

BIOS 1014 CELL BIOLOGY (WSTC)

Credit Points 10

Legacy Code 700125

Coordinator Virginia Shepherd ([https://directory.westernsydney.edu.au/search/name/Virginia Shepherd/](https://directory.westernsydney.edu.au/search/name/Virginia%20Shepherd/))

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 unit 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 unit will examine cellular respiration, transcription, translation, mitosis, meiosis, transmission and how the genetic code is inherited and modified providing students insights into the phenomena of life. The role of DNA technology in the fields of medicine, biomolecular plant and animal science, food, forensic 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 HECS Band contribution amount via the 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 LGYB 0459 - Cell Biology (UWSC) BIOS 1012 - Cell Biology

Restrictions Students must be enrolled at Western Sydney University, The College. Students enrolled in Extended Diplomas must pass 40 credit points from the preparatory subjects listed in the program structure prior to enrolling in this University level subject. Students enrolled in the combined Diploma/Bachelor programs listed below must pass all College Preparatory subjects listed in the program structure before progressing to the Year 2 subjects.

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 structure and function of cellular components to activities of the cellular unit (i.e. greater than the sum of its parts) 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 process fail to function properly
5. Explain how cells obtain energy, and how they use energy for driving reactions
6. Describe the range of DNA technologies in a variety of fields
7. Apply and transfer biological principles to other contexts such as chemical systems
8. Conduct a range of appropriate and relevant cell biology experimental techniques and explain how they are used

Subject Content

1. Structural organization of cells
2. Biological molecules
3. From molecules to cells
4. Membrane structure and function
5. Energy and metabolism
6. Cell communication
7. How cells divide
8. Patterns of inheritance
9. DNA: The genetic material
10. Genes and how they work
11. Mendelian Genetics
12. DNA technologies
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12. 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.

Item	Length	Percent	Threshold	Individual/Group Task
Poster	1,200-1,500 words	15	N	Both (Individual & Group)
Intra-session Exam	1 hour	15	N	Individual
Quiz	30 minutes	10	N	Individual
Final Exam	2 hours	35	N	Individual

Practical	On-going in scheduled 3 hr prac time	10	N	Individual
Log/Workbook	On-going in scheduled 3 hr prac time	15	N	Individual

Prescribed Texts

- Raven, P.H., Johnson, G.B., Mason, K.A., Losos, J.B. and Singer, S.R. 2011. Biology 9th ed. New York, McGraw-Hill

Teaching Periods

Term 1

Nirimba Education Precinct

Day

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View timetable (https://classregistration.westernsydney.edu.au/even/timetable/?subject_code=BIOS1014_22-T1_BL_D#subjects)

Term 2

Nirimba Education Precinct

Day

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View timetable (https://classregistration.westernsydney.edu.au/even/timetable/?subject_code=BIOS1014_22-T2_BL_D#subjects)

Term 3

Nirimba Education Precinct

Day

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View timetable (https://classregistration.westernsydney.edu.au/even/timetable/?subject_code=BIOS1014_22-T3_BL_D#subjects)