

# BIOS 1012 CELL BIOLOGY

**Credit Points** 10

**Legacy Code** 300816

**Coordinator** Gabriel Perrone ([https://directory.westernsydney.edu.au/search/name/Gabriel Perrone/](https://directory.westernsydney.edu.au/search/name/Gabriel%20Perrone/))

**Description** Cells are the most basic form of all life, and underlying normal cell function are the molecules used to build complex cellular structures, generate energy, and propagate dynamic life. The subject will study the fundamental processes through which key biomolecules, including lipids, carbohydrates, amino acids and nucleic acids are manipulated to generate and store energy, and build a broad array of important biological macromolecules including DNA, membranes and proteins. To sustain life, cells respire for energy and replicate for growth and sexual reproduction. Accordingly the subject will examine cellular respiration, transcription, translation, mitosis, meiosis, transmission and how genes are inherited and modified providing insight into the phenomena of life. The role of DNA technologies in the fields of medicine, biotechnology and environmental science will provide students with real world applications.

**School** Science

**Discipline** Biochemistry and Cell Biology

**Student Contribution Band** HECS Band 2 10cp

Check your fees via the Fees ([https://www.westernsydney.edu.au/currentstudents/current\\_students/fees/](https://www.westernsydney.edu.au/currentstudents/current_students/fees/)) page.

**Level** Undergraduate Level 1 subject

**Equivalent Subjects** BIOS 1013 - Cell Biology BIOS 1007 - Biology B - Cellular Processes BIOS 1004 - Biology 1 BIOS 1014 - Cell Biology (WSTC)

**Assumed Knowledge**

Basic understanding of biology and chemistry.

## Learning Outcomes

On successful completion of this subject, students should be able to:

1. Describe a range of cell structures and shapes, and cellular organelles
2. Describe the broader role of organelles in cellular function and explain the importance of compartmentalisation
3. Describe the structure and chemical characteristics of the five major groups of molecules important to cellular life (water, carbohydrates, lipids, proteins, nucleic acids) and relate this structure to function in cellular processes
4. Explain why the different forms of cellular division are required for cellular function and the consequences when cellular processes fail to function properly
5. Explain how cells obtain energy, and how they use energy for driving reactions
6. Apply and transfer biological principles to other contexts such as chemical systems
7. Describe a range of DNA technologies in a variety of fields
8. Demonstrate skills in a range of experimental techniques e.g. microscopy, pipetting, biological techniques, calculations, recording data, interpreting and plotting data, writing reports

## Subject Content

Structural organisation of cells  
Molecular components of cells  
Membrane structure and function  
Energy and metabolism  
Cell communication  
How cells divide  
Sexual reproduction and meiosis  
Patterns of inheritance  
DNA: The genetic material  
Genes and how they work  
Control of gene expression  
DNA Technologies

## Assessment

The following table summarises the standard assessment tasks for this subject. Please note this is a guide only. Assessment tasks are regularly updated, where there is a difference your Learning Guide takes precedence.

Type	Length	Percent	Threshold	Individual/ Group Task	Mandatory
Quiz	Each week	20	N	Individual	N
Practical	Various 1-3 hours	15	N	Individual	N
Practical Exam	2 hours	25	N	Individual	N
Final Exam	2 hours	40	N	Individual	N

Prescribed Texts

Peter H. Raven, George B. Johnson, Kenneth A. Mason, Jonathan Losos, Tod Duncan, Biology, 13th edition, 2023, New York, McGraw Hill, ISBN 10 1265128847 · ISBN 13 9781265128845

Teaching Periods

## Spring (2024)

### Campbelltown

**On-site**

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View timetable ([https://classregistration.westernsydney.edu.au/even/timetable/?subject\\_code=BIOS1012\\_24-SPR\\_CA\\_1#subjects](https://classregistration.westernsydney.edu.au/even/timetable/?subject_code=BIOS1012_24-SPR_CA_1#subjects))

### Hawkesbury

**On-site**

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**Hybrid**

**Subject Contact** Gabriel Perrone ([https://directory.westernsydney.edu.au/search/name/Gabriel Perrone/](https://directory.westernsydney.edu.au/search/name/Gabriel%20Perrone/))

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### Parramatta - Victoria Rd

**On-site**

**Subject Contact** Gabriel Perrone ([https://directory.westernsydney.edu.au/search/name/Gabriel Perrone/](https://directory.westernsydney.edu.au/search/name/Gabriel%20Perrone/))

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## Spring (2025)

### Campbelltown

#### On-site

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#### Hybrid

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