BMOL6231
Advanced Biochemistry and Cell Biology
Session 2, Special circumstances, North Ryde 2021
Department of Molecular Sciences

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Notice
Some on-campus classes have moved online for the first two weeks of Session, before returning to campus in Week 3. If you are studying a unit outside of the primary Session 2 timetable, please contact your teaching staff team for further details.

Some classes/teaching activities cannot be moved online and must be taught on campus. To find out if you are enrolled in one of these classes/teaching activities, you can check to see if your unit is on the list of units with mandatory on-campus classes/teaching activities.

Your Unit Convenor will provide more information via an iLearn announcement when your iLearn unit becomes available.
# General Information

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<thead>
<tr>
<th>Unit convenor and teaching staff</th>
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<tr>
<td><strong>Unit Convenor</strong></td>
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<tr>
<td>Paul Jaschke</td>
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<td><a href="mailto:paul.jaschke@mq.edu.au">paul.jaschke@mq.edu.au</a></td>
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<tr>
<td><strong>Lecturer</strong></td>
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<tr>
<td>Robert Willows</td>
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<td><a href="mailto:robert.willows@mq.edu.au">robert.willows@mq.edu.au</a></td>
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<table>
<thead>
<tr>
<th>Credit points</th>
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</thead>
<tbody>
<tr>
<td>10</td>
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<table>
<thead>
<tr>
<th>Prerequisites</th>
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<tbody>
<tr>
<td>Admission to GradDipBiotech or GradCertLabAQMgt or GradDipLabAQMgt or MBiotech or MBioBus or MLabAQMgt or MRadiopharmSc or MSc or MScInnovationChemBiomolecularSc</td>
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<tr>
<th>Corequisites</th>
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<th>Co-badged status</th>
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<tr>
<th>Unit description</th>
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<tr>
<td>Biochemistry and cell biology are central to our understanding of medicine and biotechnology. Advances in these fields are dependent on an advanced understanding of the molecular basis of diverse cellular processes. This unit links important biochemical processes to functions and properties of eukaryotic cells. We explore advanced concepts including: enzyme function, properties of membranes, signal transduction, protein trafficking and transport, and protein turnover. These are linked to whole cell behaviours such as cell division and differentiation, programmed cell death, and general responses to external stimuli. Practical work complements lecture material and provides experience with a broad range of current techniques used in research and industry. Laboratory techniques used include analysis of signalling cascades, enzyme kinetics, spectrophotometry, and fluorescence and light microscopy.</td>
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## Important Academic Dates

Information about important academic dates including deadlines for withdrawing from units are available at [https://students.mq.edu.au/important-dates](https://students.mq.edu.au/important-dates)

## Learning Outcomes

On successful completion of this unit, you will be able to:
ULO1: Demonstrate an understanding of how eukaryotic cells are studied and summarise current knowledge of internal cell organisation, membrane trafficking, intracellular compartments, biochemical pathways, and intra- and extra-cellular signalling.

ULO2: Summarise the major eukaryotic cell regulation control points and how disturbances in these processes are involved in human disease.

ULO3: Design and execute laboratory experiments to characterise, quantitate and measure a range of fundamental cell processes.

ULO4: Critically analyse and communicate advanced molecular, cellular, and biochemical concepts from the primary literature in both verbal and written form.

General Assessment Information

Please refer to the Macquarie University Assessment policy regarding submission of assignments, plagiarism, extensions, late submissions, etc.

Individual assessment criteria/marking rubrics can be found on the BMOL6231 iLearn site.

Late Submissions

Tasks 10% or less - No extensions will be granted. Students who have not submitted the task prior to the deadline will be awarded a mark of 0 for the task. This penalty does not apply for cases in which an application for disruption of studies is made and approved. No submission will be accepted after solutions have been posted.

Tasks above 10% - No extensions will be granted. There will be a deduction of 10% of the total available marks made from the total awarded mark for each 24 hour period or part thereof that the submission is late (for example, 25 hours late in submission – 20% penalty). This penalty does not apply for cases in which an application for disruption of studies is made and approved. No submission will be accepted after solutions have been posted.

Assessment Tasks

<table>
<thead>
<tr>
<th>Name</th>
<th>Weighting</th>
<th>Hurdle</th>
<th>Due</th>
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<tbody>
<tr>
<td>Lecture participation</td>
<td>5%</td>
<td>No</td>
<td>Weeks 1-13</td>
</tr>
<tr>
<td>Practical participation</td>
<td>0%</td>
<td>Yes</td>
<td>Weeks 1-13</td>
</tr>
<tr>
<td>Early Test</td>
<td>10%</td>
<td>No</td>
<td>Week 3</td>
</tr>
<tr>
<td>Lab Report</td>
<td>50%</td>
<td>No</td>
<td>Weeks 4-13</td>
</tr>
<tr>
<td>Final Examination</td>
<td>35%</td>
<td>No</td>
<td>University Examination Period</td>
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Lecture participation
Assessment Type 1: Participatory task
Indicative Time on Task 2: 5 hours
Due: Weeks 1-13
Weighting: 5%

Small tasks across the semester to reward lecture participation

On successful completion you will be able to:
- Demonstrate an understanding of how eukaryotic cells are studied and summarise current knowledge of internal cell organisation, membrane trafficking, intracellular compartments, biochemical pathways, and intra- and extra-cellular signalling.
- Summarise the major eukaryotic cell regulation control points and how disturbances in these processes are involved in human disease.

Practical participation
Assessment Type 1: Participatory task
Indicative Time on Task 2: 0 hours
Due: Weeks 1-13
Weighting: 0%
This is a hurdle assessment task (see assessment policy for more information on hurdle assessment tasks)

A task to assess practical participation

On successful completion you will be able to:
- Design and execute laboratory experiments to characterise, quantitate and measure a range of fundamental cell processes.

Early Test
Assessment Type 1: Quiz/Test
Indicative Time on Task 2: 12 hours
Due: Week 3
Weighting: 10%
An test on material covered in the first half of the unit

On successful completion you will be able to:

- Demonstrate an understanding of how eukaryotic cells are studied and summarise current knowledge of internal cell organisation, membrane trafficking, intracellular compartments, biochemical pathways, and intra- and extra-cellular signalling.
- Summarise the major eukaryotic cell regulation control points and how disturbances in these processes are involved in human disease.

**Lab Report**

Assessment Type 1: Lab report  
Indicative Time on Task 2: 50 hours  
Due: **Weeks 4-13**  
Weighting: **50%**

Four laboratory reports will be submitted as part of this assessment. Three of these will be partial laboratory reports that are formative types of assessment to gain experience in writing particular components of the analysis and reporting of biochemical and/or cell biological data. The fourth report will be a full laboratory report combining most aspects of a scientific report in the biochemical and cell biological fields.

On successful completion you will be able to:

- Demonstrate an understanding of how eukaryotic cells are studied and summarise current knowledge of internal cell organisation, membrane trafficking, intracellular compartments, biochemical pathways, and intra- and extra-cellular signalling.
- Summarise the major eukaryotic cell regulation control points and how disturbances in these processes are involved in human disease.
- Design and execute laboratory experiments to characterise, quantitate and measure a range of fundamental cell processes.
- Critically analyse and communicate advanced molecular, cellular, and biochemical concepts from the primary literature in both verbal and written form.

**Final Examination**

Assessment Type 1: Examination  
Indicative Time on Task 2: 30 hours  
Due: **University Examination Period**
A final examination on material covered during the unit

On successful completion you will be able to:

- Demonstrate an understanding of how eukaryotic cells are studied and summarise current knowledge of internal cell organisation, membrane trafficking, intracellular compartments, biochemical pathways, and intra- and extra-cellular signalling.
- Summarise the major eukaryotic cell regulation control points and how disturbances in these processes are involved in human disease.
- Critically analyse and communicate advanced molecular, cellular, and biochemical concepts from the primary literature in both verbal and written form.

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 Learning Skills Unit 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**

**Required Text**


Your lectures will cover parts of many chapters from this text and your success in the unit will depend on having this textbook.

**Unit Web Page**

The web page for this unit is at Macquarie University's iLearn site.

The iLearn site for BMOL3201 will be used to deliver lecture and laboratory notes and will feature a discussion forum, digital lecture recordings and other learning resources. To view the lecture notes and other PDF files on the website, you will require a PDF viewer. Free PDF viewers can be found online (e.g. Adobe Reader).
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). 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).

Student Code of Conduct

Macquarie University students have a responsibility to be familiar with the Student Code of Conduct: https://students.mq.edu.au/admin/other-resources/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.
Student Enquiry Service
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

Equity 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.

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.