



# BIOL114

## Organisms to Ecosystems

S1 External 2019

*Dept of Biological Sciences*

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#### **Disclaimer**

Macquarie University has taken all reasonable measures to ensure the information in this publication is accurate and up-to-date. However, the information may change or become out-dated as a result of change in University policies, procedures or rules. The University reserves the right to make changes to any information in this publication without notice. Users of this publication are advised to check the website version of this publication [or the relevant faculty or department] before acting on any information in this publication.

## General Information

### Unit convenor and teaching staff

#### Convener

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#### First Year Teaching Coordinator

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### Credit points

3

### Prerequisites

### Corequisites

BIOL116 or admission to BEnv or BEnvLLB or BArch

### Co-badged status

### Unit description

This unit introduces students to the essential concepts in current biology. BIOL114 builds on the laboratory, statistical and communication skills obtained in BIOL116. BIOL114 forms the first step for students pursuing a career in the biological sciences, and provides a basis for students in other disciplines who wish to maintain an interest in this dynamic field. The theme of this unit is evolution. The first part of the unit is concerned with the origin of life and discusses current theories on how life may have arisen on a previously lifeless planet. We discuss evolutionary theory in detail including some of the genetic principles that underlie evolution. In the second part we introduce the major groups of organisms examining their diversity and how they function. In the final part we discuss the ecological interactions between organisms from the small scale to global patterns. Throughout the unit, these core concepts are illustrated with examples from current research. BIOL114 is designed as a companion unit to BIOL115 in Session 2.

## Important Academic Dates

Information about important academic dates including deadlines for withdrawing from units are available at <https://www.mq.edu.au/study/calendar-of-dates>

## Learning Outcomes

On successful completion of this unit, you will be able to:

- Define evolution and describe its main mechanisms
- Define the the major evolutionary transitions of organisms on earth
- Differentiate the main groups of organisms
- Interpret the evolutionary relationships between groups of organisms
- Contrast major ecological processes that drive evolution
- Describe global and continental biogeographic patterns
- Synthesise experimental results and information from the scientific literature to prepare a scientific report
- Demonstrate foundational learning skills including active engagement in the learning process

## General Assessment Information

Details about the unit assessments and grading rubrics will be posted on iLearn ahead of the due dates.

## Assessment Tasks

Name	Weighting	Hurdle	Due
<u>Participation in practicals</u>	0%	Yes	Weekly
<u>Weekly Quiz</u>	10%	No	Weekly
<u>Mid-semester test</u>	15%	No	Int: April 11; Ext: April 17
<u>Research Report</u>	25%	No	Int: May 6, Ext: May 13
<u>Final Exam</u>	50%	No	After Week 13

### Participation in practicals

Due: **Weekly**

Weighting: **0%**

**This is a hurdle assessment task (see [assessment policy](#) for more information on hurdle assessment tasks)**

You must attend and participate in ALL weekly practical classes to pass this unit. Please contact the first year teaching co-ordinator as soon as possible if you have difficulty attending and participating in any classes. There may be alternatives available to make up the work. If there are circumstances that mean you miss a class, you can apply for special consideration.

On successful completion you will be able to:

- Demonstrate foundational learning skills including active engagement in the learning process

### Weekly Quiz

Due: **Weekly**

Weighting: **10%**

The Weekly Quizzes are accessible through iLearn. They help you to stay up to date with the unit material and prepare you for assessments and practicals.

**There will be two quizzes each week - one focusing on past lectures and one on upcoming practicals. You must have completed the relevant quiz to participate in the practicals.**

You have two attempts for each quiz, and the higher mark will be recorded. Each quiz is worth 0.5%, up to a total of 10%.

The weekly quizzes open Thursday 10am and close the next Thursday 10am.

On successful completion you will be able to:

- Define evolution and describe its main mechanisms
- Define the the major evolutionary transitions of organisms on earth
- Differentiate the main groups of organisms
- Contrast major ecological processes that drive evolution
- Describe global and continental biogeographic patterns

## Mid-semester test

Due: **Int: April 11; Ext: April 17**

Weighting: **15%**

The mid-semester test will consist of multiple choice and short answer questions that cover all lecture material up to and including Lecture 16.

For internals, the test will be conducted during the Thursday lecture, April 11, 2019.

For externals, the test will be conducted during the second oncampus session, April 17, 2019

The mid semester test will run under exam conditions, that is, silently and with no communication between students. No written material, programmable calculators, mobile phones, watches or electronic tablets may be brought into the exam room.

On successful completion you will be able to:

- Define evolution and describe its main mechanisms
- Define the the major evolutionary transitions of organisms on earth
- Interpret the evolutionary relationships between groups of organisms
- Contrast major ecological processes that drive evolution

## Research Report

Due: **Int: May 6, Ext: May 13**

Weighting: **25%**

In this assignment you have to write a short research report on the experiment we have conducted in the practicals. The report will be in the style of a scientific paper, but somewhat shorter. It will contain a title, introduction, methods, results (with figures and/or tables), discussion and reference list.

Prac 4 is dedicated to explaining all elements of the research report and students will be provided with more detail and marking rubrics at the start of semester.

For Internals, the report is due May 6th, 5pm

For externals, the report is due May 13th, 5pm

On successful completion you will be able to:

- Define evolution and describe its main mechanisms
- Contrast major ecological processes that drive evolution
- Synthesise experimental results and information from the scientific literature to prepare a scientific report

## Final Exam

Due: **After Week 13**

Weighting: **50%**

The final exam is a two-hour exam with a mixture of multiple choice, short-length answer and medium-length answer questions. The exam will cover *all* Lecture and Practical material presented in the unit.

Exam conditions will be as for the mid-semester test: silently and with no communication between students. No written material, programmable calculators, watches or mobile phones may be brought into the exam room. Paper language translating dictionaries will be allowed. Please notify the convenor if this is required.

**The University will announce the examination date towards the end of semester. We will relay that date via an announcement in Lectures and via iLearn.**

On successful completion you will be able to:

- Define evolution and describe its main mechanisms
- Define the the major evolutionary transitions of organisms on earth
- Differentiate the main groups of organisms
- Interpret the evolutionary relationships between groups of organisms
- Contrast major ecological processes that drive evolution
- Describe global and continental biogeographic patterns
- Synthesise experimental results and information from the scientific literature to prepare a scientific report

## Delivery and Resources

### **BECOME A STUDENT REP IN BIOL114!**

What does a student rep do?

- Works with students and convener to improve the unit experience for students
- Communicates with students about any issues
- Summarises feedback and issues for convener
- Works with convener to find solutions
- Meets with convener, other unit reps and Head of Department

Why should you nominate?

- Develop your leadership skills
- Develop your communication skills
- Learn to receive and provide feedback
- Network with other unit reps
- Be an active contributor to Biology units

**Express your interest by emailing the First Year Teaching Coordinator Kate Barry at [biol114@mq.edu.au](mailto:biol114@mq.edu.au)!**

## **iLEARN**

The primary means of communication for this unit is via iLearn™ which can be accessed by most web browsers from inside or outside the University.

We expect you to use iLearn for:

- Doing the Weekly Quizzes
- Regularly checking subject announcements (at least twice per week)
- Discussing the unit and its content with staff and other students
- Downloading Lecture and Practical materials
- Downloading reference materials

*Logging in to iLearn*

- The iLearn login page is: <https://ilearn.mq.edu.au/>
- Username: your student number
- Problems? Please contact [Student IT Help](#)
- Need extra help due to a disability/health condition? Please visit the Student Services Website : <https://students.mq.edu.au/support/wellbeing>

## **UNIT COMPLETION REQUIREMENTS**

Minimum requirements include:

1. Submit all assessments and attempt all exams
2. Attend and participate in all practical sessions (this is a hurdle requirement)

## **Missed Practicals**

If you know you will miss a practical or if you missed one, please email the **First Year Coordinator**: [biol114@mq.edu.au](mailto:biol114@mq.edu.au)

There may be alternative practical slots available for you to catch up on the missed practical, including attending the on-campus session. Please contact the **First Year Coordinator** to ensure there is room for you.

### **Overall grades**

The University grading is: fail (F <50%), pass (P 50%-64%), credit (CR 65%-74%), distinction (D 75%-84%) and high distinction (HD 85%-100%).

### **Special Consideration**

If you apply for Special Consideration for your final examination, you must make yourself available from mid July to the end of July, 2019. If you are not available at that time, there is no guarantee an additional examination time will be offered. Specific examination dates and times will be determined at a later date.

### **Assignment submission, Turnitin and Plagiarism**

This is a paperless unit so no paper submissions will be required. All written assignments will be submitted through iLearn via a Turnitin link.

Turnitin is an online program that detects plagiarised pieces of work by comparing your writing with other published work including:

- websites, books, journal articles
- other submitted assignments - from across the world in the current or past years

Plagiarism involves using the work of another person and presenting it as one's own. To avoid plagiarism,

1. prepare your work well ahead of the due date
2. write in your own words (no copy paste)
3. cite the source of the information you are writing about

Do not under any circumstances lend your work to another student. If that student plagiarises your work you too may be liable.

**The penalties imposed by the University for plagiarism are serious and may include expulsion from the University.**

A full outline of the Universities policy on plagiarism is found at [http://www.mq.edu.au/policy/docs/academic\\_honesty/policy.html](http://www.mq.edu.au/policy/docs/academic_honesty/policy.html).

**The Academic Integrity Module for Students is an iLearn resource created by Learning Skills to help you learn about:**

- What 'academic integrity' is and why it's important



- Acceptable and unacceptable academic behaviours at university
- What plagiarism is and key strategies to avoid it

Your responsibilities in relation to academic integrity and your rights under the Macquarie University Academic Honesty Policy. Once you enrol in the Academic Integrity Module for Students, you can access it from your iLearn course list under the category 'Skill Building and Help Resources'.

### **Extensions and penalties**

10% will be deducted for each day an assignment is late. If you are unable to submit the assignment by the due date, then an extension must be sought *before the due date* unless this is absolutely impossible. **To support your extension you will be asked to submit a special consideration request via [ask.mq.edu.au](https://ask.mq.edu.au).**

## **RESOURCES and SUPPORT**

### **How to find the answers**

1. Please read the unit outline
2. Consult iLearn - often the majority of questions have already been asked and answered
3. If the answer to a question will benefit others, please post it on iLearn. We will answer it in time.
4. **First Year Coordinator:** questions about practical class allocations, mark queries and organising alternative times for assessments or extensions.
5. **Scientific officer:** only during practical classes and only technical questions
6. **Tutor:** questions throughout practical sessions and specific queries about assignments
7. **Unit convenors:** lecture content, withdrawal, personal issues
8. Unexpected adjustments made during the course will announced via announcements so make sure you check iLearn regularly.

## **EMAIL PROTOCOL**

1. Always put the subject in the subject line i.e. BIOL114 – if you do not do this you risk the email not being noticed
2. Please be courteous and patient - we will endeavour to reply to your email within 48 hours

### **Text Book**

The textbook for BIOL114 (and BIOL115) is [Campbell Biology](#) (11th Edition, Australian and NZ

edition).

The book is available in hard copy from the campus co-op shop (for around \$170) or as [ebook](#) (for around \$60).

The textbook comes with an electronic resource called 'Mastering Biology' (for an extra cost), which includes animations, exercises and a question bank for study. We recommend the use of Mastering Biology to fully engage with the material, but will not use it formally during the course.

The text book is also available in the library and there might be earlier editions available second hand that are also suitable.

## WRITING AIDS

Pechenik's guide to writing about biology is also recommended for this course as well as the following website.

<http://abacus.bates.edu/~ganderso/biology/resources/writing/HTWsections.html>

This website is comprehensive and will be incredibly useful throughout the semester.

## OTHER HELP

Macquarie University offers lots of help for your to develop your academic skills. Here is a list:

<https://students.mq.edu.au/support/study/skills-development>

# Unit Schedule

See iLearn for the most current lecture and prac schedule.

## Lectures

Lecture type	Day	Time	Location
Face to Face or iLearn recording	Tuesday	10:00-11:00am	14SCO T4
Face to Face or iLearn recording	Thursday	9:00-10:00am	14SCO T4
iLearn Lecture (goes online on Friday)	Monday-Friday	from 9am	Online Only

## Practicals (for internals only)

Practicals last for 3 hours and slots run from Thursday 10 am and finish Friday at 1pm. When you enrol you have to select one slot that works with your timetable. If you cannot find a suitable slot, you can attend the practicals during the on-campus sessions as an external.

All pracs will be run in Science Labs 106, 110 and 112, 6 Wallys Walk (E8C).

### **Oncampus dates (for externals only)**

- Saturday March 16th: 9am-5pm
  - Prac 1, 2, 3
- Wednesday April 17th: 9am-5pm
  - Mid-semester test for external will run from 9:15-10:15am
  - Pracs 5, 6
- Thursday April 18th: 9am-5pm
  - Pracs 4, 7, 8
- Saturday May 18th: 9am-5pm
  - Pracs 9, 10, 11
  - We will discuss the prac report and the final exam

All pracs will be run in Science Labs 106, 110 and 112, 6 Wallys Walk (E8C).

## **Policies and Procedures**

Macquarie University policies and procedures are accessible from [Policy Central](https://staff.mq.edu.au/work/strategy-planning-and-governance/university-policies-and-procedures/policy-central) (<https://staff.mq.edu.au/work/strategy-planning-and-governance/university-policies-and-procedures/policy-central>). Students should be aware of the following policies in particular with regard to Learning and Teaching:

- [Academic Appeals Policy](#)
- [Academic Integrity Policy](#)
- [Academic Progression Policy](#)
- [Assessment Policy](#)
- [Fitness to Practice Procedure](#)
- [Grade Appeal Policy](#)
- [Complaint Management Procedure for Students and Members of the Public](#)
- [Special Consideration Policy](#) (**Note:** *The Special Consideration Policy is effective from 4 December 2017 and replaces the Disruption to Studies Policy.*)

Undergraduate students seeking more policy resources can visit the [Student Policy Gateway](https://students.mq.edu.au/support/study/student-policy-gateway) (<https://students.mq.edu.au/support/study/student-policy-gateway>). It is your one-stop-shop for the key policies you need to know about throughout your undergraduate student journey.

If you would like to see all the policies relevant to Learning and Teaching visit [Policy Central](https://staff.mq.edu.au/work/strategy-planning-and-governance/university-policies-and-procedures/policy-central) (<https://staff.mq.edu.au/work/strategy-planning-and-governance/university-policies-and-procedures/policy-central>).

## Student Code of Conduct

Macquarie University students have a responsibility to be familiar with the Student Code of Conduct: <https://students.mq.edu.au/study/getting-started/student-conduct>

## Results

Results published on platform other than [eStudent](#), (eg. iLearn, Coursera etc.) or released directly by your Unit Convenor, are not confirmed as they are subject to final approval by the University. Once approved, final results will be sent to your student email address and will be made available in [eStudent](#). For more information visit [ask.mq.edu.au](http://ask.mq.edu.au) or if you are a Global MBA student contact [globalmba.support@mq.edu.au](mailto:globalmba.support@mq.edu.au)

## Student Support

Macquarie University provides a range of support services for students. For details, visit <http://students.mq.edu.au/support/>

## Learning Skills

Learning Skills ([mq.edu.au/learningskills](http://mq.edu.au/learningskills)) provides academic writing resources and study strategies to improve your marks and take control of your study.

- [Workshops](#)
- [StudyWise](#)
- [Academic Integrity Module for Students](#)
- [Ask a Learning Adviser](#)

## Student Services and Support

Students with a disability are encouraged to contact the [Disability Service](#) who can provide appropriate help with any issues that arise during their studies.

## Student Enquiries

For all student enquiries, visit Student Connect at [ask.mq.edu.au](http://ask.mq.edu.au)

If you are a Global MBA student contact [globalmba.support@mq.edu.au](mailto:globalmba.support@mq.edu.au)

## IT Help

For help with University computer systems and technology, visit [http://www.mq.edu.au/about\\_us/offices\\_and\\_units/information\\_technology/help/](http://www.mq.edu.au/about_us/offices_and_units/information_technology/help/).

When using the University's IT, you must adhere to the [Acceptable Use of IT Resources Policy](#). The policy applies to all who connect to the MQ network including students.

## Graduate Capabilities

### Creative and Innovative

Our graduates will also be capable of creative thinking and of creating knowledge. They will be

imaginative and open to experience and capable of innovation at work and in the community. We want them to be engaged in applying their critical, creative thinking.

This graduate capability is supported by:

## **Learning outcomes**

- Synthesise experimental results and information from the scientific literature to prepare a scientific report
- Demonstrate foundational learning skills including active engagement in the learning process

## **Assessment tasks**

- Participation in practicals
- Research Report

## **Commitment to Continuous Learning**

Our graduates will have enquiring minds and a literate curiosity which will lead them to pursue knowledge for its own sake. They will continue to pursue learning in their careers and as they participate in the world. They will be capable of reflecting on their experiences and relationships with others and the environment, learning from them, and growing - personally, professionally and socially.

This graduate capability is supported by:

## **Learning outcomes**

- Define evolution and describe its main mechanisms
- Define the the major evolutionary transitions of organisms on earth
- Synthesise experimental results and information from the scientific literature to prepare a scientific report
- Demonstrate foundational learning skills including active engagement in the learning process

## **Assessment task**

- Participation in practicals

## **Discipline Specific Knowledge and Skills**

Our graduates will take with them the intellectual development, depth and breadth of knowledge, scholarly understanding, and specific subject content in their chosen fields to make them competent and confident in their subject or profession. They will be able to demonstrate, where relevant, professional technical competence and meet professional standards. They will be able to articulate the structure of knowledge of their discipline, be able to adapt discipline-specific knowledge to novel situations, and be able to contribute from their discipline to inter-disciplinary

solutions to problems.

This graduate capability is supported by:

## **Learning outcomes**

- Define evolution and describe its main mechanisms
- Define the the major evolutionary transitions of organisms on earth
- Differentiate the main groups of organisms
- Interpret the evolutionary relationships between groups of organisms
- Contrast major ecological processes that drive evolution
- Describe global and continental biogeographic patterns
- Demonstrate foundational learning skills including active engagement in the learning process

## **Assessment tasks**

- Participation in practicals
- Weekly Quiz
- Mid-semester test
- Research Report
- Final Exam

## **Critical, Analytical and Integrative Thinking**

We want our graduates to be capable of reasoning, questioning and analysing, and to integrate and synthesise learning and knowledge from a range of sources and environments; to be able to critique constraints, assumptions and limitations; to be able to think independently and systemically in relation to scholarly activity, in the workplace, and in the world. We want them to have a level of scientific and information technology literacy.

This graduate capability is supported by:

## **Learning outcomes**

- Define evolution and describe its main mechanisms
- Define the the major evolutionary transitions of organisms on earth
- Interpret the evolutionary relationships between groups of organisms
- Describe global and continental biogeographic patterns
- Demonstrate foundational learning skills including active engagement in the learning process

## **Assessment tasks**

- Participation in practicals
- Mid-semester test

- Research Report
- Final Exam

## Problem Solving and Research Capability

Our graduates should be capable of researching; of analysing, and interpreting and assessing data and information in various forms; of drawing connections across fields of knowledge; and they should be able to relate their knowledge to complex situations at work or in the world, in order to diagnose and solve problems. We want them to have the confidence to take the initiative in doing so, within an awareness of their own limitations.

This graduate capability is supported by:

### Learning outcome

- Demonstrate foundational learning skills including active engagement in the learning process

### Assessment tasks

- Participation in practicals
- Weekly Quiz
- Research Report
- Final Exam

## Effective Communication

We want to develop in our students the ability to communicate and convey their views in forms effective with different audiences. We want our graduates to take with them the capability to read, listen, question, gather and evaluate information resources in a variety of formats, assess, write clearly, speak effectively, and to use visual communication and communication technologies as appropriate.

This graduate capability is supported by:

### Learning outcomes

- Define evolution and describe its main mechanisms
- Define the the major evolutionary transitions of organisms on earth
- Synthesise experimental results and information from the scientific literature to prepare a scientific report
- Demonstrate foundational learning skills including active engagement in the learning process

### Assessment tasks

- Participation in practicals
- Mid-semester test

- Research Report
- Final Exam

## Socially and Environmentally Active and Responsible

We want our graduates to be aware of and have respect for self and others; to be able to work with others as a leader and a team player; to have a sense of connectedness with others and country; and to have a sense of mutual obligation. Our graduates should be informed and active participants in moving society towards sustainability.

This graduate capability is supported by:

### Learning outcomes

- Contrast major ecological processes that drive evolution
- Describe global and continental biogeographic patterns

## Changes since First Published

Date	Description
27/02/2019	Kate's email address removed
21/02/2019	Kate's email address incorrect