WESTERN SYDNEY
UNIVERSITY

The College

FOCUS ON BIOLOGY

700232/900104

2021

UNIT OUTLINE

Last amended:	February 2021

Western Sydney University The College
Nirimba Education Precinct
Eastern Road
Quakers Hill NSW 2763

Postal address:

PO BOX 224
Quakers Hill NSW 2763

Phone: (02) 9852 4488
Fax: (02) 9852 4480

Disclaimer

Unit name	Focus on Biology
Unit number	700232/900104
Coordinator	Dr Virginia Shepherd
Session	2021.1
Handbook summary	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 unit will equip students to undertake tertiary level biological units 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.
Credit point value	10
Prerequisite/s	N/A
Corequisite/s	N/A
Unit incompatible with and not to be counted for credit with	N/A
Assumed knowledge	N/A
Unit level	Level Z — Non-award
Attendance requirements	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. This unit will require you to complete practical and/or workshop activities in the science laboratory throughout this term.
Enrolment restrictions	N/A
Learning outcomes	On successful completion of this unit, students should be able to: 1. conceptualise and describe fundamental properties of living systems 2. 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.
Unit content	In this unit 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 • evolution of biodiversity
Mode of delivery	This unit consists of six-hours of tutorials/workshops per week plus online learning activities via the unit's vUWS site.
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

ASSESSMENT ITEMS AND WEIGHTING

Assessment for this unit will be based on the following components

Task	Weighting	Learning outcomes assessed	Mandatory task
1. Log/Workbook — workbook problems	20%	1–11	Yes
2. Intra-session Examination (1.5 hours)	15%	1, 2, 3, 4 and 5	Yes
3. Practical — Laboratory workbook	30%	1, 3, 5, 6, 11	Yes
4. Quiz — living systems (30 minutes)	10%	6–11	Yes
5. End-of-session Examination (2 hours)	25%	1–11	Yes
TOTAL	100%		

For details of assessment due dates, please refer to the learning guide for this unit.

All marks will be determined in accordance with The College Assessment Policy.

All assessment tasks are mandatory unless otherwise specified. Should a student fail to attempt/submit the first formal assessment task in a unit, they will be deemed to be at risk and will need to follow an intervention plan in order not to receive a Fail Non-Submission (FNS) grade. However, failure to attempt/submit all other mandatory assessment tasks will result in an immediate FNS grade for the unit.

The first formal assessment task for this unit 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, students are required to submit a signed and dated coversheet.

Students must attain a mark of at least 50% overall in order to pass the unit.

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