

# BIOS 3039 ECOLOGY

**Credit Points** 10

**Coordinator** Uffe Nielsen ([https://directory.westernsydney.edu.au/search/name/Uffe Nielsen/](https://directory.westernsydney.edu.au/search/name/Uffe%20Nielsen/))

**Description** Humans have long been fascinated by Earth’s astounding diversity of species and ecosystems. Ecology is the science that study the distribution of these species, the controls on population dynamics, and what structures communities and ecosystems. The resulting knowledge is critical to inform land management and policy decision-making to conserve biodiversity, sustainably manage ecosystems, while supporting a growing human population through provision of ecosystem services including food production and adaptation to climate change. In this subject, you will learn current ecological theory from the scale of individual organisms, through populations, to communities and ecosystems; how to conduct ecological research; and, how to apply ecological knowledge to solve real world problems.

**School** Science

**Discipline** Ecology and Evolution

**Student Contribution Band** HECS Band 2 10cp

Check your fees via the Fees ([https://www.westernsydney.edu.au/currentstudents/current\\_students/fees/](https://www.westernsydney.edu.au/currentstudents/current_students/fees/)) page.

**Level** Undergraduate Level 3 subject

**Equivalent Subjects** BIOS2007

EY210A

EY201A

BIOS2008

**Restrictions**

Must have successfully completed 100 credit points

## Learning Outcomes

After successful completion of this Subject, students will be able to:

1. Define and apply key ecological concepts relevant at the scale of populations, species, communities, and ecosystems.
2. Critically analyse how ecological knowledge is gained and how it can be applied.
3. Contextualise knowledge gaps and design robust research programs to address these.
4. Communicate ecological knowledge verbally and in writing using scientific literature to support key statements.
5. Work effectively and responsibly in a team.

## Subject Content

1. Describe ecology as a science, how ecological knowledge is gained, and how ecological knowledge, including Indigenous understanding, and theory informs management and policy decision-making.
2. Historical and contemporary drivers of the distribution of species.
3. Population biology and population dynamics, particularly in reference to managing threatened species.
4. The role of biotic interactions, with a focus on herbivory, predation, competition, and beneficial associations.
5. Community ecology, particularly how communities change through time and space.

6. Ecosystem ecology, with a focus on primary productivity, biogeochemical cycling and sustainable land use in the face of global change.
7. Approaches to, and consequences of, traditional and current management, including Indigenous land use, on species and ecosystems.

## Special Requirements

Essential equipment

Covered footwear for practicals in laboratory and field excursions; safety goggles and lab coat for practicals in laboratory

## Assessment

The following table summarises the standard assessment tasks for this subject. Please note this is a guide only. Assessment tasks are regularly updated, where there is a difference your Learning Guide takes precedence.

Type	Length	Percent	Threshold	Individual/ Group Task
Quiz	4 x 30 min quizzes	20	N	Individual
Report	Up to 3,000 words	35	N	Individual
Presentation	10 minutes	10	N	Group/ Individual
Essay	Up to 3,000 words	35	N	Individual

Teaching Periods

## Spring (2024)

### Hawkesbury

**On-site**

**Subject Contact** Uffe Nielsen ([https://directory.westernsydney.edu.au/search/name/Uffe Nielsen/](https://directory.westernsydney.edu.au/search/name/Uffe%20Nielsen/))

View timetable ([https://classregistration.westernsydney.edu.au/even/timetable/?subject\\_code=BIOS3039\\_24-SPR\\_HW\\_1#subjects](https://classregistration.westernsydney.edu.au/even/timetable/?subject_code=BIOS3039_24-SPR_HW_1#subjects))