



BIOL2110

Genetics

Session 1, In person-scheduled-weekday, North Ryde 2025

School of Natural Sciences

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General Information

Unit convenor and teaching staff

Jessica O'Hare

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Credit points

10

Prerequisites

BIOL1110 and (BIOL1310 or BIOL1210 or BIOL1620)

Corequisites

STAT1170 or STAT1371

Co-badged status

co-badged with BIOX2110 & BIOL6110

Unit description

Genetics occupies a central role in modern sciences, with profound implications for basic and applied research in biology, medicine and agriculture, as well as for a number of philosophical issues in human affairs. This unit offers a balanced approach to teach introductory principles of genetics. It combines sections on classical, molecular and population genetics presented in an integrative way. The practical sessions offer students the possibility of learning essential techniques and skills in modern molecular genetics.

Learning in this unit enhances student understanding of global challenges identified by the United Nations Sustainable Development Goals ([UNSDGs](#)) Zero Hunger; Good Health and Well Being; Life on Land; Life Below Water

Important Academic Dates

Information about important academic dates including deadlines for withdrawing from units are available at <https://www.mq.edu.au/study/calendar-of-dates>

Learning Outcomes

On successful completion of this unit, you will be able to:

ULO1: Describe how genetic processes apply to agriculture, human health, society, and the environment

ULO2: Apply numeracy and basic principles of genetics to solve problems and draw conclusions from genetic data

ULO3: Describe routine techniques used to assay genetic variation in populations

ULO4: Demonstrate proficiency in the use of genetic research tools (pipettes, gel electrophoresis, sequence analysis)

ULO5: Analyse genetic data using some common population genetic software and bioinformatic tools

ULO6: Source, synthesise and critically evaluate information from the literature in written and oral formats

General Assessment Information

We strongly encourage all students to actively participate in all learning activities. Regular engagement is crucial for your success in this unit, as these activities provide opportunities to deepen your understanding of the material, collaborate with peers, and receive valuable feedback from instructors, to assist in completing the unit assessments. Your active participation not only enhances your own learning experience but also contributes to a vibrant and dynamic learning environment for everyone.

Requirements to Pass this Unit

To pass this unit you must:

- Achieve a total mark equal to or greater than 50%, and
- Achieve at least 45% in the final examination

Hurdles

Final Exam (45% weighting)

The Final Exam is a hurdle in this unit for assurance of learning to ensure fulfilment of unit and course learning outcomes. You must achieve at least 45% in the Final Exam to pass the unit. Those who make a serious attempt (achieve 35-44%) but fail to meet this hurdle are eligible for a supplementary exam and will be invited to sit for this.

Late Assessment Submission Penalty

All assessments are due by **11:55 pm** on the date specified (except Test and Exam). Please see iLearn for more details.

Unless a Special Consideration request has been submitted and approved, a 5% penalty (of the total possible mark of the task) will be applied for each day a written report or presentation assessment is not submitted, up until the 7th day (including weekends). After the 7th day, a grade of '0' will be awarded even if the assessment is submitted. The submission time for all uploaded assessments is **11:55 pm**. A 1-hour grace period will be provided to students who experience a

technical concern. For any late submission of time-sensitive tasks, such as scheduled tests/exams, performance assessments/presentations, and/or scheduled practical assessments/labs, please apply for Special Consideration.

Assessments where Late Submissions will be accepted

- Practical Report – YES, Standard Late Penalty applies
- Poster Presentation – YES, Standard Late Penalty applies
- Weekly Quizzes – NO, unless Special Consideration is Granted
- Test – NO, unless Special Consideration is Granted
- Final Exam – NO, unless Special Consideration is Granted

Special Consideration

The [Special Consideration Policy](#) aims to support students who have been impacted by short-term circumstances or events that are serious, unavoidable and significantly disruptive, and which may affect their performance in assessment. If you experience circumstances or events that affect your ability to complete the assessments in this unit on time, please inform the convenor at genetics.biol2110@mq.edu.au and submit a Special Consideration request through <https://connect.mq.edu.au>

Assessment Tasks

Name	Weighting	Hurdle	Due
Weekly Quizzes	10%	No	Weekly
Poster Presentation	10%	No	25/03/2025
Practical Report	25%	No	29/04/2025
Test	10%	No	20/05/2025
Final Exam	45%	Yes	Examination Period

Weekly Quizzes

Assessment Type ¹: Quiz/Test

Indicative Time on Task ²: 10 hours

Due: **Weekly**

Weighting: **10%**

The quizzes are designed to assist you to understand topics covered in the course and to

provide you with feedback on your understanding of those topics. It is essential that you complete the quizzes, as the topics covered are relevant to your written assignments, the test and the final examination. Answers will be provided.

On successful completion you will be able to:

- Apply numeracy and basic principles of genetics to solve problems and draw conclusions from genetic data
- Analyse genetic data using some common population genetic software and bioinformatic tools

Poster Presentation

Assessment Type ¹: Presentation

Indicative Time on Task ²: 10 hours

Due: **25/03/2025**

Weighting: **10%**

You are required to design and present a scientific poster on genetics. The grade of your poster assessment will be based on the written and verbal content, and involves peer evaluation.

On successful completion you will be able to:

- Describe how genetic processes apply to agriculture, human health, society, and the environment
- Describe routine techniques used to assay genetic variation in populations
- Source, synthesise and critically evaluate information from the literature in written and oral formats

Practical Report

Assessment Type ¹: Report

Indicative Time on Task ²: 20 hours

Due: **29/04/2025**

Weighting: **25%**

A major component of this unit is the preparation of a practical report. This practical report should be presented in the style of a scientific publication and describe the procedures and results from the related class practical sessions.

On successful completion you will be able to:

- Describe how genetic processes apply to agriculture, human health, society, and the environment
- Demonstrate proficiency in the use of genetic research tools (pipettes, gel electrophoresis, sequence analysis)
- Analyse genetic data using some common population genetic software and bioinformatic tools
- Source, synthesise and critically evaluate information from the literature in written and oral formats

Test

Assessment Type ¹: Quiz/Test

Indicative Time on Task ²: 10 hours

Due: **20/05/2025**

Weighting: **10%**

Your progress during the unit will be assessed with a test that will focus on topics covered during the lectures and practical sessions. This test will require application of genetic principles to solve problems and an ability to describe genetic processes and techniques.

On successful completion you will be able to:

- Describe how genetic processes apply to agriculture, human health, society, and the environment
- Apply numeracy and basic principles of genetics to solve problems and draw conclusions from genetic data
- Describe routine techniques used to assay genetic variation in populations

Final Exam

Assessment Type ¹: Examination

Indicative Time on Task ²: 25 hours

Due: **Examination Period**

Weighting: **45%**

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

Students will be tested on their knowledge of course content. The exam will include information

from lectures, practical classes and assessment tasks up to and including week 13. The date for your final exam will be available later in the semester.

On successful completion you will be able to:

- Describe how genetic processes apply to agriculture, human health, society, and the environment
- Apply numeracy and basic principles of genetics to solve problems and draw conclusions from genetic data
- Describe routine techniques used to assay genetic variation in populations

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

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

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

Delivery and Resources

Week 1 Classes

Lectures will commence in Week 1. These lectures (1 & 2) will be delivered **live online** at the scheduled time, and the recording will be provided. There are no practical classes in Week 1. Please see iLearn for more details of the class and lecture schedule.

Methods of Communication

We will communicate with you via your university email and through announcements on iLearn. Queries to the convenor can be sent to genetics.biol2110@mq.edu.au. Queries that may be relevant to other students can be placed on the iLearn discussion board.

Unit Schedule

Practical classes will be delivered in two modes, based on the required resources for class activities. These two class types will be presented separately in your timetable, so please enroll in one class per series. You only need to attend one class per week, according to the below schedule and your timetable.

- Practical Series 1 - PRAC1 in your timetable

- These are wet-lab classes, scheduled in a laboratory space.
- These classes run in Weeks 2, 5 and 6
- Practical Series 2 - PRAC2 in your timetable
 - These are computer-based classes, held in a computer space.
 - These classes run in Weeks 3, 4, 7, 8, 9, 10 and 12

Policies and Procedures

Macquarie University policies and procedures are accessible from [Policy Central \(https://policies.mq.edu.au\)](https://policies.mq.edu.au). 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](#)
- [Assessment Procedure](#)
- [Complaints Resolution Procedure for Students and Members of the Public](#)
- [Special Consideration Policy](#)

Students seeking more policy resources can visit [Student Policies \(https://students.mq.edu.au/support/study/policies\)](https://students.mq.edu.au/support/study/policies). It is your one-stop-shop for the key policies you need to know about throughout your undergraduate student journey.

To find other policies relating to Teaching and Learning, visit [Policy Central \(https://policies.mq.edu.au\)](https://policies.mq.edu.au) and use the [search tool](#).

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 connect.mq.edu.au or if you are a Global MBA student contact globalmba.support@mq.edu.au

Academic Integrity

At Macquarie, we believe [academic integrity](#) – honesty, respect, trust, responsibility, fairness and courage – is at the core of learning, teaching and research. We recognise that meeting the expectations required to complete your assessments can be challenging. So, we offer you a range of resources and services to help you reach your potential, including free [online writing an](#)

[d maths support](#), [academic skills development](#) and [wellbeing consultations](#).

Student Support

Macquarie University provides a range of support services for students. For details, visit <http://students.mq.edu.au/support/>

The Writing Centre

[The Writing Centre](#) provides resources to develop your English language proficiency, academic writing, and communication skills.

- [Workshops](#)
- [Chat with a WriteWISE peer writing leader](#)
- [Access StudyWISE](#)
- [Upload an assignment to Studiosity](#)
- [Complete the Academic Integrity Module](#)

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

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

Student Services and Support

Macquarie University offers a range of [Student Support Services](#) including:

- [IT Support](#)
- [Accessibility and disability support](#) with study
- Mental health [support](#)
- [Safety support](#) to respond to bullying, harassment, sexual harassment and sexual assault
- [Social support including information about finances, tenancy and legal issues](#)
- [Student Advocacy](#) provides independent advice on MQ policies, procedures, and processes

Student Enquiries

Got a question? Ask us via the [Service Connect Portal](#), or contact [Service Connect](#).

IT Help

For help with University computer systems and technology, visit http://www.mq.edu.au/about_us/offices_and_units/information_technology/help/.

When using the University's IT, you must adhere to the [Acceptable Use of IT Resources Policy](#). The policy applies to all who connect to the MQ network including students.

Changes from Previous Offering

We value student feedback to be able to continually improve the way we offer our units. As such we encourage students to provide constructive feedback via student surveys, to the teaching staff directly, or via the FSE Student Experience & Feedback link in the iLearn page. Student feedback from the previous offering of this unit was very positive overall. Specific changes in response to feedback includes amended assessment spacing and order.

Unit information based on version 2025.04 of the [Handbook](#)