



# BIOL12107 Genomes, Genetics & Evolution

## Term 3 - 2020

Profile information current as at 04/05/2024 01:09 am

All details in this unit profile for BIOL12107 have been officially approved by CQUniversity and represent a learning partnership between the University and you (our student). The information will not be changed unless absolutely necessary and any change will be clearly indicated by an approved correction included in the profile.

### General Information

#### Overview

This unit focuses on the role of the genome in adaptive change in living organisms, particularly animals. It brings together recent advances in our understanding of the genome and the impact of these on the traditional areas of zoology, particularly those involving evolutionary processes. The unit provides you with a link between molecular biology and other areas of biology including genetics, evolution, taxonomy, embryology and behaviour. In the latter part of the unit, you will focus on various aspects of human evolution.

#### Details

Career Level: *Undergraduate*

Unit Level: *Level 2*

Credit Points: 6

Student Contribution Band: 8

Fraction of Full-Time Student Load: 0.125

#### Pre-requisites or Co-requisites

Prerequisites BIOL11099 Living Systems or BMSC11002 Human Body Systems 2 or BIOH11005 Introductory Anatomy and Physiology or BIOL11102 Life Science Laboratory

Important note: Students enrolled in a subsequent unit who failed their pre-requisite unit, should drop the subsequent unit before the census date or within 10 working days of Fail grade notification. Students who do not drop the unit in this timeframe cannot later drop the unit without academic and financial liability. See details in the [Assessment Policy and Procedure \(Higher Education Coursework\)](#).

#### Offerings For Term 3 - 2020

- Online

#### Attendance Requirements

All on-campus students are expected to attend scheduled classes – in some units, these classes are identified as a mandatory (pass/fail) component and attendance is compulsory. International students, on a student visa, must maintain a full time study load and meet both attendance and academic progress requirements in each study period (satisfactory attendance for International students is defined as maintaining at least an 80% attendance record).

#### Website

[This unit has a website, within the Moodle system, which is available two weeks before the start of term. It is important that you visit your Moodle site throughout the term. Please visit Moodle for more information.](#)

## Class and Assessment Overview

### Recommended Student Time Commitment

Each 6-credit Undergraduate unit at CQUniversity requires an overall time commitment of an average of 12.5 hours of study per week, making a total of 150 hours for the unit.

### Class Timetable

#### [Regional Campuses](#)

Bundaberg, Cairns, Emerald, Gladstone, Mackay, Rockhampton, Townsville

#### [Metropolitan Campuses](#)

Adelaide, Brisbane, Melbourne, Perth, Sydney

### Assessment Overview

#### 1. **Written Assessment**

Weighting: 30%

#### 2. **Online Quiz(zes)**

Weighting: 20%

#### 3. **Online Quiz(zes)**

Weighting: 50%

### Assessment Grading

This is a graded unit: your overall grade will be calculated from the marks or grades for each assessment task, based on the relative weightings shown in the table above. You must obtain an overall mark for the unit of at least 50%, or an overall grade of 'pass' in order to pass the unit. If any 'pass/fail' tasks are shown in the table above they must also be completed successfully ('pass' grade). You must also meet any minimum mark requirements specified for a particular assessment task, as detailed in the 'assessment task' section (note that in some instances, the minimum mark for a task may be greater than 50%). Consult the [University's Grades and Results Policy](#) for more details of interim results and final grades.

## CQUniversity Policies

**All University policies are available on the [CQUniversity Policy site](#).**

You may wish to view these policies:

- Grades and Results Policy
- Assessment Policy and Procedure (Higher Education Coursework)
- Review of Grade Procedure
- Student Academic Integrity Policy and Procedure
- Monitoring Academic Progress (MAP) Policy and Procedure – Domestic Students
- Monitoring Academic Progress (MAP) Policy and Procedure – International Students
- Student Refund and Credit Balance Policy and Procedure
- Student Feedback – Compliments and Complaints Policy and Procedure
- Information and Communications Technology Acceptable Use Policy and Procedure

This list is not an exhaustive list of all University policies. The full list of University policies are available on the [CQUniversity Policy site](#).

## Previous Student Feedback

### Feedback, Recommendations and Responses

Every unit is reviewed for enhancement each year. At the most recent review, the following staff and student feedback items were identified and recommendations were made.

#### Feedback from Feedback

##### Feedback

The lecturer was very helpful and provided exceptional support

##### Recommendation

The lecturer will continue to support students in completing their assessments and preparing for quizzes.

#### Feedback from Feedback

##### Feedback

There was some confusion about whether the textbook was required (moodle) or not (unit profile).

##### Recommendation

The welcome message, lectures and book requirements specify that we are following the Klug book but everything they need is on Moodle and therefore they do not need to get the book if they do not want to. I think this was a misunderstanding and I will make sure I clarify it better next year in the welcome message and on Moodle. I will also make a separate video named "Do I need a book?" and put it on the front of Moodle page as many do not read the welcome message where it is explained.

#### Feedback from Feedback from 2 students

##### Feedback

Some students found the material overly complicated and difficult and asked that they be uploaded in the relevant weeks rather than all at once.

##### Recommendation

One student would like difficult lectures removed, but that was part of the curriculum and they were told (those who listened) that it was taken out of the exam. Still, this was the only lecture discussing heredity at a level higher than high school punnet squares. A second student did not like that the lectures are uploaded all at once, a method is requested by most students. The lectures will continue to be uploaded all at once as most students prefer the videos be available during the term.

## Unit Learning Outcomes

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

1. Use correct terminology to describe genetics, genomes and evolution
2. Discuss the concepts of heritability, mutation, development, Mendelian genetics, extranuclear and multi-allelic inheritance, the Hardy-Wienberg Law and related topics in quantitative genetics
3. Explain the mechanisms of change in the genome including the concepts of genetic disorders adaptation and speciation
4. Discuss behavioral and population genetics, socio-biology and ethics.

NA

## Alignment of Learning Outcomes, Assessment and Graduate Attributes



### Alignment of Assessment Tasks to Learning Outcomes

Assessment Tasks	Learning Outcomes			
	1	2	3	4
1 - Written Assessment - 30%	•	•	•	•
2 - Online Quiz(zes) - 20%	•			
3 - Online Quiz(zes) - 50%	•	•	•	•

## Alignment of Graduate Attributes to Learning Outcomes

Graduate Attributes	Learning Outcomes			
	1	2	3	4
1 - Communication	•	•	•	•
2 - Problem Solving				
3 - Critical Thinking		•		•
4 - Information Literacy	•		•	•
5 - Team Work				
6 - Information Technology Competence		•		
7 - Cross Cultural Competence				•
8 - Ethical practice				•
9 - Social Innovation				
10 - Aboriginal and Torres Strait Islander Cultures				

## Alignment of Assessment Tasks to Graduate Attributes

Assessment Tasks	Graduate Attributes									
	1	2	3	4	5	6	7	8	9	10
1 - Written Assessment - 30%	•	•	•	•		•				
2 - Online Quiz(zes) - 20%		•	•	•		•				
3 - Online Quiz(zes) - 50%	•	•	•							

## Textbooks and Resources

### Textbooks

BIOL12107

#### Supplementary

##### Concepts of Genetics

Edition: 12 (2019)

Authors: William S Klug, Michael Cummings, Michael A Palladino and Darrell Killian

Pearson

Binding: eBook

#### Additional Textbook Information

The lectures follow Concepts of Genetics by Klug et al, however everything needed for assessments including the exam, is in lectures and PowerPoint slides, thus the students that do not wish to purchase the book will not be at any disadvantage.

If you prefer to study from a paper text, they can be purchased at the CQUni Bookshop here: <http://bookshop.cqu.edu.au> (search on the Unit code)

### IT Resources

#### You will need access to the following IT resources:

- CQUniversity Student Email
- Internet
- Unit Website (Moodle)

## Referencing Style

#### All submissions for this unit must use the referencing styles below:

- [Harvard \(author-date\)](#)
- [American Psychological Association 7th Edition \(APA 7th edition\)](#)

For further information, see the Assessment Tasks.

## Teaching Contacts

**Dana Stanley** Unit Coordinator  
[d.stanley@cqu.edu.au](mailto:d.stanley@cqu.edu.au)

## Schedule

### Week 1 - 09 Nov 2020

Module/Topic	Chapter	Events and Submissions/Topic
Introduction to cells, organelles and genetics	1, 2	

### Week 2 - 16 Nov 2020

Module/Topic	Chapter	Events and Submissions/Topic
Mutation, DNA repair and transposition	12 -15	

### Week 3 - 23 Nov 2020

Module/Topic	Chapter	Events and Submissions/Topic
Mendelian genetics	3	

<b>Week 4 - 30 Nov 2020</b>		
<b>Module/Topic</b>	<b>Chapter</b>	<b>Events and Submissions/Topic</b>
Non-Mendelian genetics	4	
<b>Vacation Week - 07 Dec 2020</b>		
<b>Module/Topic</b>	<b>Chapter</b>	<b>Events and Submissions/Topic</b>
<b>Week 5 - 14 Dec 2020</b>		
<b>Module/Topic</b>	<b>Chapter</b>	<b>Events and Submissions/Topic</b>
Chromosome mapping	5-7	
<b>Week 6 - 21 Dec 2020</b>		
<b>Module/Topic</b>	<b>Chapter</b>	<b>Events and Submissions/Topic</b>
Extranuclear inheritance	8, 9	
<b>Vacation Week - 28 Dec 2020</b>		
<b>Module/Topic</b>	<b>Chapter</b>	<b>Events and Submissions/Topic</b>
<b>Week 7 - 04 Jan 2021</b>		
<b>Module/Topic</b>	<b>Chapter</b>	<b>Events and Submissions/Topic</b>
Developmental genetics	18, 19	
<b>Week 8 - 11 Jan 2021</b>		
<b>Module/Topic</b>	<b>Chapter</b>	<b>Events and Submissions/Topic</b>
Genetics of behaviour; population and sociobiology	24	
<b>Week 9 - 18 Jan 2021</b>		
<b>Module/Topic</b>	<b>Chapter</b>	<b>Events and Submissions/Topic</b>
Genes meet social science - ethics and genetics	22	
<b>Week 10 - 25 Jan 2021</b>		
<b>Module/Topic</b>	<b>Chapter</b>	<b>Events and Submissions/Topic</b>
Evolutionary and conservation genetics	25, 26	
<b>Week 11 - 01 Feb 2021</b>		
<b>Module/Topic</b>	<b>Chapter</b>	<b>Events and Submissions/Topic</b>
Genomics, proteomics and bioinformatics	21	<b>Written Assessment</b> Due: Week 11 Monday (1 Feb 2021) 11:45 pm AEST
<b>Week 12 - 08 Feb 2021</b>		
<b>Module/Topic</b>	<b>Chapter</b>	<b>Events and Submissions/Topic</b>
Current research in genetics	Latest research review	<b>Online Quiz</b> Due: Week 12 Monday (8 Feb 2021) 11:55 pm AEST
<b>Exam Week - 15 Feb 2021</b>		
<b>Module/Topic</b>	<b>Chapter</b>	<b>Events and Submissions/Topic</b>
		<b>Examination</b> Due: Exam Week Friday (19 Feb 2021) 11:45 pm AEST

## Assessment Tasks

### 1 Written Assessment

## Assessment Type

Written Assessment

### Task Description

Write an essay on mutagenesis and pollution. The mutation topic is covered early in the term, which will help you keep up with the deadlines. Mutation is a fascinating topic, and it is well covered both online and in the scientific literature. Make sure you do not overly rely on online references, although it may be tempting. Make sure you cover the topic with peer-reviewed published scientific literature. You have full freedom in choosing the direction of your essay. As long as you explain the mutation and mutagenesis from the scientific point of view in the introduction, you can choose to provide an overview of different types of mutagens or focus on one specific pollutant mutagen or species affected. There is no shortage of polluting mutagens in the air, soil, food, environment, and there is an abundance of literature on what effects they may have on human and animal health. It does not need to be focused on human health, for example, how about the effects of mutagenic pollutants in the water on endangered amphibians? There are a lot of interesting topics to choose from.

Recommended word length is 2000-3000 words, excluding references.

You will be given an opportunity to email a draft to the unit coordinator for feedback before you submit. No marks will be given at the feedback stage, but you will get advice on how to improve your work.

Multiple videos on how to prepare this assignment are available on Moodle. The videos cover every aspect of essay writing, for example, what to cover, the structure, referencing and getting the most out of MS Word in terms of formatting and revisions. Additional support provided during assignment writing is also outlined on Moodle. Zoom sessions can be booked with the unit coordinator to discuss the assignment topic and get additional writing feedback. The due date is set late in the term as per previous student Moodle feedback; however, it is advised that you aim to submit this assignment earlier if possible. You will get your marks within approximately 2 weeks from submission whenever you choose to submit before the week 11 deadline.

### Assessment Due Date

Week 11 Monday (1 Feb 2021) 11:45 pm AEST

### Return Date to Students

We will aim to return the marked assessment to students in 2 weeks.

### Weighting

30%

### Minimum mark or grade

40%

### Assessment Criteria

Details of assessment criteria will be provided in week 4 tutorial on Moodle. The criteria will include:

- Quality of the literature discussed (40%)
- Complexity of the content (20%)
- Presentation (20%)
- Clarity of expression (10%)
- Referencing (10%)

Additional particular details on each assessment criteria are available on Moodle.

### Referencing Style

- [Harvard \(author-date\)](#)
- [American Psychological Association 7th Edition \(APA 7th edition\)](#)

### Submission

Online

### Submission Instructions

All submissions must be done in Moodle. Upload MS Word documents only, no pdf. Feedback will be provided in track change mode.

### Learning Outcomes Assessed

- Use correct terminology to describe genetics, genomes and evolution
- Discuss the concepts of heritability, mutation, development, Mendelian genetics, extranuclear and multi-allelic inheritance, the Hardy-Wienberg Law and related topics in quantitative genetics
- Explain the mechanisms of change in the genome including the concepts of genetic disorders adaptation and speciation
- Discuss behavioral and population genetics, socio-biology and ethics.

## Graduate Attributes

- Communication
- Problem Solving
- Critical Thinking
- Information Literacy
- Information Technology Competence

## 2 Online Quiz

### Assessment Type

Online Quiz(zes)

### Task Description

Your second assessment is a 50 questions online multiple-choice quiz covering the material from week 1 to week 10. The questions in the quiz are randomly chosen from the weekly quizzes that you will have access to ONLY during that particular week, so use this bonus to prepare for this assessment. A practice quiz will be provided 1 day before the quiz opens. This practice quiz is the same as actual assessment quiz with the exception that your scores, although visible to you, are not recorded in the grade book. You will have only 1 attempt at the Quiz, however, there are no limits on how many times you can use the practice quiz.

You will have 60 minutes to finish the quiz. This is a bit over 1 minute per question.

NOTE: This quiz will be open for 1 day (24 hours) ONLY. The quiz will be open all day, Monday, 08/02/2021 (Monday Week 12) from 12:05 AM until 11:55 PM. You must finish the quiz before the closing time or all of your entries will be lost when the quiz closes.

In the absence of an approved extension (through Moodle, with documentary evidence) there will be no late submissions for this assessment, however, if you have a good reason to take this quiz earlier please email the unit coordinator.

More information on quizzes will be in the Moodle welcome video.

### Number of Quizzes

1

### Frequency of Quizzes

Other

### Assessment Due Date

Week 12 Monday (8 Feb 2021) 11:55 pm AEST

The quiz will be open on Monday of week 12, 08/02/2021

### Return Date to Students

The results will be immediately visible to students.

### Weighting

20%

### Minimum mark or grade

40%

### Assessment Criteria

Each correct question will score one mark.

### Referencing Style

- [Harvard \(author-date\)](#)
- [American Psychological Association 7th Edition \(APA 7th edition\)](#)

### Submission

Online

### Learning Outcomes Assessed

- Use correct terminology to describe genetics, genomes and evolution

## Graduate Attributes

- Problem Solving
- Critical Thinking
- Information Literacy
- Information Technology Competence



### 3 Examination

**Assessment Type**

Online Quiz(zes)

**Task Description**

Complete an examination. The exam will be conducted online in form of a Moodle Quiz.

Detailed video description of the exam will be provided on Moodle. The exam quiz will be open all day Friday 19/02/2021 from 12:05 AM until 11:45 PM. Please make sure you finish and submit the examination quiz before the closing time or your work will be lost and you will not be given a chance to try it again.

**Number of Quizzes****Frequency of Quizzes****Assessment Due Date**

Exam Week Friday (19 Feb 2021) 11:45 pm AEST

The exam quiz will be open all day Friday 19/02/2021

**Return Date to Students**

The exam marks will be available at the release of the grades

**Weighting**

50%

**Minimum mark or grade**

50%

**Assessment Criteria**

The student is expected to demonstrate solid knowledge in the area of genetics covered in lectures from week 1 to week 10.

**Referencing Style**

- [Harvard \(author-date\)](#)
- [American Psychological Association 7th Edition \(APA 7th edition\)](#)

**Submission**

Online

**Submission Instructions**

Moodle quiz

**Learning Outcomes Assessed**

- Use correct terminology to describe genetics, genomes and evolution
- Discuss the concepts of heritability, mutation, development, Mendelian genetics, extranuclear and multi-allelic inheritance, the Hardy-Wienberg Law and related topics in quantitative genetics
- Explain the mechanisms of change in the genome including the concepts of genetic disorders adaptation and speciation
- Discuss behavioral and population genetics, socio-biology and ethics.

**Graduate Attributes**

- Communication
- Problem Solving
- Critical Thinking

## Academic Integrity Statement

As a CQUniversity student you are expected to act honestly in all aspects of your academic work.

Any assessable work undertaken or submitted for review or assessment must be your own work. Assessable work is any type of work you do to meet the assessment requirements in the unit, including draft work submitted for review and feedback and final work to be assessed.

When you use the ideas, words or data of others in your assessment, you must thoroughly and clearly acknowledge the source of this information by using the correct referencing style for your unit. Using others' work without proper acknowledgement may be considered a form of intellectual dishonesty.

Participating honestly, respectfully, responsibly, and fairly in your university study ensures the CQUniversity qualification you earn will be valued as a true indication of your individual academic achievement and will continue to receive the respect and recognition it deserves.

As a student, you are responsible for reading and following CQUniversity's policies, including the [Student Academic Integrity Policy and Procedure](#). This policy sets out CQUniversity's expectations of you to act with integrity, examples of academic integrity breaches to avoid, the processes used to address alleged breaches of academic integrity, and potential penalties.

### What is a breach of academic integrity?

A breach of academic integrity includes but is not limited to plagiarism, self-plagiarism, collusion, cheating, contract cheating, and academic misconduct. The Student Academic Integrity Policy and Procedure defines what these terms mean and gives examples.

### Why is academic integrity important?

A breach of academic integrity may result in one or more penalties, including suspension or even expulsion from the University. It can also have negative implications for student visas and future enrolment at CQUniversity or elsewhere. Students who engage in contract cheating also risk being blackmailed by contract cheating services.

### Where can I get assistance?

For academic advice and guidance, the [Academic Learning Centre \(ALC\)](#) can support you in becoming confident in completing assessments with integrity and of high standard.

### What can you do to act with integrity?



#### Be Honest

If your assessment task is done by someone else, it would be dishonest of you to claim it as your own



#### Seek Help

If you are not sure about how to cite or reference in essays, reports etc, then seek help from your lecturer, the library or the Academic Learning Centre (ALC)



#### Produce Original Work

Originality comes from your ability to read widely, think critically, and apply your gained knowledge to address a question or problem