment 3 - Field Work Participation and Engagement

Assessment Type	Participation
Description	Participation will be assessed by collating measures of engagement during fieldwork
Weighting	10%
Due Date	Field projects as per arrangements with Course Coordinator
Submission Method	Ongoing Assessment Field work supervisor/demonstrator will maintain a record of attendance at field work activities. Participation in the fieldwork is free of charge. Students will need to organise their own transport to and from the field work locations.
Assessment Criteria	Successful completion of field participation will receive full 10% GRADE
Return Method	Not Returned
Feedback Provided	In Person - Direct Feedback will be provided upon request to the Course Coordinator if less than 10% grade.
Opportunity to Reattempt	Students will not be given the opportunity to reattempt this assessment.

Assessment 4 - Written Reports

Assessment Type	Report
Description	This assessment item has several sections and covers the activity(ies) developed during the teaching weeks as well as the field project.
Weighting	30%
Due Date	Separate sections due on different dates. See Schedule for dates.
Submission Method	Online
Assessment Criteria	Details on Canvas
Return Method	Online
Feedback Provided	Online - Feedback on assignments provided electronically via Turnitin and Canvas.
Opportunity to Reattempt	Students will not be given the opportunity to reattempt this assessment.

ADDITIONAL INFORMATION

Grading Scheme

This course is graded 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.

WH&S Requirements

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

Participation in Fieldwork is dependent upon attending compulsory WHS induction sessions which are delivered during the first and second field sessions for all field projects.

Communication Methods

Communication methods used in this course include:

- Canvas Course Site: Students will receive communications via the posting of content or announcements on the Canvas course site.
- Email: Students will receive communications via their student email account.
- Face to Face: 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.

Learning Analytics

The University uses an evidence-based approach to enhancing student learning and delivering support. Our careful analysis of data through learning analytics informs decision making processes related to student learning, academic outcomes, and support services. Learning analytics may be used to identify targeted individual opportunities for additional support services or interventions.

Interviews on Assessment Items

An Interview may be conducted on any assessment item in this course, in accordance with the [Interview on Assessment Items Procedure](#). The purpose of the interview is to verify the author of the material submitted in response to the assessment task and provide a quality assurance measure.

In the event the Course Coordinator is not satisfied that a student's oral responses are consistent with the work originally submitted, the matter will be referred to the Student Academic Conduct Officer, who will take appropriate action under the [Student Conduct Rule](#).

Academic Integrity and Ethical Academic

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

Conduct Policy

environment. Academic Integrity policies apply to all students of the University in all modes of study and in all locations.

Please refer to the [Academic Integrity and Ethical Academic Conduct Policy](#)

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:

1. the assessment item is a major assessment item; or
2. 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;
3. you are requesting a change of placement; or
4. the course has a compulsory attendance requirement.

Before applying you must refer to the [Adverse Circumstance Affecting Assessment Items Procedure](#).

Use of generative artificial intelligence in course assessments

It is critical that any work submitted for assessment is your own original work. Before using generative AI tools (such as ChatGPT, Perplexity, Microsoft Copilot, etc) in any assessable work you must ensure that such use is in line with the requirements for the course and expectations of your Course Coordinator

Misuse of AI tools may be considered a breach of the [University's Student Conduct Rule](#) and could result in disciplinary action.

Artificial Intelligence detection software may be used to review any work you submit. If you have used AI in any way other than has been expressly permitted by your course coordinator, you may be engaging in academic misconduct and be subject to penalties.

For information, refer to:

- [Generative AI Tools](#)
- [Academic Integrity](#)

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/respect-at-uni/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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