



**UNSW**

## UNSW Course Outline

# BIOC2201 Principles of Molecular Biology (Advanced) - 2024

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## General Course Information

**Course Code :** BIOC2201

**Year :** 2024

**Term :** Term 3

**Teaching Period :** T3

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

**Faculty :** Faculty of Science

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

**Delivery Mode :** Multimodal

**Delivery Format :** Standard

**Delivery Location :** Kensington

**Campus :** Sydney

**Study Level :** Undergraduate

**Units of Credit :** 6

### Useful Links

[Handbook Class Timetable](#)

## Course Details & Outcomes

### Course Description

This course provides an introduction to modern molecular biology and covers the molecular mechanisms of gene expression and fundamental aspects of recombinant DNA technology. The major topics covered include: the structure, function and properties of DNA and RNA; the

replication and transcription of DNA; protein synthesis (translation); regulation of gene expression; molecular biological techniques (e.g. DNA cloning, hybridisation analysis, DNA sequencing, the polymerase chain reaction (PCR), and microarrays); bioinformatics; and applications of molecular biology. The practical sessions of this course have been designed to complement lecture material and introduce students to current experimental techniques in molecular biology.

## Course Aims

This course aims to introduce students to modern molecular biology, with a focus on the molecular mechanisms of gene expression and the fundamental aspects and applications of recombinant DNA technology. This course also aims to introduce students to current laboratory techniques in molecular biology via experiments designed to reinforce and consolidate the concepts presented in lectures.

## Relationship to Other Courses

BIOC2201 is a requirement for several BABS Programs and Majors.

The course builds on many concepts introduced in first level courses, particularly BABS1201 Molecules, Cells and Genes. It provides the knowledge and skills required for the third level courses including BABS3121 Molecular Biology of Nucleic Acids and BIOC3111 Molecular Biology of Proteins.

## Course Learning Outcomes

Course Learning Outcomes
CLO1 : Describe the structure, function and properties of nucleic acids (DNA and RNA) and explain the processes of DNA replication, transcription and translation.
CLO2 : Describe and compare the mechanisms for regulating gene expression in bacteria and eukaryotes.
CLO3 : Describe the theory and applications of bioinformatics and molecular biological techniques, including DNA cloning, DNA sequencing, the polymerase chain reaction (PCR) and microarrays.
CLO4 : Apply and explain a range of practical techniques in molecular biology that are commonly employed in the analysis of nucleic acids and follow the correct laboratory procedures for working safely and effectively.
CLO5 : Communicate experimental methods, outcomes, and their interpretations in the format of a professional scientific report.

Course Learning Outcomes	Assessment Item
CLO1 : Describe the structure, function and properties of nucleic acids (DNA and RNA) and explain the processes of DNA replication, transcription and translation.	<ul style="list-style-type: none"> <li>• Quiz</li> <li>• Final Exam</li> </ul>
CLO2 : Describe and compare the mechanisms for regulating gene expression in bacteria and eukaryotes.	<ul style="list-style-type: none"> <li>• Quiz</li> <li>• Final Exam</li> </ul>
CLO3 : Describe the theory and applications of bioinformatics and molecular biological techniques, including DNA cloning, DNA sequencing, the polymerase chain reaction (PCR) and microarrays.	<ul style="list-style-type: none"> <li>• Quiz</li> <li>• Final Exam</li> </ul>
CLO4 : Apply and explain a range of practical techniques in molecular biology that are commonly employed in the analysis of nucleic acids and follow the correct laboratory procedures for working safely and effectively.	<ul style="list-style-type: none"> <li>• Laboratory Report</li> <li>• Practical Test</li> </ul>
CLO5 : Communicate experimental methods, outcomes, and their interpretations in the format of a professional scientific report.	<ul style="list-style-type: none"> <li>• Laboratory Report</li> </ul>

## Learning and Teaching Technologies

Moodle - Learning Management System | Microsoft Teams

### Learning and Teaching in this course

Lectures are used in the course to introduce new concepts and elaborate on core concepts in molecular biology. Laboratory sessions are designed to complement the lecture material in addition to teaching professional technical skills and safe and efficient work practices. Online synchronous revision sessions are used to reinforce concepts presented in the lectures through problem solving, and to encourage further enquiry. Both laboratories and revision sessions aim to promote effective communication, discussion, and teamwork.

The integration of these main teaching areas of the course are in accordance with the UNSW Guidelines on Learning that inform Teaching. Specifically:

- Effective learning is supported when students are actively engaged in the learning process.
- Effective learning is supported by a climate of inquiry where students feel appropriately challenged and activities are linked to research and scholarship.
- Activities that are interesting and challenging, but which also create opportunities for students to have fun, can enhance the learning experience.
- Learning is more effective when students' prior experience and knowledge are recognised and built on.
- Students become more engaged in the learning process if they can see the relevance of their studies to professional, disciplinary and/or personal contexts.

- If dialogue is encouraged between students and teachers and among students (in and out of class), thus creating a community of learners, student motivation and engagement can be increased.
- Students learn in different ways and their learning can be better supported by the use of multiple teaching methods and modes of instruction (visual, auditory, kinaesthetic, and read/write).
- Clearly articulated expectations, goals, learning outcomes, and course requirements increase student motivation and improve learning.
- When students are encouraged to take responsibility for their own learning, they are more likely to develop higher order thinking skills such as analysis, synthesis, and evaluation.
- Graduate attributes – the qualities and skills the university hopes its students will develop as a result of their university studies – are most effectively acquired in a disciplinary context.
- Learning cooperatively with peers - rather than in an individualistic or competitive way - may help students to develop interpersonal, professional, and cognitive skills to a higher level.
- Effective learning is facilitated by assessment practices and other student learning activities that are designed to support the achievement of desired learning outcomes.
- Meaningful and timely feedback to students improves learning.

## Additional Course Information

### ATTENDANCE:

In T3 2024, **compulsory attendance is required for your weekly laboratory classes and all examinations (Tutorial Quizzes, Practical Test, and Final Exam)**. If you miss an assessment due to illness or misadventure, you must apply for Special Consideration with appropriate supporting documentation within 3 days. If you miss a laboratory class due to illness, you must email the course convenors ([BIOC2201@unsw.edu.au](mailto:BIOC2201@unsw.edu.au)) with supporting documentation. If you miss a laboratory class without providing adequate supporting documentation, you may not be eligible for passing the course. Attendance at 'live' lectures and review sessions (conducted via MS Teams) is highly recommended but not compulsory, as these sessions will also be recorded and available for asynchronous viewing.

### PRACTICAL SKILLS AND DATA RECORDING:

In some face-to-face practical classes, the demonstration of specific laboratory skills and/or the collection of raw data results will need to be checked and confirmed by your demonstrator or course convenor. These requirements will be made clear at specific stages in your Course Practical Notes (where appropriate). Failure to obtain such confirmation may result in an absence being recorded in your attendance record for that class. All students are expected to bring BIOC2201 practical notes to each weekly class in printed or digital format using your own device.

Please note that the BIOC2201 Practical Notes are not available for purchase in printed format from the UNSW Bookshop.

## **OCCUPATIONAL HEALTH & SAFETY**

All BIOC2201 students are required to complete the Health and Safety Quiz before the first lab class in Week 1. This will also ensure that students are adequately prepared for future face-to-face laboratory classes. If you have already completed the Health and Safety Quiz in another BABS course in Terms 1 or 2 in 2024, you do not need to complete it again for BIOC2201.

Additional information on Health and Safety at UNSW can be found at: <http://www.HS.unsw.edu.au/>. All students are required to bring and wear a lab coat, safety glasses and enclosed shoes. Long hair must be tied up. No food or drink is to be consumed in the lab. Chewing gum is prohibited and must be discarded before entering the lab.

## **ILLNESS AND MISADVENTURE:**

The following procedures are designed to ensure that you are not penalised for absences for which there was an appropriate reason.

If you are not fit to attend a **BIOC2201 laboratory class throughout the Term**, please email the course convenors ([BIOC2201@unsw.edu.au](mailto:BIOC2201@unsw.edu.au)) with supporting documentation within 5 working days of the absence. DO NOT apply for Special Consideration for laboratory class absences.

If you are not fit to sit the **BIOC2201 Tutorial Quizzes, Practical Test, or Final Exam**, you must apply for Special Consideration following the guidelines provided on the following page or in Moodle prior to the start of the quiz/test/exam or within 3 working days of the quiz/test/exam.

If you are unable to submit your **Report Assignment** by the deadline due to unexpected circumstances beyond your control or circumstances which prevented you from completing the assignment, you may apply for Special Consideration following the guidelines provided on the following page or in Moodle within 3 working days of the assessment due date.

## **USE OF GENERATIVE AI:**

### **Tutorial Quizzes, Practical Test and Final Exam:**

The use of generative AI is not permitted to answer questions. If the use of generative AI such as ChatGPT is detected, it will be regarded as serious academic misconduct and subject to the standard penalties, which may include 00FL, suspension and exclusion. Any breach of the above

rules may be considered an act of student misconduct with serious penalties and repercussions.

### **Report Assignment:**

You are permitted to use AI for planning/design assistance or fixing spelling/grammar. Students **MUST** save drafts of their work BEFORE using AI to polish it and/or fix up grammar.

### **SATISFACTORY LABORATORY PERFORMANCE:**

A pass in BIOC2201 is conditional upon a satisfactory performance in the laboratory program. This consists of:

1. Attendance at all laboratory classes (unless illness/misadventure is documented).
2. Maintenance of accurate and up-to-date laboratory notes, including the recording of all data and completion of calculations and questions.
3. Participation in laboratory class discussions.
4. Completion of the Practical Test.

### **PRACTICAL INFORMATION**

The Laboratory Safety Information provided below is for ALL BIOC2201 students. This information covers fundamental teaching laboratory safe working practices and procedures and may be used as a reference for completing the BABS Online Health and Safety Quiz in Moodle.

#### **General Laboratory Safety**

Biochemical and molecular biology laboratories contain chemicals and equipment that are potentially dangerous when misused or handled carelessly. Consequently, safe experimental procedures and responsible conduct in the laboratory are essential at all times. The regulations governing conduct in the laboratory have been set down by the NSW Environmentally Hazardous Chemical Regulation 2008, NSW WHS Regulation 2011, NSW Work-cover Publications, Work-safe National Codes of Practice and Guidance Notes and Australian Standards AS:2243 series Safety in Laboratories. These policies and standards apply to all university staff and students.

**Students are responsible for:**

- Complying with the requirements of this policy, legislation and Australian Standards
- Following directions given to them by the person supervising their work
- Co-operating in the performance of risk assessments
- Participating in induction and training programs

- Reading MSDS's for substances to be handled prior to doing experiments

**Failure to comply will result in expulsion from the laboratory class.**

## **PERSONAL PROTECTION EQUIPMENT (PPE) REQUIREMENTS IN THE LABORATORY**

- **Students must purchase a laboratory coat and wear it when in the laboratory.** It should be removed when leaving the lab e.g. on visits to the computer lab or toilets. Lab coats should not be left on benches or stools but hung on the coat hooks that are provided at the back of the laboratory.
- **Safety glasses MUST** be worn during ALL practical procedures.
- **Disposable gloves will be provided for certain manipulations. These should be discarded after use or if torn.** All gloves should be removed from your hands by first holding the gloves at the wrist and pulling to turn them inside out before they are discarded into one of the 'solids waste' containers on top of bench.
- **Never throw gloves or any other laboratory material into the domestic bins.**
- **Never use gloved hands to open doors etc.** Either ask someone to open the door for you or remove one glove temporarily. **Always** remove gloves before leaving the lab.
- **Suitable foot protection (fully closed shoes made from non-absorbent materials) must be worn.** Students with bare feet, thongs, exposed shoes, or strappy sandals will not be allowed into the working area.

## **SAFETY RULES IN THE LABORATORY**

- Eating, drinking, chewing gum, and smoking are forbidden in the laboratory.
- Students with long hair must tie it back.
- Laboratory coats, disposable face masks, safety glasses and appropriate footwear (NO thongs or open-toed shoes) must be worn at ALL times.
- All work with toxic, corrosive, or flammable (etc.) chemicals must be conducted in a fume cupboard where possible.

**ALL INJURIES OR ACCIDENTS WITH CHEMICALS MUST BE REPORTED IMMEDIATELY either to your demonstrator or to a member of the technical staff.**

## **RISK ASSESSMENTS**

For your own protection and that of those with whom you will be working, you should read, before each week's experiment is started, the notes and instructions on the Risk Assessment Sheet preceding each experiment and take note of any hazards in the procedures to be used for that laboratory session.

**Risk Assessments** have been carried out on all practicals to highlight the potential for possible

risks to the users. These cover chemical, biological and physical hazards. This is to ensure that the proper precautions are taken during all laboratory procedures.

**As strong acids, alkalis and other toxic substances** are used in some procedures, the relevant safety instructions will be included at the appropriate places in the manual. Such dangerous materials must be manipulated with great care and if any comes into contact with skin or clothing, wash the affected areas with water **immediately**, seek assistance and any antidote that may be applied.

Poisonous solutions will be provided in dispensers; these should be operated gently and carefully because careless use can cause breakage or a spray of the reagent. Automatic pipettes will be provided where possible.

**Ampicillin use in BIOC2201:** We will be using ampicillin in several of the BIOC2201 practicals this year. If you have an allergy to ampicillin, please email the course convenors ([BIOC2201@unsw.edu.au](mailto:BIOC2201@unsw.edu.au)) immediately to discuss alternative arrangements.

## **EMERGENCY PROCEDURES**

In the event of a fire or other serious emergency, the building may be evacuated. When the alarm has been activated, a “get ready to evacuate” siren will sound. You should immediately cease work and secure your workplace (e.g. cap solutions, turn off Bunsen burners). The second stage is the “evacuate the building” call. You should immediately make your way to the nearest exit unless another exit is designated by staff. **Follow directions from the staff and evacuation wardens and gather at Gate 9 in front of the Chancellery Building** (Gate 9 is on High Street near the John Clancy Auditorium). You should wait there until you have been checked off by your demonstrator.

Emergency eye wash stations and Safety showers are installed at the back of the lab. Seek staff help immediately. If you get something in your eye, you must wash your eyes for at least 20 minutes.

For procedures to clean up spills, seek staff help immediately.

For special antidotes (if using cyanide) are located near the Prep Room windows. Seek staff help immediately.

# Assessments

## Assessment Structure

Assessment Item	Weight	Relevant Dates
Quiz Assessment Format: Individual	20%	Start Date: See the course schedule for the dates/times of the four Tutorial Quizzes Due Date: See the course schedule for the dates/times of the four Tutorial Quizzes
Laboratory Report Assessment Format: Individual	20%	Due Date: 21/10/2024 05:00 PM
Practical Test Assessment Format: Individual	20%	Start Date: At the start of your scheduled Week 10 lab timeslot
Final Exam Assessment Format: Individual	40%	

## Assessment Details

### Quiz

#### Assessment Overview

You will sit four fortnightly quizzes (5% each, 20% total course weighting) that cover lecture material. These quizzes are designed to ensure you receive feedback on your understanding of the lecture material and are essential, as this is required to understand the practical component of the course. Quizzes are typically 15-20 minutes in duration and may include multiple choice and other automatically marked question types, as well as essay and short answer question types. Feedback for each quiz is provided during the tutorial session via review and discussion of quiz questions and answers.

You are not permitted to use GenerativeAI to answer quiz questions.

#### Course Learning Outcomes

- CLO1 : Describe the structure, function and properties of nucleic acids (DNA and RNA) and explain the processes of DNA replication, transcription and translation.
- CLO2 : Describe and compare the mechanisms for regulating gene expression in bacteria and eukaryotes.
- CLO3 : Describe the theory and applications of bioinformatics and molecular biological techniques, including DNA cloning, DNA sequencing, the polymerase chain reaction (PCR) and microarrays.

#### Detailed Assessment Description

**Tutorial Quiz 1 (5%)** is conducted via Moodle Quiz in the first 15 minutes of the Week 2 Tutorial time and covers all content from lectures 2-5, inclusive. The format may include multiple choice

and short answer responses.

**Tutorial Quiz 2 (5%)** is conducted via Moodle Quiz in the first 15 minutes of the Week 5 Tutorial time and covers all content from lectures 6-10, inclusive. The format may include multiple choice and short answer responses.

**Tutorial Quiz 3 (5%)** is conducted via Inspera in the first 20 minutes of the Week 7 Tutorial time and covers all content from lectures 11-15, inclusive. The format may include multiple choice and essay questions.

**Tutorial Quiz 4 (5%)** is conducted via Moodle Quiz in the first 15 minutes of the Week 9 Tutorial time and covers all content from lectures 16-20, inclusive. The format may include multiple choice and short answer responses.

## **ALTERNATIVE ASSESSMENT**

Students with approved special consideration for Tutorial Quiz 1, 2, 3 or 4 will be allowed to sit a supplementary Tutorial Quiz.

**Supplementary Tutorial Quiz 1 and supplementary Tutorial Quiz 2** will be held on **Friday 18th October (Week 6)**. Please ensure that you are available this day/time to sit supplementary Tutorial Quiz 1 or supplementary Tutorial Quiz 2.

**Supplementary Tutorial Quiz 3 and supplementary Tutorial Quiz 4** will be held during the **official Term 3 supplementary exam period (Monday 6th January to Friday 10th January 2025)**. Please ensure that you are available this week to sit supplementary Tutorial Quiz 3 or supplementary Tutorial Quiz 4.

**Please note that the format of the alternative assessment/supplementary Tutorial Quizzes may differ from the original format of the Tutorial Quizzes.**

### **Assignment submission Turnitin type**

This is not a Turnitin assignment

### **Generative AI Permission Level**

#### **No Assistance**

This assessment is designed for you to complete without the use of any generative AI. You are

not permitted to use any generative AI tools, software or service to search for or generate information or answers.

For more information on Generative AI and permitted use please see [here](#).

## Laboratory Report

### Assessment Overview

This assignment is a written scientific report that communicates the aims, methods, and outcomes of an experiment. The report should be a maximum of 7 pages, excluding references, and is due in Week 7. You will complete a range of activities during the course that support the development of your scientific writing skills before final report submission. A marking rubric addressing the assessment criteria for this assignment will be made available to you in Moodle so that you are fully aware of the expectations for this assessment. Marks and feedback will be released online in Moodle by the end of Week 9.

You can use generative AI for planning/design assistance or fixing spelling/grammar, but students must submit a draft of their work before final submission, which includes any GenAI prompts and outputs used.

### Course Learning Outcomes

- CLO4 : Apply and explain a range of practical techniques in molecular biology that are commonly employed in the analysis of nucleic acids and follow the correct laboratory procedures for working safely and effectively.
- CLO5 : Communicate experimental methods, outcomes, and their interpretations in the format of a professional scientific report.

### Detailed Assessment Description

Students are provided simulated data and will prepare a written report that will apply their acquired knowledge from lectures 12-14 and Lab 4. Students will be assessed on their ability to articulate scientific concepts coherently, both in terms of content and format. Students will also be assessed on their ability to present and interpret scientific data accurately and professionally, with incorporation of references to appropriate supporting information from the scientific literature.

Full details on the report format and criteria will be provided online in Moodle and during tutorial sessions.

More information on writing resources, support services and submission details will be provided in class and via Moodle course announcements.

## **SPECIAL CONSIDERATION**

Students who have been impacted by short-term circumstances that were unexpected, beyond their control and prevented them from submitting the assignment on the due date can apply for special consideration.

Students with approved special consideration for the Report Assignment will be granted additional time to submit the assessment. Please note that the duration of impact indicated in your special consideration supporting documentation will typically determine the length of your extension.

**IMPORTANT:** No extensions will be granted beyond 14-days after the original due date of the assignment.

### **Submission notes**

Online submission via the Turnitin submission link in Moodle

### **Assessment information**

#### **Late Submissions and Penalties**

Marks will be deducted for late Report Assignment submissions according to the UNSW policy for late submissions. Late submissions will incur a **5% reduction in marks per day**, including weekends, for up to 5 days (120 hours) from the assessment deadline, after which you cannot submit an assessment and no variation is permitted. The penalty is calculated based on the total possible marks for the assignment. In other words, a penalty of 5% on an assignment marked out of 20 will mean that the final mark is reduced by 5% of 20 (=1 mark). Late reports will be marked using the same marking schema as is used for on time reports, and then the total mark that is given for the assignment is reduced by the penalty amount.

#### **Assignment submission Turnitin type**

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

#### **Generative AI Permission Level**

#### **Planning/Design Assistance**

You are permitted to use generative AI tools, software or services to generate initial ideas,

structures, or outlines. However, you must develop or edit those ideas to such a significant extent that what is submitted is your own work, i.e., what is generated by the tool, software or service should not be a part of your final submission. You should keep copies of your iterations to show your Course Authority if there is any uncertainty about the originality of your work.

If your Convenor has concerns that your answer contains passages of AI-generated text or media that have not been sufficiently modified you may be asked to explain your work, but we recognise that you are permitted to use AI generated text and media as a starting point and some traces may remain. If you are unable to satisfactorily demonstrate your understanding of your submission you may be referred to UNSW Conduct & Integrity Office for investigation for academic misconduct and possible penalties.

For more information on Generative AI and permitted use please see [here](#).

You are permitted to use AI for planning/design assistance or fixing spelling/grammar. **Students MUST save drafts of their work BEFORE using AI to polish it and/or fix up grammar.**

Submissions will be passed through an AI-generated text detection tool. If your marker has concerns that your work contains passages of AI-generated text, you will be asked to explain your work and submit all drafts and research used to complete the assessment task. If you are unable to satisfactorily demonstrate your understanding of your submission or produce drafts of your work, you may be referred to the UNSW Conduct & Integrity Office for investigation for academic misconduct and possible penalties.

The 'Turnitin' plagiarism checking software will detect any instances where students have used generative AI to write their assessment, re-submitted a report from a previous year, copied the work of their peers (current or past students), or copied information from course manuals, the internet, textbooks, journal articles, and many other sources. If you are suspected of plagiarising material or using generative AI in your report, it could result in a range of penalties including receiving zero marks for your report, or for the course, and being placed on the university's plagiarism register. If you are unfamiliar with the definition of plagiarism and examples of plagiarism and paraphrasing or poor scholarship in assignments, please see this website for further information <https://student.unsw.edu.au/plagiarism>.

## Practical Test

### Assessment Overview

The Practical Test occurs during the Week 10 lab class (on-campus, invigilated). It will cover the theory, calculations, methodology, safety requirements, and expected outcomes/results for all

practical classes. The test is up to 2 hours long and may include multiple-choice, essay, and short-answer question formats. Feedback is provided within two weeks of the exam via Moodle and is also available through inquiry with the course convenor.

You are not permitted to use GenerativeAI to answer test questions.

#### **Course Learning Outcomes**

- CLO4 : Apply and explain a range of practical techniques in molecular biology that are commonly employed in the analysis of nucleic acids and follow the correct laboratory procedures for working safely and effectively.

#### **Detailed Assessment Description**

The Practical Test is conducted **on-campus (invigilated)** during your scheduled Week 10 lab timeslot. To complete the Practical Test, you **MUST** bring:

- Your own laptop with [Safe Exam Browser](#) installed on it
- A laptop charger
- Your phone (to authenticate your Moodle/Inspera logins only)

A list of other permitted items will be made available closer to the date of the Practical Test.

## **ALTERNATIVE ASSESSMENT**

Students with approved special consideration for the Practical Test will be allowed to sit a supplementary Practical Test held during the **official Term 3 supplementary exam period (Monday 6th January to Friday 10th January 2025)**. Please ensure that you are available this week to sit the supplementary Practical Test.

#### **Assignment submission Turnitin type**

This is not a Turnitin assignment

#### **Generative AI Permission Level**

#### **No Assistance**

This assessment is designed for you to complete without the use of any generative AI. You are not permitted to use any generative AI tools, software or service to search for or generate information or answers.

For more information on Generative AI and permitted use please see [here](#).

# Final Exam

## Assessment Overview

You will sit a final exam during the official exam period. The Final Exam (on-campus, invigilated) will cover all lecture material presented throughout the Term. The test is typically 2 hours long and may include multiple choice, essay and short answer question formats.

Feedback is available through inquiry with the course convenor.

You are not permitted to use GenerativeAI to answer exam questions.

## Course Learning Outcomes

- CLO1 : Describe the structure, function and properties of nucleic acids (DNA and RNA) and explain the processes of DNA replication, transcription and translation.
- CLO2 : Describe and compare the mechanisms for regulating gene expression in bacteria and eukaryotes.
- CLO3 : Describe the theory and applications of bioinformatics and molecular biological techniques, including DNA cloning, DNA sequencing, the polymerase chain reaction (PCR) and microarrays.

## Detailed Assessment Description

The Final Exam is conducted **on-campus (invigilated)** during the official Term 3 final examination period.

To complete the Final Exam, you **MUST** bring:

- Your own laptop with [Safe Exam Browser](#) installed on it
- A laptop charger
- Your phone (to authenticate your Moodle/Inspera logins only)

A list of other permitted items will be made available closer to the date of the Final Exam.

## SUPPLEMENTARY ASSESSMENT

Students with approved special consideration for the Final Exam will be allowed to sit a supplementary Final Exam held during the official Term 3 supplementary exam period (**Monday 6th January to Friday 10th January 2025**). Please ensure that you are available this week to sit the supplementary Final Exam on the specified date/time as no alternative dates will be offered.

## Assessment information

The Final Exam is conducted on-campus (invigilated) during the Term 3 final exam period. You

must bring your own laptop with Safe Exam Browser installed on it to do the Final Exam.

#### Assignment submission Turnitin type

This is not a Turnitin assignment

#### Generative AI Permission Level

##### **No Assistance**

This assessment is designed for you to complete without the use of any generative AI. You are not permitted to use any generative AI tools, software or service to search for or generate information or answers.

For more information on Generative AI and permitted use please see [here](#).

## **General Assessment Information**

All assessment task information is outlined in the Course Outline and in the BIOC2201 Moodle site. Information regarding alternative assessment dates can be found in the Course Outline. Detailed information for each BIOC2201 assessment will be made available in a new section in Moodle closer to the date of each assessment throughout the term.

All assessment tasks will be introduced in the Week 1 Introductory lecture. Live attendance at this lecture is highly encouraged. If you cannot attend the lecture live, please watch the recording at your earliest convenience.

### **ILLNESS AND MISADVENTURE:**

The following procedures are designed to ensure that you are not penalised for absences for which there was an appropriate reason.

If you are not fit to attend a **BIOC2201 laboratory class throughout the Term**, please email the course convenors ([BIOC2201@unsw.edu.au](mailto:BIOC2201@unsw.edu.au)) with supporting documentation within 5 working days of the absence. DO NOT apply for Special Consideration for laboratory class absences.

If you are not fit to sit the **BIOC2201 Tutorial Quizzes, Practical Test, or Final Exam**, you must apply for Special Consideration following the guidelines provided on the following page or in Moodle prior to the start of the quiz/test/exam or within 3 working days of the quiz/test/exam.

If you are unable to submit your **Report Assignment** by the deadline due to unexpected circumstances beyond your control or circumstances which prevented you from completing the

assignment, you may apply for Special Consideration following the guidelines provided on the following page or in Moodle within 3 working days of the assessment due date.

## **USE OF GENERATIVE AI:**

### **Tutorial Quizzes, Practical Test and Final Exam:**

The use of generative AI is not permitted to answer questions. If the use of generative AI such as ChatGPT is detected, it will be regarded as serious academic misconduct and subject to the standard penalties, which may include 00FL, suspension and exclusion. Any breach of the above rules may be considered an act of student misconduct with serious penalties and repercussions.

### **Report Assignment:**

You are permitted to use AI for planning/design assistance or fixing spelling/grammar. **Students MUST save drafts of their work BEFORE using AI to polish it and/or fix up grammar.**

## **HOW TO APPLY FOR SPECIAL CONSIDERATION**

The application must be made through Online Services in [myUNSW](#) (My Student Profile tab > My Student Services > Online Services > Special Consideration).

Students will be contacted via their official university email as to the outcome of their application. It is the responsibility of all students to regularly consult their official student email accounts and myUNSW to ascertain whether they have been granted further assessment.

## **SUPPLEMENTARY EXAMINATIONS**

Supplementary examinations may be given to those students who were absent from in-term assessments or final exams due to illness or misadventure. Only students who submit a compliant Special Consideration application (as per the above instructions) may be eligible for a supplementary examination. Students will be notified via the online special consideration system and their official UNSW email account as to the outcome of their application. Supplementary **in-term assessments** will be managed internally by your course convenors and may be held during term. Supplementary **final examinations** will be managed externally by UNSW Exams Branch and held during the official BABS Supplementary Final Examination period.

The BABS Supplementary Final Exam period for Term 3, 2024 is: **Monday 6<sup>th</sup> January to Friday 10<sup>th</sup> January 2025.**

**Supplementary Final Exams will be offered during this period ONLY. Failure to sit for the appropriate exam that you have been offered may result in an overall failure for the course. Further assessment will NOT be offered on any alternative dates.**

## **UNSW ACADEMIC HONESTY & PLAGIARISM**

Academic misconduct may apply to any work or document related to assessment that is submitted to the School of Biotechnology and Biomolecular Sciences; this includes quizzes, report assignments, tests, and examinations. All work must represent a student's own individual efforts. Copying or paraphrasing another person's work and using another student's experimental results are all examples of academic misconduct.

### **What is Plagiarism?**

Plagiarism is the presentation of the thoughts or work of another as one's own.

\*Examples include:

- direct duplication of the thoughts or work of another, including by copying material, ideas or concepts from a book, article, report or other written document (whether published or unpublished), composition, artwork, design, drawing, circuitry, computer program or software, web site, Internet, other electronic resource, or another person's assignment without appropriate acknowledgement;
- paraphrasing another person's work with very minor changes keeping the meaning, form and/ or progression of ideas of the original;
- piecing together sections of the work of others into a new whole;
- presenting an assessment item as independent work when it has been produced in whole or part in collusion with other people, for example, another student or a tutor; and
- claiming credit for a proportion a work contributed to a group assessment item that is greater than that actually contributed.†

For the purposes of this policy, submitting an assessment item that has already been submitted for academic credit elsewhere may be considered plagiarism.

Knowingly permitting your work to be copied by another student may also be considered to be plagiarism.

Note that an assessment item produced in oral, not written, form, or involving live presentation, may similarly contain plagiarised material.

The inclusion of the thoughts or work of another with attribution appropriate to the academic

discipline does *not* amount to plagiarism.

The Learning Centre website is main repository for resources for staff and students on plagiarism and academic honesty. These resources can be located via: [www.lc.unsw.edu.au/plagiarism](http://www.lc.unsw.edu.au/plagiarism)

The Learning Centre also provides substantial educational written materials, workshops, and tutorials to aid students, for example, in:

- correct referencing practices;
- paraphrasing, summarising, essay writing, and time management;
- appropriate use of, and attribution for, a range of materials including text, images, formulae and concepts.

Individual assistance is available on request from The Learning Centre.

Students are also reminded that careful time management is an important part of study and one of the identified causes of plagiarism is poor time management. Students should allow sufficient time for research, drafting, and the proper referencing of sources in preparing all assessment items.

\* Based on that proposed to the University of Newcastle by the St James Ethics Centre. Used with kind permission from the University of Newcastle

† Adapted with kind permission from the University of Melbourne

### Grading Basis

Standard

### Requirements to pass course

A pass in BIOC2201 is conditional upon a satisfactory performance in the laboratory program. This consists of:

1. Attendance at all laboratory classes (unless illness/misadventure is documented).
2. Maintenance of accurate and up-to-date laboratory notes, including the recording of all data and completion of calculations and questions.
3. Participation in laboratory class discussions.
4. Completion of the Practical Test.

# Course Schedule

Teaching Week/Module	Activity Type	Content
Week 1 : 9 September - 15 September	Lecture	Lecture 1 (1-2pm Monday): Course Introduction - Dr Lana Ly & Dr Sarah Bajan Lecture 2 (5-6pm Wednesday): Nucleic Acids I - Dr Sarah Bajan Lecture 3 (4-5pm Friday): Nucleic Acids II - Dr Sarah Bajan
	Laboratory	Lab 1 (2-5pm Wednesday, 10am-1pm Thursday or 2-5pm Thursday): Nucleic Acids Analysis I
	Tutorial	Theory Review 1 / Introduction to Gene Expression Report Assignment
Week 2 : 16 September - 22 September	Lecture	Lecture 4 (1-2pm Monday): DNA Replication I - A/Prof. Anne Galea Lecture 5 (5-6pm Wednesday): Nucleic Acids III - Dr Sarah Bajan Lecture 6 (4-5pm Friday): DNA Replication II - A/Prof. Anne Galea
	Laboratory	Lab 2 (2-5pm Wednesday, 10am-1pm Thursday or 2-5pm Thursday): Nucleic Acid Analysis II
	Assessment	Tutorial Quiz 1 conducted during the first 15 minutes of the Friday 1pm tutorial timeslot in Moodle, followed by a Tutorial Quiz review session at 1:30pm via Teams. Please DO NOT join the Teams call before 1:30pm.
Week 3 : 23 September - 29 September	Lecture	Lecture 7 (1-2pm Monday): PCR - Dr Lana Ly Lecture 8 (5-6pm Wednesday): Transcription - A/Prof. Anne Galea Lecture 9 (4-5pm Friday): Translation I - A/Prof. Anne Galea
	Laboratory	Lab 3 (2-5pm Wednesday, 10am-1pm Thursday or 2-5pm Thursday): Nucleic Acid Analysis III
	Tutorial	Report Writing Workshop
Week 4 : 30 September - 6 October	Lecture	Lecture 10 (1-2pm Monday): Translation II - A/Prof. Anne Galea Lecture 11 (5-6pm Wednesday): Protein Structure - A/Prof. Anne Galea Lecture 12 (4-5pm Friday): Gene Expression I - Dr Dhanushi Abeygunawardena
	Laboratory	Practical Review 1 (Labs 1-3) / Review of Gene Expression Report Assignment & Lab 4 (2-4pm Wednesday, 10am-12pm Thursday or 2-4pm Thursday) Practical Review 1 is conducted in-person during the first 2-hours of your scheduled lab time in Week 4 and will NOT be recorded. Attendance is OPTIONAL, but highly encouraged. Any slide material used in this review session will be uploaded to Moodle after all review sessions have been completed. Please check Moodle announcements for the location of your Practical Review 1 session.
	Tutorial	Theory Review 2
Week 5 : 7 October - 13 October	Lecture	Lecture 13 (5-6pm Wednesday): Gene Expression II - Dr Dhanushi Abeygunawardena Lecture 14 (4-5pm Friday): Gene Expression III - Dr Dhanushi Abeygunawardena
	Laboratory	Lab 4 (2-5pm Wednesday, 10am-1pm Thursday or 2-5pm Thursday): Induction of Beta-galactosidase
	Assessment	Tutorial Quiz 2 conducted during the first 15 minutes of the Friday 1pm tutorial timeslot in Moodle, followed by a Tutorial Quiz review session at 1:30pm via Teams. Please DO NOT join the Teams call before 1:30pm.
Week 7 : 21 October - 27 October	Lecture	Lecture 15 (1-2pm Monday): Stem Cells - Dr Dhanushi Abeygunawardena Theory Review 3 (5-6pm Wednesday) Practical Review 2 (Lab 4) (4-5pm Thursday)
	Laboratory	Lab 5 (2-5pm Wednesday, 10am-1pm Thursday or 2-5pm Thursday): DNA Cloning I / Mitochondrial PCR & Sequencing I
	Assessment	Tutorial Quiz 3 conducted during the first 20 minutes of the Friday 1pm tutorial timeslot in Inspera, followed by a Tutorial Quiz review session at 1:40pm via Teams. Please DO NOT join the Teams call before 1:40pm.
	Assessment	Gene Expression Report Assignment (20%) is due at 5pm Monday Week 7.
Week 8 : 28 October - 3 November	Lecture	Lecture 16 (1-2pm Monday): Guest Lecture - Prof. Merlin Crossley Lecture 17 (5-6pm Wednesday): Molecular Techniques - DNA Cloning I - Dr Lana Ly Lecture 18 (4-5pm Friday): Molecular Techniques II - Hybridisation Techniques & RNA-seq - Dr Lana Ly
	Laboratory	Lab 6 (2-5pm Wednesday, 10am-1pm Thursday or 2-5pm Thursday): DNA

		Cloning II / Mitochondrial PCR & Sequencing II
	Tutorial	Theory Review 4 / Practical Review 3 (Labs 5-6)
Week 9 : 4 November - 10 November	Lecture	Lecture 19 (1-2pm Monday): Molecular Techniques III - RNAi & CRISPR - Dr Lana Ly Lecture 20 (pre-recorded): Molecular Techniques IV - Automated DNA Sequencing - Dr Selene Fernandez Valverde (pre-recorded) Lecture 21 (4-5pm Friday): Molecular Techniques V - Next Generation Sequencing - Dr Selene Fernandez Valverde
	Laboratory	Lab 7 (2-5pm Wednesday, 10am-1pm Thursday or 2-5pm Thursday): DNA Cloning III / Mitochondrial PCR & Sequencing III / Practical Review 4 (Lab 7) Practical Review 4 is conducted in-person during the last hour of your scheduled lab time in Week 9 and will NOT be recorded. Attendance at the practical is compulsory and OPTIONAL for Theory Review 4. Any slide material used in this review session will be uploaded to Moodle after all review sessions have been completed. Please check Moodle announcements for the location of your Practical Review 4 session.
	Assessment	Tutorial Quiz 4 conducted during the first 15 minutes of the Friday 1pm tutorial timeslot in Moodle, followed by a Tutorial Quiz review session at 1:30pm via Teams. Please DO NOT join the Teams call before 1:30pm.
Week 10 : 11 November - 17 November	Lecture	Lecture 22 (1-2pm Monday): Molecular Techniques VI - DNA Cloning II - Dr Lana Ly Lecture 23 (5-6pm Wednesday): Bioinformatics - Dr Selene Fernandez Valverde Lecture 24 (4-5pm Friday): Concluding lecture - Dr Lana Ly & Dr Sarah Bajan
	Assessment	Practical Test (20%) - on-campus and invigilated Please bring with you a laptop with Safe Exam Browser installed on it, a laptop charger and your phone (to authenticate your Moodle/Inspera logins).
	Tutorial	Theory Review 5

## Attendance Requirements

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

## General Schedule Information

Unless otherwise specified, most lectures in the course are presented online in a synchronous (live) format via MS Teams according to the lecture schedule in the Course Guide. All synchronous online lectures are recorded, and recordings are made available to students for continued access after the lecture. It is not compulsory to attend any live lectures, but attendance is highly recommended. If you cannot attend a live lecture, please watch the recording at your earliest convenience. You will have four Tutorial Quizzes on lecture material according to the assessment schedule in the Course Guide, so it is essential you watch lecture recordings to avoid falling behind in your studies.

All laboratory classes are conducted in-person, and attendance at these weekly classes is compulsory. Laboratory classes start in Week 1 and will follow the class schedule as followed in the Course Outline/Course Guide. More information about Laboratory classes and content will be provided in Moodle and in the Week 1 Introductory Lecture.

All online Tutorial classes are conducted live via Microsoft Teams. The tutorial timeslot on

Fridays will host alternating Review sessions (Weeks 1, 3, 4, 8, 10) and Tutorial Quizzes (Weeks 2, 5, 7, 9) as shown on the class schedule. Review sessions will run like a large group tutorial where theoretical or practical material is revised by your lecturers. Attendance at Review sessions is not compulsory but highly recommended.

The four Tutorial Quizzes (5% each) will include a 15-20-minute Quiz followed immediately by a 20-30-minute live class led by the convenors/lecturers in Teams. Each Tutorial Quiz will consist of multiple choice, short answer, or extended answer-style questions. In the subsequent Tutorial session with the convenors, answers to the Quiz questions will be covered alongside other supporting material. It is compulsory for all students to attempt all Tutorial Quizzes. The following post-Tutorial Quiz Tutorial sessions in Teams is optional, but we highly recommend that you attend as the feedback you receive will benefit your immediate learning.

## Course Resources

### Prescribed Resources

#### Recommended Texts:

**Biochemistry** (10<sup>th</sup> Edition, 2023), by Berg, J.M., Gatto, G.J., Hines, J.K., Tymoczko, J.L. and Stryer, L. UNSW Bookshop Links:

Print: <https://www.bookshop.unsw.edu.au/details.cgi?ITEMNO=9781319498504>

Digital: <https://unswbookshop.vitalsource.com/products/biochemistry-international-edition-berg-jeremy-m-gatto-jr-v9781319514662>

OR

**Fundamentals of Biochemistry** (5th Edition, 2017) by Voet, D., Voet, J.G. and Pratt, C.W., Wiley. UNSW Bookshop Links:

Print: <https://www.bookshop.unsw.edu.au/details.cgi?ITEMNO=9781118918401>

Digital: <https://unswbookshop.vitalsource.com/products/fundamentals-of-biochemistry-donald-voet-judith-g-voet-v9781119228103>

#### Additional Molecular Biology Reference Text:

**Molecular Biology of the Cell**, by Alberts, B. et al., (7<sup>th</sup> Edition, 2014), Garland Science. UNSW

Bookshop Links:

**Print:** <https://www.bookshop.unsw.edu.au/details.cgi?ITEMNO=9780393884852>

**Digital:** <https://unswbookshop.vitalsource.com/products/molecular-biology-of-the-cell-seventh-edition-bruce-alberts-rebecca-heald-v9780393884647>

## Recommended Resources

### Course Outline and Information

All BIOC2201 course information can be found in the [Course Outline](#). Additional assessment and practical information is available via Moodle. Practical notes will be released weekly via Moodle.

### Recommended Internet Sites

All students enrolled in BIOC2201 automatically have access to the course Moodle site <https://moodle.telt.unsw.edu.au/>. This site will be used to distribute course notes and information and should be checked at regular intervals. Specifically, the Moodle site will be used to provide:

- Important course announcements
- Assessment marks
- Practical notes (made available weekly; no practical manual available)
- Lecture handouts and recordings (lecture handouts made available ~24 hours prior to each lecture; recordings will be uploaded to Moodle by the end of the day)
- Information about examination arrangements
- Further assessment information resulting from special consideration
- Self-directed learning resources

There are also many computer exercises and teaching aids available to students enrolled in BIOC2201 Principles of Molecular Biology (Advanced). Links to the textbook companion websites (if available) and additional online animations, videos, and revision tutorial activities can be found on the course Moodle site.

## Additional Costs

### Equipment required

To access live online BIOC2201 lectures, students will need:

- A computer equipped with Microsoft Teams and an internet browser.
- For assistance with online learning, please see the UNSW 'Transitioning to Online Learning' website: <https://www.covid19studyonline.unsw.edu.au/>

To all in-person lab classes, please bring:

- Personal protection equipment (PPE): safety glasses, lab coat & enclosed shoes (long hair must be tied back)
- Calculator
- Timer (e.g. watch)
- Disposable face masks will be provided for those who wish to wear one

### **Practical Test and Final Exam**

Students will be required to bring their own laptop, laptop charger and mobile phone for the invigilated Practical Test and Final Exam.

If you do not have access to a personal laptop, you can borrow one for up to 4 hours from the [UNSW Main Library](#) (you will need a current student identification card in order to borrow one).

Please ensure that your laptop has the latest version of Safe Exam Browser installed on it.

## **Course Evaluation and Development**

Students can provide feedback on the course via online myExperience surveys, as instructed, in the final week of term.

The latest information on how student feedback has been used to update and improve the course can be found on the Moodle site for the course.

## **Staff Details**

Position	Name	Email	Location	Phone	Availability	Equitable Learning Services Contact	Primary Contact
Convenor	Lana Ly					Yes	Yes
	Sarah Bajan					Yes	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](#)