



BIOL6210

Life Processes

Session 2, Infrequent attendance, North Ryde 2020

Department of Biological Sciences

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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.

Notice

As part of [Phase 3 of our return to campus plan](#), most units will now run tutorials, seminars and other small group learning activities on campus for the second half-year, while keeping an online version available for those students unable to return or those who choose to continue their studies online.

To check the availability of face-to-face and online activities for your unit, please go to [timetable viewer](#). To check detailed information on unit assessments visit your unit's iLearn space or consult your unit convenor.

General Information

Unit convenor and teaching staff

Brian Atwell

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Credit points

10

Prerequisites

Admission to MBiotech or MConsBiol or GradDipConsBiol or GradCertConsBiol or MSc or MScInnovationBioConsMgmt

Corequisites

Co-badged status

With BIOL2210

Unit description

All living things share a series of basic cell processes that are vital to life as we know it: these include membrane integrity, transport and energy transduction, enabling microorganisms, fungi, plants and animals to grow, develop and reproduce. However, these processes have evolved from their prokaryotic origins in eukaryotes, now varying qualitatively across taxa. For example, at the cell level, signal amplification, hormonal regulation, sensory responses, photosynthesis, locomotion and immune responses are examples of adaptations that are genetically distinct in either plants or animals. Within the life cycle of a single organism, expression of these gene combinations determines the way that organisms develop and acclimate to their immediate environment. This unit will explore the full range of adaptations across Kingdoms and how specific gene combinations are expressed to enable life to flourish. Such events will be viewed primarily through the prism of physiology but with reference to morphology, gene expression and metabolism.

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:

ULO1: Apply detailed knowledge to explain the processes by which organisms gain energy, grow, and develop

ULO2: Describe the co-ordination of physiological processes in organisms, including

transport systems and responses to stimuli

ULO3: Compare and contrast physiological processes, and their evolution, in microbes, plants, and animals

ULO4: Demonstrate critical thinking and writing skills to appraise scientific literature on a major physiological theme

ULO5: Analyse and interpret complex experimental data and critically evaluate these data in the context of physiological phenomena

ULO6: Apply broad and coherent knowledge of physiology to applications in the fields of biotechnology and medicine

Assessment Tasks

Name	Weighting	Hurdle	Due
<u>Weekly quizzes</u>	20%	No	Sunday midnight for lectures in the preceding week
<u>Practical quizzes</u>	20%	No	Held in your practical session
<u>Written assessment</u>	20%	No	(to be advised) After mid-semester break
<u>Mid-semester test</u>	10%	No	Morning of 16 September
<u>Final exam</u>	30%	Yes	When advised by Examination Office

Weekly quizzes

Assessment Type ¹: Quiz/Test

Indicative Time on Task ²: 12 hours

Due: **Sunday midnight for lectures in the preceding week**

Weighting: **20%**

Students complete a set of lecture-specific questions embedded in each lecture with answers registered in iLearn

On successful completion you will be able to:

- Apply detailed knowledge to explain the processes by which organisms gain energy, grow, and develop
- Describe the co-ordination of physiological processes in organisms, including transport

systems and responses to stimuli

- Compare and contrast physiological processes, and their evolution, in microbes, plants, and animals

Practical quizzes

Assessment Type ¹: Quiz/Test

Indicative Time on Task ²: 10 hours

Due: **Held in your practical session**

Weighting: **20%**

Students complete a set of prac-specific questions embedded in each practical with answers registered in iLearn

On successful completion you will be able to:

- Apply detailed knowledge to explain the processes by which organisms gain energy, grow, and develop
- Describe the co-ordination of physiological processes in organisms, including transport systems and responses to stimuli
- Demonstrate critical thinking and writing skills to appraise scientific literature on a major physiological theme

Written assessment

Assessment Type ¹: Report

Indicative Time on Task ²: 20 hours

Due: **(to be advised) After mid-semester break**

Weighting: **20%**

A deep critical appraisal of two recent publications on one of a set of topics chosen by the student

On successful completion you will be able to:

- Analyse and interpret complex experimental data and critically evaluate these data in the context of physiological phenomena
- Apply broad and coherent knowledge of physiology to applications in the fields of biotechnology and medicine

Mid-semester test

Assessment Type ¹: Quiz/Test

Indicative Time on Task ²: 1 hours

Due: **Morning of 16 September**

Weighting: **10%**

A test of material presented by mid-semester, largely based around terminology and images

On successful completion you will be able to:

- Apply detailed knowledge to explain the processes by which organisms gain energy, grow, and develop
- Describe the co-ordination of physiological processes in organisms, including transport systems and responses to stimuli

Final exam

Assessment Type ¹: Examination

Indicative Time on Task ²: 3 hours

Due: **When advised by Examination Office**

Weighting: **30%**

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

An analytical set of short-answer assembled in graded order of difficulty designed to test understanding rather than factual recall.

On successful completion you will be able to:

- Apply detailed knowledge to explain the processes by which organisms gain energy, grow, and develop
- Describe the co-ordination of physiological processes in organisms, including transport systems and responses to stimuli
- Compare and contrast physiological processes, and their evolution, in microbes, plants, and animals
- Apply broad and coherent knowledge of physiology to applications in the fields of biotechnology and medicine

¹ If you need help with your assignment, please contact:

- the academic teaching staff in your unit for guidance in understanding or completing this type of assessment
- the [Writing Centre](#) for academic skills support.

² Indicative time-on-task is an estimate of the time required for completion of the assessment task and is subject to individual variation

Delivery and Resources

General Assessment Information

Assessment for this unit consists of a mixture of quizzes, a written assignment, a short test and a final exam. A team-based practical project will be organised late in the semester if circumstances permit (this will depend upon the rules that prevail in late October for prac teaching). Submission of all assessments and completion of all tests is essential for adequate progress, since all assessment tasks are required to master the content of this unit. Most importantly, it will be essential to keep pace with the quizzes, as marks accrue weekly throughout the semester.

HURDLE: The final exam is a hurdle for this unit. Students must achieve a mark of at least 40% in the final exam to pass the unit. Students who fail to achieve this hurdle on the first attempt, but demonstrate a 'serious attempt' by achieving a mark of at least 30%, will be given a second attempt to cross the 40% hurdle in a supplementary final exam. Students who achieve or surpass the hurdle on the second attempt will obtain a mark of 40%. The final mark will then be calculated from the in-semester grade (out of 65 marks) and the final exam (out of 35 marks). An overall mark of 50% is the minimum required to pass the unit.

All assessments will be graded and we aim to have marks available within three weeks of the assessment due date. Marks will be available on Gradebook in iLearn. Feedback on the written assignment will be provided through Turnitin when the marks are released.

Weekly 'lecture' quizzes:

Questions will be inserted into the lecture slides each week, based on the lecture material. Quizzes will be open on iLearn each week from Tuesday (the day after each week's lectures are loaded) and close the following Sunday at midnight. Once you start the quiz you have up to 15 minutes to complete it and you are only allowed one attempt. These questions are designed to ensure that you have **some familiarity** with the lecture material and should be completed ideally before the practicals so you have the best opportunity to learn from the practical exercises. They do not require a deep understanding of the lecture material. There are a total of 12 weekly quizzes, starting in Week 2. The quizzes will be automatically marked and the marks and correct answers will be released once submissions have been completed.

Practical quizzes:

These quiz questions will be based on the material covered in the external practical sessions.

Questions will be available on iLearn **at some time during the practical sessions**; have your internet access ready. Answers must be submitted online during the practical session and you are only allowed one attempt. These questions are designed to test your understanding of the practical exercises but are very simple and do not require *interpretation* of the data. There are a total of 8 practical quizzes (each with multiple questions). Multiple-choice answers will be entered online and quizzes will be automatically marked and the marks will be available immediately.

Online preparatory skills: There will be various supplementary materials offered to help you gain confidence in areas of uncertainty. This applies especially to chemistry and statistics.

Written assignment:

Students will choose from a list of topics provided in Week 4. The topics are designed to cover a wide range and for each topic, two recent publications will be provided. These papers are the **source** for your assignment work but more references should be used to support your arguments. Write (up to) a 1000-word report which will be submitted through Turnitin. The write-up will be divided into three distinct questions to direct you: (a) what did the papers report? (b) are they a sound piece of research? (c) what would you do as a follow-up experiment? A rubric which outlines the assessment criteria will be made available on iLearn.

This report is due by 11:59 pm Monday 9 Oct 2020 (end of Week 9) and must be submitted through the Turnitin link in iLearn (no hardcopy is required). Students are reminded that Turnitin is plagiarism-checking software and all assignments must comply with the Academic Honesty Policy of the university, which you can read at: http://www.mq.edu.au/policy/docs/academic_honesty/policy.html.

Apart from plagiarising other external sources of material, be aware that your work will be electronically cross-checked against other students' work. We encourage you to discuss ideas with your fellow students but you must write original work for submission. Assignments can only be submitted to Turnitin once, so make sure your assignment is finalised before you submit.

Mid-semester test:

The mid-semester test will be closed book, will take 50 minutes and will be held on the morning of **Wednesday 16 September 2020**. The test will consist of short-answer questions and cover all lecture and practical content up to and including Week 6 (i.e. lectures 1-12 and practicals 1-4).

Prac Project (in the final weeks of the pracs):

The project is an innovation which we hope to run in some form depending upon the health rules in late October. The aim is that you select an experimental topic, report on the background to the topic, formulate a hypothesis, test it and report on your findings. Further details will be released in Week 7.

Discussions & seminar (BIOL6210 only):

This is an additional assessment task that you must complete in order to earn your BIOL6210 (postgraduate) status in this unit. It is not onerous and no marks are awarded but it is a hurdle - i.e. you **MUST** complete it to pass the unit. The format is to meet three weeks in a row late in the

semester and discuss topics that each person might develop (first week). In the second meeting, we will go over each topic in more detail and check that it is feasible and in Week 3, you will present a three-minute Powerpoint seminar on the topic to the group. The common theme in all your talks will be a physiological process or analysis. **For example**, you might decide to explore how anteaters manage to derive nutrition from ants, and what processes occur in their guts and what organisms are involved. **You must each choose a topic that is different from any of your fellow students.** There are many possibilities. Some will like an ecosystem-level topic while other might chose something right down at the molecular level. Details to follow later in the semester.

Final examination:

The final exam will be closed book and three hours duration and held in the official university examination period at the end of the session. The exam will consist of short- and extended-answer questions. Some short-answer questions will be drawn from the sample short answer questions made available each week in lectures. Calculators without text retrieval capacity will be allowed into the exam room. For further information please see the university examination policy at: https://www.mq.edu.au/policy/docs/assessment/schedule_4.html

If you receive special consideration for the final exam, a supplementary exam will be scheduled in December 2020. By making a special consideration application for the final exam you are declaring yourself available for a resit during the supplementary examination period and will not be eligible for a second special consideration approval based on pre-existing commitments. Please ensure you are familiar with the policy prior to submitting an application. Approved applicants will receive an individual notification one week prior to the exam with the exact date and time of their supplementary examination.

If you are given a second opportunity to sit the final examination as a result of failing to meet the minimum mark required, you will be offered that chance during the same supplementary examination period and will be notified of the exact day and time after the publication of final results for the unit.

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>). 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.)

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](http://staff.mq.edu.au/work/strategy-planning-and-governance/university-policies-and-procedures/policy-central) (<http://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 or if you are a Global MBA student contact 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) provides academic writing resources and study strategies to help you improve your marks and take control of your study.

- [Getting help with your assignment](#)
- [Workshops](#)
- [StudyWise](#)
- [Academic Integrity Module](#)

The Library provides online and face to face support to help you find and use relevant information resources.

- [Subject and Research Guides](#)
- [Ask a Librarian](#)

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

If you are a Global MBA student contact 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/.

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.

Changes since First Published

Date	Description
25/08/2020	I removed a statement that 5% of the final mark was awarded for an assessment that has been deleted.