



Course Outline (Higher Education)

School:	School of Science, Psychology and Sport
Course Title:	PRINCIPLES OF BIOLOGY
Course ID:	SCBIO1001
Credit Points:	15.00
Prerequisite(s):	Nil
Co-requisite(s):	Nil
Exclusion(s):	(BIOGC1722 and SCBIO1010 and SCCOR1100)
ASCED:	010999

Description of the Course :

This course provides an introduction to some of the fundamental principles of biology. An understanding of biology underpins the life sciences and this course explores such key elements as cell biology - organelle and tissue structure and function and cellular energetics, plant structure and nutrition, genes, chromosomes and genetic engineering, Mendelian and non-Mendelian rules of inheritance and evolution. This course establishes the fundamental knowledge which is built on in more advanced level courses in the life sciences (biology, ecology, biomedical, food).

Grade Scheme: Graded (HD, D, C, etc.)

Placement Component: No

Supplementary Assessment: Yes

Where supplementary assessment is available a student must have failed overall in the course but gained a final mark of 45 per cent or above and submitted all major assessment tasks.

Program Level:

Level of course in Program	AQF Level of Program					
	5	6	7	8	9	10
Introductory	<input type="checkbox"/>	<input type="checkbox"/>	✓	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Intermediate	<input type="checkbox"/>					
Advanced	<input type="checkbox"/>					

Learning Outcomes:

Students undertaking this course are expected to be able to demonstrate the following knowledge and skills.

Knowledge:

- K1.** Identify the major cell constituents and tissues in eukaryotic organisms and their functions.
- K2.** Describe the pathways through which energy is converted to different forms in organisms.
- K3.** Explain the basis of genetic inheritance of traits and the rules governing those processes.
- K4.** Describe independent lines of evidence supporting the theory of evolution.
- K5.** Discuss the processes involved in the evolution by natural selection of traits and species.

Skills:

- S1.** Relate the structure of cells and organelles to their function, determine the purpose of major cellular organelles and tissues
- S2.** Relate biochemical reactions to the physiological processes of living organisms.
- S3.** Determine the influence of genetics on trait inheritance and its relationship with the chemistry of genetic material.
- S4.** Describe the scientific basis of evolutionary theory and explain how evolution has shaped living organisms.
- S5.** Demonstrate the benefits of newly acquired study and practical skills.

Application of knowledge and skills:

- A1.** Conduct lab-based studies using standard methods, equipment, technology and approaches in biological science.
- A2.** Observe key biological processes, functions and structures and report observations in standard lab report formats.
- A3.** Use standard biological terms and terminology to describe and report observations.

Course Content:

This course provides an introduction to some of the fundamental principles of biology. The course explores in detail key aspects of biological sciences such as: Cell biology - organelle and tissue structure and function and cellular energetics; Plant structure and nutrition; Genes, chromosomes and genetic engineering; Mendelian and non-Mendelian rules of inheritance; Evidence of evolution; Microevolution in populations; Macroevolution - formation of new species.

Topics may include:

- Cells and cell structure.
- Energy in living systems and the conversion from one form to another.
- Genetics and the rules of inheritance.
- The chemical basis of inheritance.
- Scientific evidence of evolution.
- Micro and macroevolution.

Values:

- V1.** Appreciate that living systems have evolved complex chemical and structural systems.
- V2.** Appreciate the levels of complexity and integration between levels within biological systems.

- V3.** Recognise the differences between a superficial understanding of biology and an in-depth knowledge acquired through study.

Graduate Attributes

The Federation University FedUni graduate attributes (GA) are entrenched in the Higher Education Graduate Attributes Policy (LT1228). FedUni graduates develop these graduate attributes through their engagement in explicit learning and teaching and assessment tasks that are embedded in all FedUni programs. Graduate attribute attainment typically follows an incremental development process mapped through program progression. **One or more graduate attributes must be evident in the specified learning outcomes and assessment for each FedUni course, and all attributes must be directly assessed in each program**

Graduate attribute and descriptor		Development and acquisition of GAs in the course			
		Learning Outcomes (KSA)	Code A. Direct B. Indirect N/A Not addressed	Assessment task (AT#)	Code A. Certain B. Likely C. Possible N/A Not likely
GA 1 Thinkers	Our graduates are curious, reflective and critical. Able to analyse the world in a way that generates valued insights, they are change makers seeking and creating new solutions.	S5,A1	A,A	AT1, AT2, AT3, AT4	A, A, A, A
GA 2 Innovators	Our graduates have ideas and are able to realise their dreams. They think and act creatively to achieve and inspire positive change.	S5, A1	B,B	AT1	C
GA 3 Citizens	Our graduates engage in socially and culturally appropriate ways to advance individual, community and global well-being. They are socially and environmentally aware, acting ethically, equitably and compassionately.	NA	NA	NA	NA
GA 4 Communicators	Our graduates create, exchange, impart and convey information, ideas, and concepts effectively. They are respectful, inclusive and empathetic towards their audience, and express thoughts, feelings and information in ways that help others to understand.	S5, A1, A2, A3	A, A, A, A	AT1, AT2	A, A
GA 5 Leaders	Our graduates display and promote positive behaviours, and aspire to make a difference. They act with integrity, are receptive to alternatives and foster sustainable and resilient practices.	S5, A2, A3	B, B, B	AT1, AT2	C, C

Learning Task and Assessment:

Learning Outcomes Assessed	Learning Tasks	Assessment Type	Weighting
K1, K2, K3, K4, K5, S1, S2, S3, S4, S5, A1, A2, A3	Conduct lab-based studies and report on findings in an appropriate format.	Practical scientific reports	10-30%
K1, K2, K3, K4, K5, S1, S2, S3, S4, S5, A1, A3	Investigation of a key biological process, function, structure or other aspect.	laboratory/tutorial worksheets	10-30%

Learning Outcomes Assessed	Learning Tasks	Assessment Type	Weighting
K1, K2, K3, K4, K5, S1, S2, S3, S4	Demonstration and interpretation of key biological concepts	Online Quizzes	10-30%
K1, K2, K3, K4, K5, S1, S2, S3, S4, A3	Demonstration, application and interpretation of knowledge and skills.	Theory Test	30-50%

Adopted Reference Style:

Australian Harvard