BIOL114

Organisms to Ecosystems

S1 Day 2016

Dept of Biological Sciences

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General Information

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Credit points
3

Prerequisites

Corequisites
BIOL116 or admission to BEnv

Co-badged status

Unit description
This unit introduces students to the essential concepts in current biology. The unit 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. This unit is designed as a companion unit to BIOL115.

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 on earth

Differentiate the main groups of organism

Interpret the evolutionary relationships between organism groups

Contrast major ecological processes

Describe global and continental biogeographic patterns

Effectively communicate biological concepts and thinking

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	Due
Weekly activities	10%	Weekly
Mid-semester test	15%	27th April 2015
Research Report	25%	16th May 2015

Name	Weighting	Due
Final Exam	50%	After Week 13

Weekly activities

Due: **Weekly**
Weighting: **10%**

The Weekly Activities are accessible through iLearn. They are designed to keep you up to date with the unit material and prepare you for assessments and practicals.

Weekly quizzes will have questions about the preceding lectures as well as the upcoming practicals. You must have done the weekly quizzes in order to attend the practicals to make sure you are familiar with the prac material.

You have two attempts for each quiz, and the higher mark will be taken.

The weekly quizzes open Mondays at 9am and close the following Monday at 9am.

On successful completion you will be able to:

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

Mid-semester test

Due: **27th April 2015**
Weighting: **15%**

The mid-semester test will consist of multiple choice and short answer questions that cover all lecture material up to and including Face to Face Lecture 18.

The test will be conducted during the Wednesday lecture under exam conditions, that is, silently and with no communication between students. No written material, programmable calculators, mobile phones 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 on earth

Research Report

Due: **16th May 2015**
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, short summary, introduction, methods, results (with figures and/or tables), discussion and reference list.

Prac 5 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.

On successful completion you will be able to:

- Differentiate the main groups of organism
- Contrast major ecological processes
- Effectively communicate biological concepts and thinking

Final Exam

Due: **After Week 13**
Weighting: **50%**

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

Exam conditions will be as for mid-semester test: silently and with no communication between students. No written material, programmable calculators or mobile phones may be brought into the exam room. Paper language translating dictionaries will be allowed. Please notify the convener if this 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 on earth
- Differentiate the main groups of organism
- Interpret the evolutionary relationships between organism groups
- Contrast major ecological processes
- Describe global and continental biogeographic patterns
- Effectively communicate biological concepts and thinking

Delivery and Resources

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 disabiliy/health condition: please visit the Student Services Website : students.mq.edu.au/campus_life/wellbeing

UNIT COMPLETION REQUIREMENTS

Minimum requirements include:

1. Submit all assessments and attempt all exams
2. Attend at least 80% of practicals
3. Must pass the final exam

Missed Practicals

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

Inform tutor that you have submitted consideration and ensure the role is marked accordingly.

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

Students who miss more than 20% of the practicals are unable to pass the unit.

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%).

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.

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 may be asked to submit a special consideration. **All applications for extensions of deadlines must be submitted to the First Year Coordinator: BIOL114@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 conveners**: 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 (10th 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.

Unit Schedule

Lectures

Lecture type	Day	Time	Location
Face to Face or ILearn recording	Wednesday	1:00-2:00pm	W6D Lotus Theatre
Face to Face or ILearn recording	Thursday	12:00-1:00pm	W2.4A Macquarie Theatre
ILearn Lecture	Monday-Friday	from 9am	Online Only

Practicals

Practical last for 2 hours and slots run from Monday 10 am and finish Tuesday at 6pm. When you enroll you have to select one slot that works with your timetable. If you can not find a suitable slot, you can attend the practicals during the oncampus session as external.

Oncampus dates

- Saturday March 19th: 9am-5pm
    - Prac 1, 2, 3
- Monday April 18th: 9am-5pm
    - Pracs 4 & 5, 6
- Tuesday April 19th: 9am-5pm
    - Pracs 7, 8
- Saturday May 14th: 9am-5pm
    - Mid-semester test for external will run from 9:15-10:15am
    - Pracs 9 & 10
    - We will discuss the prac report and the final exam

Draft Lecture and Prac schedule

Minor changes in the schedule will be announced on ILearn

Week	Wednesday Lecture	Thursday Lecture	Online Lecture	Monday/ Tuesday Prac
1 Feb 29-March 4	**Lecture 1**: Unit Introduction March 2	**Lecture 2:** What is Life? March 3	**Lecture 3:** Extremophiles & prep for prac 1	**No prac**
2 March 7 -11	**Lecture 4:** How did life start? March 9	**Lecture 5:** Major transitions of life March 10	**Lecture 6:** Current life on earth & prep for prac 2	**Prac 1** Life on Mars March 7 & 8
3 March 14-18	**Lecture 7:** Darwin's theory of evolution March 16	**Lecture 8:** Basic genetic principles March 17	**Lecture 9:** Epigenetics & prep for prac 3	**Prac 2** Early life on earth March 14 & 15

4 March 21-25	**Lecture 10:** Species & speciation March 23	**Lecture 11:** Sources of genetic variation March 24	**Lecture 12:** Drift, flow & sex no prac prep	**Prac 3** Evolution experiment March 21 &22
5 March 28- April 1	**Lecture 13:** Cells & prokaryotic life March 30	**Lecture 14:** Eukaryotic life & multicellularity March 31	**Lecture 15:** Cellular structures & prep for prac 4	**No prac** March 28 & 30
6 April 4-8	**Lecture 16:** Phylogenies April 6	**Lecture 17:** Plants Thurs April 7	**Lecture 18:** The Left Wall of Life no prac prep	**Prac 4** Cells! April 4 & 5
April 11-15	**Mid-semester break** **April 11**	**Mid-semester break** **April 13**	**Mid-semester break**	**No prac** **April 11 & 12**
April 18-22	**Mid-semester break** **April 18**	**Mid-semester break** **April 20**	**Mid-semester break**	**No prac** **April 18 & 19**
7 April 25-29	**Mid-semester test** April 27	**Lecture 19:** Curious Plant Biology April 28	**Lecture 20:** Plant diversity & prep for prac 5	**No prac** **April 25 & 26**
8 May 2-6	**Lecture 21:** Fungal biology May 4	**Lecture 22**: Animals May 5	**Lecture 23:** How microbes influence life & prep for prac 6	**Prac 5** Prac report May 2 & 3
9 May 9-13	**Lecture 24:** Animal-plant interactions May 11	**Lecture 25:** Energy and nutrition May 12	**Lecture 26:** Plant pollination and deception & prep for prac 7	**Prac 6** Diversity 1 – Fungi & Bacteria May 9 & 10
10 May 16-20 Prac report due Monday May 16 @ 10am	**Lecture 27:** Reproduction & the evolution of sex May 18	**Lecture 28:** Development & life history May 19	**Lecture 29:** Animal diversity & prep for prac 8	**Prac 7** Diversity 2 - Plants May 16 & 17

11 May 23-27	**Lecture 30:** Animal & plant behaviour May 25	**Lecture 31:** Ecology May 26	**Lecture 32:** Distributions & prep for prac 9	**Prac 8** Diversity 3 - Animals May 23 & 24
12 May 30 – June 3 Prac report returned	**Lecture 33:** Population ecology June 1	**Lecture 34:** Community Ecology June 2	**Lecture 35:** Ecosystems No prac prep	**Prac 9** Behavioural Ecology May 30 & 31 Prac report returned
13 June 6-10	**Lecture 36:** Global Change & the future of the planet June 8	No lecture	No flipped lecture	**Prac 10** Revision, exam & speed-dating June 6 & 7

Policies and Procedures

Macquarie University policies and procedures are accessible from Policy Central. Students should be aware of the following policies in particular with regard to Learning and Teaching:

Academic Honesty Policy http://mq.edu.au/policy/docs/academic_honesty/policy.html

New Assessment Policy in effect from Session 2 2016 http://mq.edu.au/policy/docs/assessment/policy_2016.html. For more information visit http://students.mq.edu.au/events/2016/07/19/new_assessment_policy_in_place_from_session_2/

Assessment Policy prior to Session 2 2016 http://mq.edu.au/policy/docs/assessment/policy.html

Grading Policy prior to Session 2 2016 http://mq.edu.au/policy/docs/grading/policy.html

Grade Appeal Policy http://mq.edu.au/policy/docs/gradeappeal/policy.html

Complaint Management Procedure for Students and Members of the Public http://www.mq.edu.au/policy/docs/complaint_management/procedure.html

Disruption to Studies Policy http://www.mq.edu.au/policy/docs/disruption_studies/policy.html *The Disruption to Studies Policy is effective from March 3 2014 and replaces the Special Consideration Policy.*

In addition, a number of other policies can be found in the Learning and Teaching Category of 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/support/student_conduct/

Results

Results shown in *iLearn*, 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.

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) 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

IT Help

For help with University computer systems and technology, visit 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 outcome

- Effectively communicate biological concepts and thinking

Assessment task

- 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 on earth
- Effectively communicate biological concepts and thinking

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 on earth
- Differentiate the main groups of organism
- Interpret the evolutionary relationships between organism groups
- Contrast major ecological processes
- Describe global and continental biogeographic patterns

Assessment tasks

- Weekly activities
- 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 on earth
- Interpret the evolutionary relationships between organism groups
- Describe global and continental biogeographic patterns

Assessment tasks

- 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:

Assessment tasks

- Weekly activities
- 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 on earth
- Effectively communicate biological concepts and thinking

Assessment tasks

- 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
- Describe global and continental biogeographic patterns

Changes from Previous Offering

BIOL114 in 2016 has been moderated from previous offerings to link strongly with the newly established BIOL116 - Biology in Action.

Changes since First Published

Date	Description
17/02/2016	Oncampus dates with detailed pracs were added
16/02/2016	Confusing information about the weekly quizzes was made more explicit.
07/01/2016	sorry Kath, I got the dates for one of the pracs wrong...
04/01/2016	I forgot to add information about the oncampus sessions