



**UNSW**

## UNSW Course Outline

# BABS1201 Molecules, Cells and Genes - 2024

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## General Course Information

**Course Code :** BABS1201

**Year :** 2024

**Term :** Term 1

**Teaching Period :** T1

**Is a multi-term course? :** No

**Faculty :** Faculty of Science

**Academic Unit :** School of Biotechnology and Biomolecular Sciences

**Delivery Mode :** In Person

**Delivery Format :** Standard

**Delivery Location :** Kensington

**Campus :** Sydney

**Study Level :** Postgraduate, Undergraduate

**Units of Credit :** 6

### Useful Links

[Handbook Class Timetable](#)

## Course Details & Outcomes

### Course Description

This course introduces the cell as the simplest form of life, the elements essential to life and the characteristics of living things. Different cell types are compared including their structures and functions. The structures of proteins, fats and carbohydrates, their metabolism and roles in the

cell including the processes for energy generation in cells. The structure of nucleic acid and its role in the processes of cell division and gene expression, and how this applies to genetic inheritance and evolution. This is a blended course. The weekly laboratory classes are delivered face-to-face and lectures are online.

## Course Aims

This course aims to:

1. Provide a foundation for further study in cell and molecular biology, biochemistry and genetics. This is done by introducing cells structures and functions, macromolecules involved in cell processes, and the structure and inheritance of genetic material.
2. Introduce scientific literature and provide opportunities to use this literature and develop science communication skills in written and verbal forms.
3. Provide valuable experience working in a biology laboratory working collaboratively as part of a group.

## Relationship to Other Courses

These are no prerequisites for BABS1201. It provides a good foundation for BABS1202, though is not a prerequisite for that course.

# Course Learning Outcomes

| Course Learning Outcomes                                                                                                                                                                                       |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| CLO1 : Communicate findings from scientific literature to different audiences using verbal and written formats.                                                                                                |
| CLO2 : Identify and compare different cell types and their structures and functions.                                                                                                                           |
| CLO3 : Describe the structures of the macromolecules proteins, fats and carbohydrates, and their metabolism including the processes for energy generation in cells.                                            |
| CLO4 : Describe the structures of genetic material, the processes involved in cell division and gene expression, and how this applies to genetic inheritance and evolution.                                    |
| CLO5 : Demonstrate a knowledge of the techniques and safe work practices required in a biological laboratory, including use of the light microscope, related calculations and basic molecular biology methods. |

| Course Learning Outcomes                                                                                                                                                                                       | Assessment Item                                                                                                                         |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------|
| CLO1 : Communicate findings from scientific literature to different audiences using verbal and written formats.                                                                                                | <ul style="list-style-type: none"><li>• Literature review</li><li>• Science Communication Project</li><li>• Final Theory Exam</li></ul> |
| CLO2 : Identify and compare different cell types and their structures and functions.                                                                                                                           | <ul style="list-style-type: none"><li>• Final Theory Exam</li></ul>                                                                     |
| CLO3 : Describe the structures of the macromolecules proteins, fats and carbohydrates, and their metabolism including the processes for energy generation in cells.                                            | <ul style="list-style-type: none"><li>• Mid-Term Test</li><li>• Final Theory Exam</li></ul>                                             |
| CLO4 : Describe the structures of genetic material, the processes involved in cell division and gene expression, and how this applies to genetic inheritance and evolution.                                    | <ul style="list-style-type: none"><li>• Final Theory Exam</li></ul>                                                                     |
| CLO5 : Demonstrate a knowledge of the techniques and safe work practices required in a biological laboratory, including use of the light microscope, related calculations and basic molecular biology methods. | <ul style="list-style-type: none"><li>• Mid-Term Test</li><li>• Final Theory Exam</li></ul>                                             |

## Learning and Teaching Technologies

Moodle - Learning Management System | Microsoft Teams | Echo 360

## Learning and Teaching in this course

I have a question about the course. Where do I find the answer?

Check to see if your question is already answered in this Course Outline or on the BABS1201 Moodle site. If not, post your question to the Discussion Forum in the BABS1201 Moodle site.

Email BABS1201@unsw.edu.au if your question is of a personal or sensitive nature. Include your full name and student number and send from your UNSW email account. You are welcome to contact your lecturers in the course with any questions. If they do not provide their contact details on their lecture slides, please ask your coordinators for them.

### **How do I contact my demonstrator? Can I email them?**

Your demonstrators are generally not available out of class time, as they are contracted only for their teaching hours and preparation. While you can contact them via your Microsoft Teams demonstrator group channel, please know they may not respond until they prepare for your next class.

### **How do I find answers to questions about specific lecture material?**

Read through the corresponding lecture notes whilst listening to the lecture audio recording (lecture notes and recordings can be accessed through the BABS1201 Moodle site). The lecturer may have answered your question during the lecture. Refer to the corresponding references; there are copies of the recommended text in the library and available from the UNSW Bookshop. Use the Lightboard revision videos available via Moodle, if applicable. Attend the Q&A session that corresponds to that lecture. Post your question on a discussion forum in the BABS1201 Moodle site. Email your question to the lecturer, letting them know the course and the lecture to which your question refers.

## **Assessments**

### **Assessment Structure**

| Assessment Item                                                | Weight | Relevant Dates                                                                                        |
|----------------------------------------------------------------|--------|-------------------------------------------------------------------------------------------------------|
| Literature review<br>Assessment Format: Individual             | 20%    | Start Date: Not Applicable<br>Due Date: Week 5: 11 March - 17 March<br>Post Date: 15/03/2024 05:00 PM |
| Mid-Term Test<br>Assessment Format: Individual                 | 20%    | Due Date: Week 7: 25 March - 31 March                                                                 |
| Science Communication Project<br>Assessment Format: Individual | 20%    | Due Date: Week 10: 15 April - 21 April                                                                |
| Final Theory Exam<br>Assessment Format: Individual             | 40%    |                                                                                                       |

# Assessment Details

## Literature review

### Assessment Overview

You will choose from a list of topics related to the course themes. Next, you will search the literature on the topic and choose three scientific articles (two primary articles and a review), documenting the process you undertook to find and choose the articles. This portion of the literature review will be worth 10%.

Then use the articles to write a referenced mini-review on the area. This review will assess your ability to gather, synthesise, and evaluate scientific literature. This will be worth 10%.

Support for this assessment is provided as a lecture and online lesson on scientific literature, and an online lesson developed for this course with the UNSW library.

This assignment is due in Week 5.

Written feedback and a completed rubric is provided.

### Course Learning Outcomes

- CLO1 : Communicate findings from scientific literature to different audiences using verbal and written formats.

### Assessment Length

Minimum of 2000 words

### Submission notes

Submitting close to the deadline may mean you experience delays in submission. Please check the filename before submitting as you only have one attempt. You should also check you receive a receipt and click to check your upload displays correctly.

### Assessment information

#### Get ready for this assessment

To ensure you are ready to start this assessment, ensure you have completed the following in Moodle:

1. Listened to the Science Communication lecture.
2. Listened to the Scientific Literature lecture and completed the related online lesson.
3. Completed the BABS1201 Library Tutorial (there is also a LIVE session with the librarians on

Teams if you choose).

Further information on this assessment is available in the "Assessment" section of Moodle and the "Science Communication lecture".

### Flexibility in task completion - Short Extension

If you are struggling to meet the deadline for this assessment task, you may apply for a short extension of three (3) days.

All short extension applications must be submitted *before* the task's due date.

For details on how to apply, and the conditions on applying, please visit the UNSW [Special Consideration](#) website.

#### Assignment submission Turnitin type

This assignment is submitted through Turnitin and students do not see Turnitin similarity reports.

## Mid-Term Test

#### Assessment Overview

This assessment is timetabled in Week 7.

The test is 45 minutes and comprises multiple choice questions. The test covers course content delivered in the first half of the course. You will receive feedback on how you performed for each topic on Moodle.

#### Course Learning Outcomes

- CLO3 : Describe the structures of the macromolecules proteins, fats and carbohydrates, and their metabolism including the processes for energy generation in cells.
- CLO5 : Demonstrate a knowledge of the techniques and safe work practices required in a biological laboratory, including use of the light microscope, related calculations and basic molecular biology methods.

#### Assignment submission Turnitin type

Not Applicable

# Science Communication Project

## Assessment Overview

In Week 10 you will deliver a short (approx. 3 min) presentation on the topic of your literature review. This will be supported by a visual abstract, that is a visual summary (this may be annotated) of your literature review/presentation topic.

The visual abstract contributes 10% and the presentation will be worth 10%.

Support for this assessment is provided as a lecture on Science Communication and detailed instructions provided in the Assessment Hub on Moodle. You will be expected to answer some questions following the talk.

This assignment is due in Week 10.

Written feedback and a completed rubric is provided.

## Course Learning Outcomes

- CL01 : Communicate findings from scientific literature to different audiences using verbal and written formats.

## Detailed Assessment Description

Further information is available in the "Assessment" section of Moodle, and in the "Science Communication" lecture.

The presentations will occur during your scheduled laboratory time in Week 10 (there may be changes communicated for some classes impacted by the Easter public holidays).

Note that the visual abstract will need to be submitted via Turnitin before your laboratory class. If this is not submitted, your demonstrator will not be able to mark it even if shown in class, as they will not be able to access your rubric and the Gradebook item. Ensure that you check that your visual presentation has text in a format that can be "read" by Turnitin. If you are having problems, you can submit the visual abstract along with an additional page containing the text (in a single file) as a PDF. Multiple submission attempts permitted for if needed,

## Assignment submission Turnitin type

This assignment is submitted through Turnitin and students do not see Turnitin similarity reports.

# Final Theory Exam

## Assessment Overview

The final exam is timetabled within a 2 hour timeslot during the UNSW examination period. The exam covers all course content delivered in weeks 1-10 and comprises multiple choice and short answer questions. Feedback is available through inquiry with the course convenor.

## Course Learning Outcomes

- CLO1 : Communicate findings from scientific literature to different audiences using verbal and written formats.
- CLO2 : Identify and compare different cell types and their structures and functions.
- CLO3 : Describe the structures of the macromolecules proteins, fats and carbohydrates, and their metabolism including the processes for energy generation in cells.
- CLO4 : Describe the structures of genetic material, the processes involved in cell division and gene expression, and how this applies to genetic inheritance and evolution.
- CLO5 : Demonstrate a knowledge of the techniques and safe work practices required in a biological laboratory, including use of the light microscope, related calculations and basic molecular biology methods.

## General Assessment Information

Further information on the assessments is provided in the Assessment Hub on Moodle. If you have any questions, please attend one of our Q&A session, post on the Moodle Forum or email [BABS1201@unsw.edu.au](mailto:BABS1201@unsw.edu.au)

## Grading Basis

Standard

## Requirements to pass course

To pass this course you need a composite mark of at least 50.

# Course Schedule

| Teaching Week/Module               | Activity Type   | Content                                                                                                                                                                                                           |
|------------------------------------|-----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Week 1 : 12 February - 18 February | Lecture         | Welcome to BABS1201 - an important introduction to the course. (LIVE - Monday)<br>Rebecca LeBard, Teagan Mock and Ryan Salinas                                                                                    |
|                                    | Lecture         | Lecture 1: Scientific literature (pre-recorded)<br>Rebecca LeBard                                                                                                                                                 |
|                                    | Lecture         | Lecture 2: Scientific communication (pre-recorded)<br>Teagan Mock                                                                                                                                                 |
|                                    | Laboratory      | Use your laboratory time to (1) set up your Class Notebook (2) purchase your lab coat and safety glasses and (3) locate the laboratory location found on your timetable (Teaching lab 1 or Wallace Wurth122/123). |
| Week 2 : 19 February - 25 February | Online Activity | Q&A: Scientific literature & communication - important information on how to start your Assessment<br>Teagan Mock and UNSW Librarians                                                                             |
|                                    | Lecture         | Lecture 3: Life (pre-recorded)<br>Rebecca LeBard                                                                                                                                                                  |
|                                    | Lecture         | Lecture 4: Cells I (pre-recorded)<br>Rebecca LeBard                                                                                                                                                               |
|                                    | Lecture         | Lecture 5: Cells II (pre-recorded)<br>Rebecca LeBard                                                                                                                                                              |
|                                    | Laboratory      | Health and Safety<br>Please ensure you have checked which laboratory your class is located in (Teaching lab 1 or Wallace Wurth122/123).                                                                           |
| Week 3 : 26 February - 3 March     | Online Activity | Q&A: Revision of Lectures 3-5 (LIVE Monday)<br>Rebecca LeBard                                                                                                                                                     |
|                                    | Lecture         | Lecture 6: Macromolecules I (pre-recorded)<br>Rebecca LeBard                                                                                                                                                      |
|                                    | Lecture         | Lecture 7: Macromolecules II (pre-recorded)<br>Rebecca LeBard                                                                                                                                                     |
|                                    | Lecture         | Lecture 8: Macromolecules III (pre-recorded)<br>Rebecca LeBard                                                                                                                                                    |
|                                    | Laboratory      | Cell Structure                                                                                                                                                                                                    |
| Week 4 : 4 March - 10 March        | Online Activity | Q&A: Revision of Lectures 6-8 Macromolecules (LIVE Monday)<br>Rebecca LeBard                                                                                                                                      |
|                                    | Lecture         | Lecture 9: Cell integrity (pre-recorded)<br>Vladimir Sytnyk                                                                                                                                                       |
|                                    | Lecture         | Lecture 10: Nutrient and ion transport (pre-recorded)<br>Vladimir Sytnyk                                                                                                                                          |
|                                    | Lecture         | Lecture 11: Metabolism I (pre-recorded)<br>Ryan Salinas                                                                                                                                                           |
|                                    | Laboratory      | Macromolecules                                                                                                                                                                                                    |
| Week 5 : 11 March - 17 March       | Online Activity | Q&A: Revision of Lectures 9 and 10 (LIVE Monday)<br>Vladimir Sytnyk                                                                                                                                               |
|                                    | Lecture         | Lecture 12: Metabolism II (pre-recorded)<br>Ryan Salinas                                                                                                                                                          |
|                                    | Lecture         | Lecture 13: Photosynthesis (pre-recorded)<br>Ryan Salinas                                                                                                                                                         |
|                                    | Other           | Q&A: Metabolism and photosynthesis revision (LIVE Wednesday)<br>Ryan Salinas                                                                                                                                      |
|                                    | Laboratory      | Osmosis and diffusion                                                                                                                                                                                             |
| Week 7 : 25 March - 31 March       | Online Activity | Q&A: Mid-term test information and practice questions (LIVE - Monday)<br>Rebecca LeBard and Ryan Salinas                                                                                                          |
|                                    | Assessment      | Mid-Term Test (Wednesday - see Assessment Hub on Moodle for details)                                                                                                                                              |
|                                    | Lecture         | Lecture 14: DNA replication (pre-recorded)<br>Merlin Crossley                                                                                                                                                     |
|                                    | Lecture         | Lecture 15: Cell division and reproduction (pre-recorded)<br>Merlin Crossley                                                                                                                                      |
|                                    | Lecture         | Lecture 16: Gene expression I (pre-recorded)<br>Merlin Crossley                                                                                                                                                   |

|                               | Laboratory      | Photosynthesis                                                                                                                  |
|-------------------------------|-----------------|---------------------------------------------------------------------------------------------------------------------------------|
| Week 8 : 1 April - 7 April    | Online Activity | Q&A: Revision of Lectures 14-16 (LIVE Monday)<br>Merlin Crossley                                                                |
|                               | Lecture         | Lecture 17: Gene expression II (pre-recorded)<br>Merlin Crossley                                                                |
|                               | Lecture         | Lecture 18: Polymerase chain reaction (pre-recorded)<br>Merlin Crossley                                                         |
|                               | Lecture         | Lecture 19: Mutation (pre-recorded)<br>Merlin Crossley                                                                          |
|                               | Laboratory      | Mitosis and cell division (No lab on Friday due to public holiday)                                                              |
| Week 9 : 8 April - 14 April   | Online Activity | Q&A: Revision of Lectures 17-19 (LIVE Wednesday - no Monday Q&A due to public holiday)<br>Merlin Crossley                       |
|                               | Lecture         | Lecture 20: Mendel's laws of heredity (pre-recorded)<br>Teagan Mock                                                             |
|                               | Lecture         | Lecture 21: Mechanisms of inheritance (pre-recorded)<br>Teagan Mock                                                             |
|                               | Lecture         | Lecture 22: Population genetics (pre-recorded)<br>Teagan Mock                                                                   |
|                               | Laboratory      | Genetic inheritance (No lab on Monday due to public holiday)                                                                    |
| Week 10 : 15 April - 21 April | Online Activity | Q&A: Revision of Lectures 20-22 (LIVE Monday)<br>Teagan Mock                                                                    |
|                               | Online Activity | Q&A: Final exam information and practice questions (LIVE Wednesday)<br>Teagan Mock, Rebecca LeBard and Ryan Salinas             |
|                               | Laboratory      | Presentations<br>Catch-up laboratory for Monday students (Genetics inheritance) and Friday students (Mitosis and cell division) |

## Attendance Requirements

Students are strongly encouraged to attend all classes and review lecture recordings.

## General Schedule Information

Your attendance is expected for all laboratory classes.

If you are unable to attend a laboratory class, please email [BABS1201@unsw.edu.au](mailto:BABS1201@unsw.edu.au) providing the reasons you need a make up activity. For laboratory classes, students are required to: Arrive on time and prepared for the class (correct PPE of laboratory coat, safety glasses and closed shoes, and a device to access the online Class Notebook), and actively participate in the activities. We will have some additional devices available on request, please email the above address prior with details of your class.

## Course Resources

### Prescribed Resources

There is no laboratory manual for purchase. The laboratory classes use the Class Notebook (OneNote) which is introduced in the first lecture and accessible via the course Teams site.

## Recommended Resources

Lisa A. Urry, Noel Meyers, Michael L. Cain, Steven A. Wasserman, Peter V. Minorsky. 12th edition, **Campbell Biology Australian and New Zealand version**. This is available in either print <https://www.bookshop.unsw.edu.au/details.cgi?ITEMNO=9781488626241> and electronic format <https://unswbookshop.vitalsource.com/products/-v9781488626272>

Copies are also available in the UNSW Library (both print and electronic).

## Additional Costs

A laboratory coat and safety glasses are required for this course.

## Course Evaluation and Development

Student feedback on the course is collected in both Terms 1 and 3 via myExperience. Changes made to the course are reported back to students via myFeedback matter in the Quick Links section of the course Moodle page.

## Staff Details

| Position | Name           | Email | Location  | Phone | Availability                     | Equitable Learning Services Contact | Primary Contact |
|----------|----------------|-------|-----------|-------|----------------------------------|-------------------------------------|-----------------|
| Convenor | Rebecca LeBard |       | 220D, D26 |       | Please email for an appointment. | No                                  | Yes             |
|          | Teagan Mcock   |       | 220, D26  |       | Please email for an appointment. | No                                  | No              |
|          | Ryan Salinas   |       | 220, D26  |       | Please email for an appointment. | No                                  | No              |

## Other Useful Information

### Academic Information

Upon your enrolment at UNSW, you share responsibility with us for maintaining a safe, harmonious and tolerant University environment.

You are required to:

- Comply with the University's conditions of enrolment.
- Act responsibly, ethically, safely and with integrity.
- Observe standards of equity and respect in dealing with every member of the UNSW community.

- Engage in lawful behaviour.
- Use and care for University resources in a responsible and appropriate manner.
- Maintain the University's reputation and good standing.

For more information, visit the [UNSW Student Code of Conduct Website](#).

## Academic Honesty and Plagiarism

**Referencing** is a way of acknowledging the sources of information that you use to research your assignments. You need to provide a reference whenever you draw on someone else's words, ideas or research. Not referencing other people's work can constitute plagiarism.

Further information about referencing styles can be located at <https://student.unsw.edu.au/referencing>

**Academic integrity** is fundamental to success at university. Academic integrity can be defined as a commitment to six fundamental values in academic pursuits: honesty, trust, fairness, respect, responsibility and courage. At UNSW, this means that your work must be your own, and others' ideas should be appropriately acknowledged. If you don't follow these rules, plagiarism may be detected in your work.

Further information about academic integrity, plagiarism and the use of AI in assessments can be located at:

- The [Current Students site](#),
- The [ELISE training site](#), and
- The [Use of AI for assessments](#) site.

The Student Conduct and Integrity Unit provides further resources to assist you to understand your conduct obligations as a student: <https://student.unsw.edu.au/conduct>

## Submission of Assessment Tasks

### Penalty for Late Submissions

UNSW has a standard late submission penalty of:

- 5% per day,
- for all assessments where a penalty applies,
- capped at five days (120 hours) from the assessment deadline, after which a student cannot submit an assessment, and
- no permitted variation.

*Any variations to the above will be explicitly stated in the Course Outline for a given course or*

## **assessment task.**

Students are expected to manage their time to meet deadlines and to request extensions as early as possible before the deadline.

### **Special Consideration**

If circumstances prevent you from attending/completing an assessment task, you must officially apply for special consideration, usually within 3 days of the sitting date/due date. You can apply by logging onto myUNSW and following the link in the My Student Profile Tab. Medical documentation or other documentation explaining your absence must be submitted with your application. Once your application has been assessed, you will be contacted via your student email address to be advised of the official outcome and any actions that need to be taken from there. For more information about special consideration, please visit: <https://student.unsw.edu.au/special-consideration>

**Important note:** UNSW has a “fit to sit/submit” rule, which means that if you sit an exam or submit a piece of assessment, you are declaring yourself fit to do so and cannot later apply for Special Consideration. This is to ensure that if you feel unwell or are faced with significant circumstances beyond your control that affect your ability to study, you do not sit an examination or submit an assessment that does not reflect your best performance. Instead, you should apply for Special Consideration as soon as you realise you are not well enough or are otherwise unable to sit or submit an assessment.

## **Faculty-specific Information**

### **Additional support for students**

- [The Current Students Gateway](#)
- [Student Support](#)
- [Academic Skills and Support](#)
- [Student Wellbeing, Health and Safety](#)
- [Equitable Learning Services](#)
- [UNSW IT Service Centre](#)
- Science EDI Student [Initiatives](#), [Offerings](#) and [Guidelines](#)