School of Environmental and Life Sciences

BIOL1002: Organisms to Ecosystems

Callaghan and Ourimbah

Semester 2 - 2023

THE UNIVERSITY OF NEWCASTLE AUSTRALIA

COURSE OUTLINE

OVERVIEW

Course Description

This course introduces the taxonomic and functional diversity of organisms together with their interactions with each other and the physical world.

Students will gain an understanding of the immense scale of biological diversity, how that diversity arose and what are the essential elements required to maintain that diversity. This course is also the gateway to real understanding of how organisms work including the development and function of multicellular organisms. This understanding of the organism will then be expanded to interactions between organisms as populations, communities and ecosystems. Understanding how organisms and ecosystems function enables us to move towards living systems that are aligned with natural processes and are essential ingredients to sustainability.

Students who have completed this course are well placed to study further studies in: animal and plant development and function; microbiology; ecology, biodiversity and environmental biology courses at 2000 and 3000 level.

Requisites

This course has similarities to BIOL1070 and BIOL1050. If you have successfully completed either of these courses you cannot enrol in this course.

Assumed Knowledge

HSC Chemistry
HSC Mathematics Advanced or HSC Mathematics Standard

Contact Hours

Lecture
Face to Face On Campus
52 hour(s) per Term Full Term
Total hours to be spread across a normal semester term or compressed into a summer/winter term

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 Coordinators

A/Pr Geoffry De Iuliis
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Consultation: By email in the first instance

Dr Chloe Peneaux
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Consultation: By email in the first instance

Teaching Staff

Other teaching staff will be advised on the course Canvas site.

School Office

School of Environmental and Life Sciences
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9am-5pm (Mon-Fri)

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SYLLABUS

Course Content

Ecosystems are made up of a diversity of organisms which interact with each other & the physical environment to perform ecosystem functions.

Origin and Scale of Diversity:

- Evolving life & mechanisms of evolution
- Origin of species
- Coping with complexity - classification & relatedness

Biology of Organisms:

- Diversity, development & function of plants & animals

Ecology and Evolution:

- Theory of Natural Selection
- Evolutionary processes
- Population & Community ecology

Course Learning Outcomes

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

1. Explain biodiversity and its evolutionary history;
2. Define biological terminology in relation to tissues, organisms, ecology and ecosystems;
3. Recognise the diversity of the form, development and function of multicellular organisms, particularly plants and animals;
4. Explain the concepts of micro and macro evolution and speciation and describe mechanisms underpinning taxonomic and functional diversity;
5. Explain concepts of evolutionary processes and population and community ecology;
6. Apply critical thinking and the scientific approach to interpret biological information in the form of diagrams, graphs, tables and text.

Course Materials

Other Resources:

- Canvas site:
  Students enrolled in the course can login to http://canvas.newcastle.edu.au/ to access the Canvas site used to support this course. You should visit the Canvas site on a regular basis throughout the course.

Recommended Text:

- Freeman, Scott, et al. (2017) Biological Science, 6th Ed (Global) Pearson Education ISBN-13: 9781292165080

  Available as a hardcopy ($130) from The School Locker (https://theschoollocker.com.au/universities/the-university-of-newcastle/subjects/semester-one/biol1001-molecules-cells-and-organisms) or as an eBook ($70) from the publisher (https://www.pearson.com/store/p/biological-science-ebook-global-edition/GPROG_A100061717823_learnerau-availability/9781292165080) Older editions of the textbook may be avialable second hand. Please note, the chapter structure in these older editions is slightly different from the 6th edition. Please take note of the chapter titles prescribed in the lecture schedule when referring to older editions.

SCHEDULE

Week	Week Begins	Topic	Learning Activity	Assessment Due
1	17 Jul	Module 1: Plant evolution, Diversity and Reproduction	Read Chapters 28 and 38 Practice Quiz 1 Assessment Quiz 1	None
2	24 Jul	Module 1: Plant form and function; Plant nutrition	Read Chapters 34 and 36 Practice Quiz 2 Assessment Quiz 2	Complete Assessment Quiz 1 by 11:59 pm Friday 28th July 2023
3	31 Jul	Module 1: Water and Sugar transport in plants	Read Chapter 35 Practice Quiz 3 Assessment Quiz 3	Complete Assessment Quiz 2 by 11:59 pm Friday 4th August 2023
4	7 Aug	Module 1: Plant Sensing and Signalling; Plant Biotechnology	Read Chapter 37 Practice Quiz 4 Assessment Quiz 4 (Module 1 Quiz)	Complete Assessment Quiz 3 by 11:59 pm Friday 11th August 2023
5	14 Aug	Module 2: Animal Form and Function	Read Chapters 30 and 39 Practice Quiz 5 Assessment Quiz 5	Complete Assessment Quiz 4 (Unit 1) by 11:59 pm Friday 18th August 2023
6	21 Aug	Module 2: The Simplest Animals and Protostomes	Read Chapters 30 and 31 Practice Quiz 6 Assessment Quiz 6	Complete Assessment Quiz 5 by 11:59 pm Friday 25th August 2023
7	28 Aug	Module 2: The Deuterostome Animals	Read Chapters 30 and 32 Practice Quiz 7 Assessment Quiz 7	Complete Assessment Quiz 6 by 11:59 pm Friday 1st September 2023
8	4 Sep	Module 2: Animal Reproduction and Development	Read Chapter 47 Practice Quiz 8 Assessment Quiz 8 (Module 2 Quiz)	Complete Assessment Quiz 7 by 11:59 pm Friday 8th September 2023
9	11 Sep	Module 3: The Rise of Evolutionary Thought	Read Chapter 22 Practice Quiz 9 Assessment Quiz 9	Complete Assessment Quiz 8 (Unit 2) by 11:59 pm Friday 15th September 2023
10	18 Sep	Module 3: Evolutionary Processes	Read Chapter 23 Practice Quiz 10 Assessment Quiz 10	Complete Assessment Quiz 9 by 11:59 pm Friday 22nd September 2023
Mid Term Break				
Mid Term Break				
11	9 Oct	Module 3: Population Ecology	Read Chapter 51 Practice Quiz 11 Assessment Quiz 11	Complete Assessment Quiz 10 by 11:59 pm Friday 13th October 2023
12	16 Oct	Module 3: Community Ecology	Read Chapter 52 Practice Quiz 12 Assessment Quiz 12 (Module 3 Quiz)	Complete Assessment Quiz 11 by 11:59 pm Friday 20th October 2023
13	23 Oct	Revision	Revision for the Final Examination	Complete Assessment Quiz 12 by 11:59 pm Friday 27th October 2023
Examination Period				Formal Exam
Examination Period				Formal Exam

ASSESSMENTS

This course has 2 assessments. Each assessment is described in more detail in the sections below.

	Assessment Name	Due Date	Involvement	Weighting	Learning Outcomes
1	Exam	Formal Examination Period	Individual	50%	1, 2, 3, 4, 5, 6
2	Quiz-Online	By 11:59 on Fridays of Weeks 3-13 (see schedule)	Individual	50%	1, 2, 3, 4, 5, 6

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 - Exam

Assessment Type Formal Examination
Purpose Formal Examination
Description The final formal examination is designed to test the individual student's knowledge of the course material and their ability to describe, analyse and hypothesise from this material.
Weighting 50%
Length 2 hours
Due Date Formal Examination Period
Submission Method Formal Exam
Assessment Criteria Correct responses to questions.
Return Method Not Returned
Feedback Provided No Feedback

Assessment 2 - Quiz-Online

Assessment Type Quiz
Purpose The purpose of the three weekly quizzes is to provide students with regular feedback on student learning.
Description 12 short multiple choice quizzes covering material from each week's lectures to assess student progression and understanding. Weighting is divided between the quizzes as follows: Quizzes 1, 2, 3, 5, 6, 7, 9, 10, 11 - 3% each; Quizzes 4, 8 and 12 (end-of-module quizzes) - 7.6% each
Weighting 50%
Due Date By 11:59 on Fridays of Weeks 3-13 (see schedule)
Submission Method Online
Quizzes will be delivered via the course Canvas site.
Assessment Criteria Correct responses to questions.
Return Method Online
Feedback Provided In Class - Answers to the weekly quizzes will be discussed in the tutorial sessions.

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.

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

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.

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 Oral Examination (viva) Procedure. 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 Student Conduct Rule.

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:

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 available at:
https://policies.newcastle.edu.au/document/view-current.php?id=236

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.

Other Information

Reasonable Adjustment Plans (RAP)
If you are registered with AccessAbility and have been provided with a Reasonable Adjustment Plan (RAP), please ensure that you provide your Course Coordinator with a copy as soon as you can, or let your Course Coordinator know that you are still waiting for your RAP.

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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