



The University of Southern Queensland

## Course specification

<b>Description: Biology 2</b>						
Subject	Cat-nbr	Class	Term	Mode	Units	Campus
BIO	2103	44287	2, 2005	EXT	1.00	Toowoomba

<b>Academic group:</b>	FOSCI
<b>Academic org:</b>	FOS002
<b>Student contribution band:</b>	2
<b>ASCED code:</b>	010999

### STAFFING

Examiner: John Dearnaley

Moderator: Kerry Withers

### REQUISITES

Pre-requisite: BIO1101

### RATIONALE

Biology 2 builds on the fundamental concepts of cell structure and function introduced in Biology 1 and provides a theoretical and practical foundation in biology for both science and non-science students. This course provides a detailed examination of basic animal and plant biology, genetics and evolution which is essential for further study in biology.

### SYNOPSIS

The nervous, endocrine, reproductive, cardiovascular, respiratory and renal systems of animals are introduced. This is followed by a study of plant reproductive processes and secondary tissue formation and an overview of plant physiology. We next examine the concepts of cell reproduction, Mendelian genetics and the formation of proteins from genes. Finally, we explore evolution - the process by which organisms change over time. The residential school is a compulsory component of the external offering of this course.

### OBJECTIVES

On successful completion of this course students will be able to:

1. describe the basic anatomical characteristics and functional features of each of the reproductive, nervous, cardiovascular, respiratory and renal systems;
2. demonstrate an understanding of some of the complex nervous and hormonal control mechanisms involved in controlling the reproductive, respiratory, cardiovascular, and renal systems;
3. conduct simple physiological experiments and interpret the results of these experiments;
4. demonstrate an understanding of the basic form and function of the flowering plant;
5. describe the processes of mitosis and meiosis;

6. distinguish between dominant and recessive modes of inheritance;
7. demonstrate an understanding of how proteins are formed from genes
8. describe the mechanisms of evolution.

## TOPICS

	Description	Weighting (%)
1.	Animals II: Nervous systems; Chemical signals in animals; Animal reproduction	15.40
2.	Animals III: Circulation in animals; Gas exchange in animals; Controlling the internal environment	15.40
3.	Plants II: Reproduction and Secondary Growth; Angiosperms; Pollination; Seed formation and dispersal; Plant asexual reproduction; Plant secondary growth	15.40
4.	Plants III: Plant Physiology; Transpiration; Water and nutrient absorption; Transport of sugars; Plant hormones; Plant responses to external stimuli; Plant signalling	15.40
5.	Cell Reproduction and Genetics; Meiosis and mitosis; Mendelian genetics: chromosome structure and function; genotype/phenotype. Inheritance of simple traits; Molecular basis of inheritance: DNA structure, genes to proteins	23.00
6.	Evolution Mechanisms for evolution; Darwinism in historical context; Summary of evidence for evolution of species; The evolution of populations; The modern synthesis; Major causes of microevolution; Genetic drift, gene flow, mutation and natural selection; The origin of species; The species concept; Allopatric and sympatric speciation; Gradualism and punctuated equilibrium	15.40

## TEXT and MATERIALS required to be PURCHASED or ACCESSED

ALL textbooks and materials are available for purchase from USQ BOOKSHOP (unless otherwise stated). Orders may be placed via secure internet, free fax 1800642453, phone 07 46312742 (within Australia), or mail. Overseas students should fax +61 7 46311743, or phone +61 7 46312742. For costs, further details, and internet ordering, use the 'Textbook Search' facility at <http://bookshop.usq.edu.au> click 'Semester', then enter your 'Course Code' (no spaces).

### Dissection Kit

Campbell, N A & Reece, J B 2002, *Biology*, 6th edn, Benjamin/Cummings, California.

Pechenik, J A 2004, *A Short Guide to Writing about Biology*, 5th edn, Longman, New York.

Taylor, M R 2002, *Student Study Guide for Biology*, 6th edn, Benjamin Cummings, California.

## REFERENCE MATERIALS

Reference materials are materials that, if accessed by students, may improve their knowledge and understanding of the material in the course and enrich their learning experience.

Berne, R M & Levy, M N 1996, *Principles of Physiology*, 2nd edn, Mosby, St Louis.

Knox, B, Ladiges, P & Evans, B (Eds) 2001, *Biology*, 2nd edn, McGraw-Hill Book Company, Sydney.

Marieb, E N 2004, *Human Anatomy and Physiology*, 6th edn, Benjamin/Cummings, Menlo Park.

Raven, P H, Evert, R F and Eichhorn, S E 1999, *Biology of Plants*, 6th edn, Worth Publishers Inc, New York.

Raven, P H & Johnson, G B 2002, *Biology*, 6th edn, WC Brown, Dubuque.

Solomon, E P, Berg, L R, Martin, D W and Villet, C 1996, *Biology*, 4th edn, Saunders College Publishing, Fort Worth.

Stern, K R 1994, *Introductory Plant Biology*, 6th edn, WC Brown, Dubuque.

Taiz, L & Zeiger, E 2002, *Plant Physiology*, 3rd edn, Sinauer Associates Inc, Massachusetts.

## STUDENT WORKLOAD REQUIREMENTS

ACTIVITY	HOURS
Assessment	30.00
Directed Study	46.00
Examinations	3.00
Private Study	70.00
Residential Schools	18.00

## ASSESSMENT DETAILS

Description	Marks out of	Wtg(%)	Due date
PRAC REPORT 1	100.00	15.00	07 Oct 2005
PRAC REPORT 2	100.00	25.00	21 Oct 2005
PART A 3 HR CLOSED MC EXAM	120.00	35.00	END S2 (see note 1)
PART B OF 3 HR CLOSED EXAM	60.00	25.00	END S2 (see note 2)

### NOTES

1. Examination dates will be available during the Semester. Please refer to the examination timetable when published.
2. Examination dates will be available during the Semester. Please refer to the examination timetable when published.

## IMPORTANT ASSESSMENT INFORMATION

- 1 Attendance requirements:  
It is the students' responsibility to attend and participate appropriately in all activities (such as lectures, tutorials, laboratories and practical work) scheduled for them, and to study all material provided to them or required to be accessed by them to maximise their chance of meeting the objectives of the course and to be informed of course-related activities and administration.
- 2 Requirements for students to complete each assessment item satisfactorily:

To complete each of the assessment items satisfactorily, students must obtain at least 50% of the marks available for each assessment item.

- 3 Penalties for late submission of required work:  
If students submit assignments after the due date without prior approval then a penalty of 10% of the total marks available for the assignment will apply for each working day late.
- 4 Requirements for student to be awarded a passing grade in the course:  
To be assured of receiving a passing grade a student must achieve at least 50% of the available weighted marks for the summative assessment items.
- 5 Method used to combine assessment results to attain final grade:  
The final grades for students will be assigned on the basis of the weighted aggregate of the marks obtained for each of the summative assessment items in the course.
- 6 Examination information:  
In a Closed Examination, candidates are allowed to bring only writing and drawing instruments into the examination.
- 7 Examination period when Deferred/Supplementary examinations will be held:  
Any Deferred or Supplementary examinations for this course will be held during the examination period of Semester 3 of the current academic year.
- 8 University Regulations:  
Students should read USQ Regulations 5.1 Definitions, 5.6. Assessment, and 5.10 Academic Misconduct for further information and to avoid actions which might contravene University Regulations. These regulations can be found at the URL <http://www.usq.edu.au/corporateservices/calendar/part5.htm> or in the current USQ Handbook.

## **ASSESSMENT NOTES**

- 9 In order to attend laboratory classes, students must provide and wear appropriate personal protective equipment. This shall include a laboratory coat, closed in shoes, and safety glasses. Such equipment must be approved by supervising staff. Failure to provide and wear the appropriate safety equipment will result in students being excluded from classes.
- 10 Students who have undertaken all of the required assessments in a course but who have failed to meet some of the specified objectives of a course within the normally prescribed time may be awarded the temporary grade: IM (Incomplete-Make-up). An IM grade will only be awarded when, in the opinion of the examiner, a student will be able to achieve the remaining objectives of the course after a period of non directed personal study. Students who, for medical, family/personal, or employment-related reasons, are unable to complete an assignment or to sit for an examination at the scheduled time may apply to defer an assessment in a course. Such a request must be accompanied by appropriate supporting documentation. One of the following temporary grades may be awarded IDS (Incomplete-Deferred Examination); IDM (Incomplete Deferred Make-up); IDB (Incomplete - Both Deferred Examination and Deferred Make-up).
- 11 The due date for an assignment is the date by which a student must despatch the assignment to the USQ. The onus is on the student to provide proof of the despatch date, if requested by the Examiner. Students must retain a copy of each item submitted for assessment. If requested by the Examiner, students will be required to provide a copy of assignments submitted for assessment. Such copies should be despatched to USQ within 24 hours of receipt of a request being made. The examiner of a course may grant an extension of the due date of an assignment in extenuating circumstances. In

the event that a due date for an assignment falls on a local public holiday in their area, such as a Show holiday, the due date for the assignment will be the next day. Students are to note on the assignment cover the date of the public holiday for the Examiner's convenience.