COURSE OUTLINE

SCI102 Biodiversity and Ecology

School: School of Science, Technology and Engineering

2026 | Trimester 2

UniSC Sunshine Coast
UniSC Moreton Bay
UniSC Fraser Coast

BLENDED LEARNING

Most of your course is on campus but you may be able to do some components of this course online.

Please go to unisc.edu.au for up to date information on the teaching sessions and campuses where this course is usually offered.

1. What is this course about?

1.1. Description

In this course you investigate the nature and diversity of life, from microorganisms and fungi to plants and animals. You explore the mechanism of biodiversity: evolution through natural selection. You also learn how different groups of organisms interact and are dependent on their habitats and each other. You use and expand this knowledge in laboratory classes by observing and describing specimens representing the variety of organisms. You also develop practical skills including scientific drawing, microbial isolation techniques, and the use and construction of identification keys.

1.2. How will this course be delivered?

ACTIVITY	HOURS	BEGINNING WEEK	FREQUENCY
BLENDED LEARNING			
Learning materials – The learning materials will introduce you the diversity of life on Earth from microorganisms and fungi to plants and animals. You will explore the mechanism of biodiversity: evolution through natural selection. You also learn how different groups of organisms interact with and are dependent on each other on their habitats.	2hrs	Week 1	12 times
Laboratory 1 – The laboratory classes will expand your knowledge and enhance your understanding of the key concepts introduced in the learning materials. You will observe and describe specimens representing the variety of organisms. You will also develop practical skills including scientific drawing, microbial isolation techniques, and the use and construction of identification keys.	2hrs	Week 2	6 times
Tutorial/Workshop 1 – The tutorials will develop and put into practice your scientific vocabulary building, critical thinking and scientific writing skills. You will understand key concepts of evolution including speciation, extinction, selection and adaptation. You will develop and demonstrate knowledge of the processes and the mechanisms by which species are produced and multiple species co-exist.	2hrs	Week 1	5 times
Seminar – On campus seminar	1hr	Week 1	3 times

1.3. Course Topics

- Evolution, natural selection and the origin of new species
- Morphology and characteristics of major phyla
- Laboratory skills (microbiology, botany, zoology)
- Scientific drawing and writing skills
- Field investigation skills
- Ecology and conservation of populations and communities

2. What level is this course?

100 Level (Introductory)

Engaging with discipline knowledge and skills at foundational level, broad application of knowledge and skills in familiar contexts and with support. Limited or no prerequisites. Normally, associated with the first full-time study year of an undergraduate program.

3. What is the unit value of this course?

12 units

4. How does this course contribute to my learning?

COURSE LEARNING OUTCOMES		GRADUATE QUALITIES
On successful completion of this course, you should be able to...		Completing these tasks successfully will contribute to you becoming...
1	develop and demonstrate knowledge of the processes that lead to biodiversity and the nature and characteristics of global biodiversity	Knowledgeable
2	develop and put into practice the skills of scientific writing, scientific drawing and field investigation when undertaking tutorial, laboratory and field study exercises	Knowledgeable Empowered Engaged Sustainability-focussed
3	demonstrate your understanding of the ecological interactions between members of an ecological community, and the conservation implications when these interactions are affected by human or natural processes	Creative and critical thinker Sustainability-focussed
4	develop a range of practical skills required to undertake microbiological, botanical and zoological investigations	Empowered

5. Am I eligible to enrol in this course?

Refer to the UniSC Glossary of terms for definitions of “pre-requisites, co-requisites and anti-requisites”.

5.1. Pre-requisites

Not applicable

5.2. Co-requisites

Not applicable

5.3. Anti-requisites

ENS102

5.4. Specific assumed prior knowledge and skills (where applicable)

High school level science

5.5. Microcredential Information

Not applicable

6. How am I going to be assessed?

6.1. Grading Scale

Standard Grading (GRD)

High Distinction (HD), Distinction (DN), Credit (CR), Pass (PS), Fail (FL).

6.2. Details of early feedback on progress

You will receive feedback on your learning of tutorials and labs via weekly online quizzes starting from week 1.

6.3. Assessment tasks

DELIVERY MODE	TASK NO.	ASSESSMENT PRODUCT	INDIVIDUAL OR GROUP	WEIGHTING %	WHAT IS THE DURATION / LENGTH?	WHEN SHOULD I SUBMIT?	WHERE SHOULD I SUBMIT IT?
All	1	Quiz/zes	Individual	0%	Approx. 1 hr each	Refer to Format	Online Test (Quiz)
All	2	Written Piece	Individual	35%	Approx. 500-1000 words	Week 10	Online Submission
All	3	Practical / Laboratory Skills	Individual	35%	Approx. 1 hr each	Refer to Format	Online Test (Quiz)
All	4	Examination - Centrally Scheduled	Individual	30%	2hr	Exam Period	Exam Venue

All - Assessment Task 1: Tutorial quizzes

GOAL:	The formative tutorial quizzes test your knowledge of vocabulary related to biodiversity and ecology and your understanding of ecological processes and ecological interactions. The materials covered in tutorial quizzes will also be assessed in tasks 2, 3 and 4.
PRODUCT:	Quiz/zes
AUTHORSHIP STATEMENT:	
FORMAT:	Individual. You will complete online quizzes from each tutorial in weeks 1, 3, 5 and 7.
CRITERIA:	**No.** — **Learning Outcome assessed** 1 Correct answers and your participation in your own learning — 1 3
GENERIC SKILLS:	Communication, Collaboration, Problem solving, Organisation, Information literacy

All - Assessment Task 2: Interpreting Science

GOAL:	You will explore theories regarding the processes that lead to the evolution of biodiversity throughout the tutorial series and will develop skills in reading and comprehending scientific literature. This task specifically develops your critical analyses of science research and your ability to convey science concepts to other scientists.
PRODUCT:	Written Piece
AUTHORSHIP STATEMENT:	
FORMAT:	Individual students will complete fortnightly tutorial readings and associated written exercises prior to each tutorial class. You will be guided to reflect on and improve your written work during each tutorial. These will prepare you to achieve the best marks for your graded submission, the scientific paper review from your final tutorial class.
CRITERIA:	

No.		Learning Outcome assessed
1	Knowledge of the processes that lead to biodiversity	1 2 3
2	Description of the nature and characteristics of global biodiversity	1 3
3	Analysis of ecological interactions	3
4	Scientific writing – for a science audience	2

GENERIC SKILLS:	Communication, Collaboration, Problem solving, Organisation, Information literacy

All - Assessment Task 3: Laboratory exercises

GOAL:	Demonstrate knowledge of the characteristics and taxonomy of a broad range of phyla, and practical techniques used to study them.
PRODUCT:	Practical / Laboratory Skills
AUTHORSHIP STATEMENT:	
FORMAT:	Individual. You will complete online quizzes from each lab exercise in weeks 2, 4, 6, 8, 10, 11 and 12.
CRITERIA:	

No.		Learning Outcome assessed
1	Scientific drawing standards including accurate scale bars, labeling required features accurately and appropriately labelled, drawn in pencil, appropriate format.	2 4
2	Knowledge of the characteristics and taxonomy of a broad range of organisms including microorganisms, plants, invertebrates and vertebrates.	1
3	Knowledge of population and community diversity.	1

GENERIC SKILLS:	Communication, Collaboration, Problem solving, Organisation, Applying technologies, Information literacy

All - Assessment Task 4: Final exam

GOAL:	Demonstrate knowledge of the evolution and characteristics of major phyla, the processes by which biodiversity is generated and the ecological interactions among multispecies systems.
PRODUCT:	Examination - Centrally Scheduled
AUTHORSHIP STATEMENT:	
FORMAT:	Written exam including multiple choice and short answer questions based on directed readings, learning materials, tutorials, and laboratory classes.
CRITERIA:	**No.** / **Learning Outcome assessed** 1 Correctly answer multiple choice questions; provide comprehensive written responses to short answer questions using a scientific writing style. — 1 2 3
GENERIC SKILLS:	Communication, Problem solving, Organisation, Information literacy

7. Directed study hours

A 12-unit course will have total of 150 learning hours which will include directed study hours (including online if required), self-directed learning and completion of assessable tasks. Student workload is calculated at 12.5 learning hours per one unit.

7.1. Schedule

PERIOD AND TOPIC	ACTIVITIES
Week 1	Learning Material: Course introduction; Origins and patterns of global biodiversity Tutorial: Evolution by natural selection
Week 2	Learning Material: Bacteria and archaea Laboratory: Microbial techniques, microscopes and scientific drawing
Week 3	Learning Material: Fungi and protists Tutorial: The role of ecology in the origin of new species
Week 4	Learning Material: Mosses and ferns Laboratory: Mosses and ferns
Week 5	Learning Material: Gymnosperms and angiosperms Tutorial: The role of genes in the origin of new species
Week 6	Learning Material: Invertebrates: Sponges and cnidaria Laboratory: Gymnosperms and angiosperms
Week 7	Learning Material: Invertebrates: Lophotrochozoa Tutorial: Extinction and evolution
Week 8	Learning Material: Invertebrates: Ecdysozoa Laboratory: Arthropods and lophotrochozoans
Week 9	Learning Material: Birds Tutorial: Where do all the species come from and how do they coexist?
week 10	Learning Material: Chordates Laboratory: Freshwater biodiversity
Week 11	Learning Material: Population and community ecology Laboratory: Classification and identification of vertebrates
week 12	Learning Material: Conservation of biodiversity Laboratory: Population and community diversity
Week 13	Seminar: Course synthesis and exam preparation

8. What resources do I need to undertake this course?

Please note: Course information, including specific information of recommended readings, learning activities, resources, weekly readings, etc. are available on the course Canvas site– Please log in as soon as possible.

8.1. Prescribed text(s) or course reader

You need regular access to the resource(s) below. Many texts are available as ebooks through the Library at no additional cost.

REQUIRED?	AUTHOR	YEAR	TITLE	EDITION	PUBLISHER
Recommended	Lisa A. Urry,Philippa Howden-Chapman,Lisa Early,Steven Alexander Wasserman,Jenny Ombler,Michael Lee Cain,Neil A. Campbell,Jane B. Reece,Peter V. Minorsky,Noel Meyers	2018	Campbell Biology	11th Edition	Pearson Australia
Recommended	Lisa A. Urry,Noel Meyers,Michael Lee Cain,Steven Alexander Wasserman,Peter V. Minorsky,Rebecca B. Orr,Karen Burke da Silva,Ann Parkinson,Lesley Lluka,Prasad Chunduri	2021	Campbell Biology	12th	Pearson Education Australia

8.2. Specific requirements

Lab coat and safety glasses required for laboratory classes.
Personal laptop computer required for Week 12 laboratory classes.

9. How are risks managed in this course?

Risk assessments have been performed for all laboratory classes and a moderate level of health and safety risk exists. Moderate risks are those associated with laboratory work such as working with chemicals and hazardous substances. You will be required to undertake laboratory induction training and it is also your responsibility to review course material, search online, discuss with lecturers and peers and understand the health and safety risks associated with your specific course of study and to familiarise yourself with the University's general health and safety principles by reviewing the online induction training for students, and following the instructions of the University staff

10. What administrative information is relevant to this course?

10.1. Assessment: Academic Integrity

Academic integrity is the ethical standard of university participation. It ensures that students graduate as a result of proving they are competent in their discipline. This is integral in maintaining the value of academic qualifications. Each industry has expectations and standards of the skills and knowledge within that discipline and these are reflected in assessment.

Academic integrity means that you do not engage in any activity that is considered to be academic fraud; including plagiarism, collusion or outsourcing any part of any assessment item to any other person. You are expected to be honest and ethical by completing all work yourself and indicating in your work which ideas and information were developed by you and which were taken from others. You cannot provide your assessment work to others. You are also expected to provide evidence of wide and critical reading, usually by using appropriate academic references.

In order to minimise incidents of academic fraud, this course may require that some of its assessment tasks, when submitted to Canvas, are electronically checked through Turnitin. This software allows for text comparisons to be made between your submitted assessment item and all other work to which Turnitin has access.

10.2. Assessment: Additional Requirements

Eligibility for Supplementary Assessment

Your eligibility for supplementary assessment in a course is dependent of the following conditions applying:
(a) The final mark is in the percentage range 47% to 49.4%; and
(b) The course is graded using the Standard Grading scale

Your eligibility for supplementary assessment in a course is dependent of the following conditions applying: The final mark is in the percentage range 47% to 49.4% The course is graded using the Standard Grading scale You have not failed an assessment task in the course due to academic misconduct

10.3. Assessment: Submission penalties

Late submissions may be penalised up to and including the following maximum percentage of the assessment task's identified value, with weekdays and weekends included in the calculation of days late:
(a) One day: deduct 5%;
(b) Two days: deduct 10%;
(c) Three days: deduct 20%;
(d) Four days: deduct 40%;
(e) Five days: deduct 60%;
(f) Six days: deduct 80%;
(g) Seven days: A result of zero is awarded for the assessment task.

The following penalties will apply for a late submission for an online examination:
Less than 15 minutes: No penalty
From 15 minutes to 30 minutes: 20% penalty
More than 30 minutes: 100% penalty

10.4. Links to relevant University policy and procedures

For more information on Academic Learning & Teaching categories including:

- Assessment: Courses and Coursework Programs
- Review of Assessment and Final Grades
- Supplementary Assessment
- Central Examinations
- Deferred Examinations
- Student Conduct
- Students with a Disability

For more information, visit https://www.usc.edu.au/explore/policies-and-procedures#academic-learning-and-teaching

10.5. Student Charter

UniSC is committed to excellence in teaching, research and engagement in an environment that is inclusive, inspiring, safe and respectful. The Student Charter sets out what students can expect from the University, and what in turn is expected of students, to achieve these outcomes.

10.6. General Enquiries

For course-specific questions, contact your teaching staff or Course Coordinator.

For other enquiries or to access support, please contact Student Central:

- UniSC Student Central
- UniSC Adelaide Student Central