BMOL3201
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

Unit convenor and teaching staff
Unit Convenor
Paul Jaschke
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Lecturer
Robert Willows
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Credit points
10

Prerequisites
130cp at 1000 level or above including BMOL2201 or CBMS201 or CBMS223

Corequisites

Co-badged status

Unit description
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.

Important Academic Dates
Information about important academic dates including deadlines for withdrawing from units are available at 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 BMOL3201 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>
</tr>
</thead>
<tbody>
<tr>
<td>Lecture Participation</td>
<td>5%</td>
<td>No</td>
<td>Throughout semester</td>
</tr>
<tr>
<td>Practical Participation</td>
<td>0%</td>
<td>Yes</td>
<td>Throughout semester</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>
</tr>
</tbody>
</table>
Lecture Participation

Assessment Type 1: Participatory task
Indicative Time on Task 2: 5 hours
Due: Throughout semester
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: Throughout semester
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%
A test on material covered in the first part 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
Weighting: 35%

A final examination on material covered during 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.

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/PolicyCentral).
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.

- Getting help with your assignment
- Workshops
- StudyWise
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.