BIOS 1041 FUNDAMENTALS OF BIOTECHNOLOGY (WSTC)

Credit Points 10

Coordinator Anne Bertoldo (https://directory.westernsydney.edu.au/search/name/Anne Bertoldo/)

Description In this subject you will explore the intricate world of cell and molecular biology, uncovering the foundational concepts crucial to biotechnology. You will explore the molecular building blocks of life and understand how they interact to form functional cells. You will investigate the roles played by proteins, nucleic acids, and other macromolecules in processes vital for life, like energy production, cell division, and reproduction. You will explore the realm of genetics to grasp the concepts of inheritance, genetic modification, and the pivotal roles nucleic acids and proteins have in the storage and flow of information. With a special emphasis on DNA technologies, you will discover how we can harness the biochemical processes of life for diverse applications. You will also gain insights into the transformative power of DNA technology across areas such as medicine, agriculture, food production, forensics, and environmental science, equipping yourself with knowledge of its real-world implications and innovations.

School Science

Discipline Biochemistry and Cell Biology

Student Contribution Band

Check your fees via the Fees (https://www.westernsydney.edu.au/currentstudents/current_students/fees/) page.

Level Undergraduate Level 1 subject

Restrictions

Students must be enrolled in an existing Destination College Diploma program listed below:

- 7188 Diploma in Culture, Society and Justice
- 7189 Diploma in Health Science
- 7190 Diploma in Business
- 7191 Diploma in Information and Communication Technologies
- 7192 Diploma in Building Design and Construction
- 7193 Diploma in Engineering Studies
- 7194 Diploma in Creative Industries and Communications
- 7195 Diploma in Arts
- 7196 Diploma in Science
- 7197 Diploma in Education Studies

Learning Outcomes

After successful completion of this subject, students will be able to:

1. Identify and describe the fundamental roles of macromolecules and organelles in determining cell structure and function.
2. Explain the significance of cell division and the potential implications when these processes malfunction.
3. Explain how cells require substrates for development and energy requirements.
4. Identify and describe a variety of DNA and RNA technologies and their applications across a variety of fields.
5. Apply your understanding of molecular and cell biology to experimental methodologies.
6. Effectively communicate molecular cell biology concepts and findings, to professional and non-professional audiences using appropriate terminology.

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 and RNA 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	2 x 60 minutes	30	N	Individual	N
Professional Task	6 x 2-hour practicals including report	40	N	Individual	N
Presentation	Up to 20 minutes/ group	30	N	Group	N

Teaching Periods

Autumn Block 4 (2025)

Campbelltown

On-site

Subject Contact Anne Bertoldo (https://directory.westernsydney.edu.au/search/name/Anne Bertoldo/)

View timetable (https://classregistration.westernsydney.edu.au/odd/timetable/?subject_code=BIOS1041_25-AB4_CA_1#subjects)

Spring Block 4 (2025)

Campbelltown

On-site

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View timetable (https://classregistration.westernsydney.edu.au/odd/timetable/?subject_code=BIOS1041_25-SB4_CA_1#subjects)