

Unit Outline (Higher Education)

Institute / School: Institute of Innovation, Science & Sustainability

Unit Title: Population and Community Ecology

Unit ID: SCENV2200

Credit Points: 15.00

Prerequisite(s): (SCENV1001 and SCENV1002)

Co-requisite(s): Nil

Exclusion(s): Nil

ASCED: 050901

Description of the Unit:

Understanding the structure and dynamics of populations, and the structure and diversity of communities is fundamental in environmental and conservation science. Population and Community Ecology develops students' understanding of the factors that shape species populations and communities. Students examine how populations grow and change through time, and how species and populations, in turn, interact to determine community structure and dynamics. Practical exercises are used to examine the ecology of populations and communities, putting theoretical learning into practice.

Grade Scheme: Graded (HD, D, C, P, MF, F, XF)

Work Experience:

No work experience

Placement Component: No

Supplementary Assessment: Yes

Where supplementary assessment is available a student must have failed overall in the Unit but gained a final mark of 45 per cent or above, has completed all major assessment tasks (including all sub-components where a task has multiple parts) as specified in the Unit Description and is not eligible for any other form of supplementary assessment.

Course Level:

Level of Unit in Course	AQF Level of Course					
	5	6	7	8	9	10
Introductory	■	■	■	■	■	■
Intermediate	■	■	✓	■	■	■
Advanced	■	■	■	■	■	■

Learning Outcomes:

Knowledge:

- K1.** Describe the factors that affect population and community structure and dynamics, interrelationships between taxa, and the distribution and abundance of species.
- K2.** Describe the ecological relationships that occur within a community that affect its composition, spatial and temporal diversity and resilience.

Skills:

- S1.** Explain the main ecological theories that underpin populations and communities.
- S2.** Examine, critically evaluate and summarise published ecological material and concepts.
- S3.** Undertake practical exercises to collect population and community data on plants, animals and other organisms and analyse the data in the context of population and community ecology.

Application of knowledge and skills:

- A1.** Conduct practical studies to investigate the structure and ecology of populations and communities.
- A2.** Communicate the outcomes of practical exercises to a scientific audience.
- A3.** Practice appropriate techniques and approaches to measure populations and communities.

Unit Content:

This unit provides a detailed exploration of the ecology of populations, their demography, the factors that shape their growth, how this varies in space and time, and the role of genetics and molecular ecology. The interaction between populations, that is the ecology of communities, and its influence on the coexistence of species and to how communities are structured is also explored.

- Population structure.
- Population growth and dynamics.
- Counting and estimating population size.
- Community structure and diversity.
- Species interactions, such as competition, predation and mutualism.
- Community dynamics: disturbance and succession.

FEDTASKS

Federation University Federation recognises that students require key transferable employability skills to prepare them for their future workplace and society. FEDTASKS (**T**ransferable **A**tttributes **S**kills and **K**nowledge) provide a targeted focus on five key transferable Attributes, Skills, and Knowledge that are embedded within curriculum, developed gradually towards successful measures and interlinked with cross-discipline and Co-operative Learning opportunities. *One or more FEDTASK, transferable Attributes, Skills or Knowledge must be evident in the specified learning outcomes and assessment for each FedUni Unit, and all must be directly assessed in each Course.*

FEDTASK attribute and descriptor		Development and acquisition of FEDTASKS in the Unit	
		Learning Outcomes (KSA)	Assessment task (AT#)
FEDTASK 1 Interpersonal	Students will demonstrate the ability to effectively communicate, inter-act and work with others both individually and in groups. Students will be required to display skills in-person and/or online in: <ul style="list-style-type: none"> Using effective verbal and non-verbal communication Listening for meaning and influencing via active listening Showing empathy for others Negotiating and demonstrating conflict resolution skills Working respectfully in cross-cultural and diverse teams. 	Not applicable	Not applicable
FEDTASK 2 Leadership	Students will demonstrate the ability to apply professional skills and behaviours in leading others. Students will be required to display skills in: <ul style="list-style-type: none"> Creating a collegial environment Showing self-awareness and the ability to self-reflect Inspiring and convincing others Making informed decisions Displaying initiative 	Not applicable	Not applicable
FEDTASK 3 Critical Thinking and Creativity	Students will demonstrate an ability to work in complexity and ambiguity using the imagination to create new ideas. Students will be required to display skills in: <ul style="list-style-type: none"> Reflecting critically Evaluating ideas, concepts and information Considering alternative perspectives to refine ideas Challenging conventional thinking to clarify concepts Forming creative solutions in problem solving. 	Not applicable	Not applicable
FEDTASK 4 Digital Literacy	Students will demonstrate the ability to work fluently across a range of tools, platforms and applications to achieve a range of tasks. Students will be required to display skills in: <ul style="list-style-type: none"> Finding, evaluating, managing, curating, organising and sharing digital information Collating, managing, accessing and using digital data securely Receiving and responding to messages in a range of digital media Contributing actively to digital teams and working groups Participating in and benefiting from digital learning opportunities. 	Not applicable	Not applicable
FEDTASK 5 Sustainable and Ethical Mindset	Students will demonstrate the ability to consider and assess the consequences and impact of ideas and actions in enacting ethical and sustainable decisions. Students will be required to display skills in: <ul style="list-style-type: none"> Making informed judgments that consider the impact of devising solutions in global economic environmental and societal contexts Committing to social responsibility as a professional and a citizen Evaluating ethical, socially responsible and/or sustainable challenges and generating and articulating responses Embracing lifelong, life-wide and life-deep learning to be open to diverse others Implementing required actions to foster sustainability in their professional and personal life. 	Not applicable	Not applicable

Learning Task and Assessment:

Learning Outcomes Assessed	Assessment Tasks	Assessment Type	Weighting
K1, K2	Population ecology quiz(zes).	Quiz	10-20%
K1, K2, S3, A1, A3	Demonstrate knowledge of molecular, population and community ecology.	Practical exercises	20-40%
K1, K2, S1, S2, S3, A1, A2, A3	Community ecology field-based investigation.	Report	20-40%
K1, K2, S1, A3	Demonstration, application and interpretation of knowledge and skills.	Test	30-40%

Adopted Reference Style:

APA ()

Refer to the [library website](#) for more information

Fed Cite - [referencing tool](#)