



University Foundation Studies

BIOS0002

FOCUS ON BIOLOGY

2023 TERM 1

SUBJECT OUTLINE

Last amended:	February 2023
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Subject name	Focus on Biology
Subject number	BIOS0002
Coordinator	Anne Bertoldo
Session	2023.1
Handbook summary	<p>Biology is the study of integrated living systems, from the level of molecular systems that constitute cells to the interactions that occur within and between organisms that together make up the biosphere. This subject will equip students to undertake tertiary level biological subjects that emphasise both the unity (cell biology) and diversity (evolution) of living organisms. Students will learn about the basic molecular biological underpinnings of cellular structure and function within an integrated framework that proceeds through major themes of bioenergetics, gas exchange and transport systems within multicellular organisms, inheritance and evolution. Students will develop a fundamental body of essential biological concepts, as well as build skills in collecting and analysing information, and writing coherent explanations.</p>
Credit point value	10
Prerequisite/s	N/A
Corequisite/s	N/A
Subject incompatible with and not to be counted for credit with	N/A
Assumed knowledge	N/A
Subject level	Level Z — Non-award
Attendance requirements	<p>Students are expected to attend all classes. Educational research consistently demonstrates that this attendance level is associated with a high likelihood of achieving a passing grade.</p> <p>This subject will require you to complete practical and/or workshop activities in the science laboratory throughout this term.</p>
Enrolment restrictions	N/A
Learning outcomes	<p>On successful completion of this subject, students should be able to:</p> <ol style="list-style-type: none">1. conceptualise and describe fundamental properties of living systems2. recall the basic structural organisation of prokaryotic and eukaryotic cells

3. explain fundamental cellular processes including membrane transport, photosynthesis and respiration
 4. explain the basic roles of nucleic acids, proteins, carbohydrates and lipids in cell structure and function
 5. describe and explain the necessity for processes of gas exchange in multicellular organisms
 6. describe and explain the necessity for transport systems in multicellular organisms
 7. describe the manner in which genetic information is passed from generation to generation
 8. outline at a basic level the process of protein synthesis from a DNA template
 9. explain in simple terms the concept of evolution through natural selection and changes in gene frequency
 10. describe basic characteristics of six kingdoms of life within an evolutionary framework, and
 11. solve problems, analyse and synthesise information, and draw conclusions.
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Subject content

In this subject students will learn about:

- cells: the basis of life
 - cells in action
 - life on land: gas exchange in multicellular organisms
 - life on land: transport systems in multicellular organisms
 - reproduction and inheritance, and
 - evolution of biodiversity.
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Mode of delivery

This subject consists of six-hours of tutorials/workshops per week plus online learning activities via the subject's vUWS site.

Online learning requirements

Laboratory induction

All Science, Engineering, Construction Management and Health Science students are required to complete an on-line laboratory induction at the beginning of each term.

Before you can participate in the practical activities, you are required to complete an online Laboratory Induction and pass an assessment based on this activity.

The laboratory induction activity is available on vUWS, in The College Laboratory site.

STUDENTS ARE REQUIRED TO COMPLETE THE ONLINE LABORATORY INDUCTION and PASS ASSESSMENT ACTIVITIES PRIOR TO THEIR FIRST LABORATORY SESSION. The assessment activity is essential for student safety and ensures students can demonstrate understanding of OHS procedures in laboratory classes prior to commencing lab class. This activity must be completed prior to students being allowed to enter the laboratory. Students must achieve 100% in the assessment. Only students who complete their Laboratory Inductions may complete the practical activities. Any student who misses a practical activity will receive a mark of zero for the task missed.

It is the responsibility of the individual student to complete the Laboratory Induction and pass the assessment before the first practical activity takes

place. Students who have not completed the Laboratory Induction and assessment will not be permitted to enter the laboratory.

Essential requirements

Essential texts

The College 2020, *Focus on Biology student workbook — concepts*, Western Sydney University The College, Sydney.

The College 2020, *Focus on Biology student workbook — review questions*, Western Sydney University The College, Sydney.

The College 2020, *Focus on Biology student laboratory workbook*, Western Sydney University The College, Sydney.

Further resources

Alford, D & Hill, J 2009, *Excel HSC biology*, Pascal Press, Glebe.

Alford, D & Hill, J 2009, *Excel preliminary biology*, Pascal Press, Glebe.

Brotherton, J & Mudie, K 2009, *Heinemann biology activity manual*, Reed International Books, Melbourne.

Collins, D et al. 1999, *Nelson biology VCE units 1 & 2*, Nelson Thomson Learning, South Melbourne.

Collins, D et al. 1999, *Nelson biology VCE units 3 & 4*, Nelson Thomson Learning, South Melbourne.

Heffernan, D et al. 2002, *Spotlight biology preliminary*, Science Press, Marrickville.

Heffernan, D et al. 2008, *Spotlight biology HSC*, Science Press, Marrickville.

Kinnear, J & Martin, M 2004, *Biology 1*, Jacaranda, Milton.

Kinnear, J & Martin, M 2004, *Biology 2*, Jacaranda, Milton.

Reece, JB et al. 2014, *Campbell biology concepts and connections*, Pearson Benjamin Cummings, Sydney.

Essential equipment

- Laboratory coat
 - Safety goggles
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ASSESSMENT ITEMS AND WEIGHTING

Assessment for this subject will be based on the following components:

Task	Weighting	Learning outcomes assessed	Mandatory task
1. Workbook/Logbook — workbook problems	20%	1–11	No
2. Midterm examination online (1.5 hours)	25%	1, 2, 3, 4 and 5	No
3. Practical — Laboratory workbook	30%	1, 3, 5, 6, 11	No
4. End-of-term examination online (2 hours)	25%	1–11	No
TOTAL	100%		

All marks will be determined in accordance with the [Assessment Policy](#). You are strongly encouraged to attempt/submit all assessment tasks, even if they are not mandatory.

In order to pass this subject, you must achieve an overall mark of 50% or greater.

FIRST FORMAL ASSESSMENT TASK AND INTERVENTION PROCEDURE

If you do not attempt/submit the first formal assessment task in a subject, you will be required to follow an Intervention Procedure to avoid receiving a Fail grade. Any subsequent failure to attempt/submit the first formal assessment task may result in:

- an FNS grade for the subject — if the task is mandatory
- a Fail grade for the assessment — if the task is not mandatory, and you do not reach an overall passing grade of 50.

The first formal assessment task for this subject will be the Log/Workbook — workbook problems, first round of marking. This will take place in one of your tutorials in Week 3.

For hand-in assessment tasks, you are required to submit a signed and dated coversheet.

Successful completion of this subject will not be counted for academic credit in any future studies at Western Sydney University.