



1. General Course Information

1.1 Course Details

| | |
|----------------------------|--------------------|
| Course Code: | 1041SCG |
| Course Name: | Biological Systems |
| Trimester: | Trimester 1, 2023 |
| Program: | Diploma of Science |
| Credit Points: | 10 |
| Course Coordinator: | Dr. Mahsa Azad |
| Document modified: | 21/02/2023 |

Course Description

Biological Systems is an introductory course that provides an appreciation of the main concepts of modern biology. Students will gain an understanding of the origin, function and structure of living organisms by examining life at increasing levels of biological complexity, from the molecular and cellular level to whole organisms and ecosystems. Course content will be delivered through a combination of recorded lectures content, learning experience, laboratory sessions and online material.

Assumed Knowledge

This course introduces the biology of organisms. It is a basic biology course that can be used as a foundation for those not wishing to study biology further but is essential background for students wishing to undertake further study in the biological, ecological, biomedical and biomolecular sciences. It includes an understanding of the classification of biological organisms, the underlying differences in cell structure and function of prokaryotes and eukaryotes. The course also covers plant and animal biology through the understanding of central metabolic pathways, plant and animal diversity with emphasis on how the structure of organisms influences how they function in different environments.

1.2 Teaching Team

Your teacher can be contacted via the email system on the portal.

| Name | Email |
|----------------|---|
| Dr. Mahsa Azad | mahsa.azad@staff.griffithcollege.edu.au |

1.3 Staff Consultation

Your teacher is available each week for consultation outside of normal class times. Times that your teacher will be available for consultation will be found on the Moodle Course Site.

1.4 Timetable

Your timetable is available on the Griffith College Portal at Class Timetable in Student and Services.

1.5 Technical Specifications

All students must have access to a computer or suitable mobile device.

2. Aims, Outcomes & Generic Skills

2.1 Course Aims

This course introduces cell biology and biological systems, including cell structure and introductory animal and plant biology. The aim is to provide the essential understanding of cells and biological systems necessary for further study in the biological, ecological, biomedical and biomolecular sciences.



2.2 Learning Outcomes

After successfully completing this course, you should be able to:

1. Explain biological systems at the cellular level.
2. Explain biological systems at whole organism level.
3. Explain Evolutionary trend of organisms and biological systems.
4. Use developed set of skills to examine the form and function of biological systems.
5. Analyse data generated from experiments to write a scientific report.



2.3 Generic Skills and Capabilities

For further details on the Generic Skills please refer to the [Graduate Generic Skills and Capabilities policy](#).

Griffith College aims to develop graduates who have an open and critical approach to learning and a capacity for lifelong learning. Through engagement in their studies, students are provided with opportunities to begin the development of these and other generic skills.

Studies in this course will give you opportunities to begin to develop the following skills:

| Generic Skills and Capabilities | | Taught | Practised | Assessed |
|--|--|--------|-----------|----------|
| Acquisition of discipline knowledge and skills with critical judgement | | ✓ | ✓ | ✓ |
| Communication and collaboration | | ✓ | ✓ | ✓ |
| Self-directed and active learning | | ✓ | ✓ | ✓ |
| Creative and future thinking | | ✓ | ✓ | ✓ |
| Social responsibility and ethical awareness | | ✓ | ✓ | |
| Cultural competence and awareness in a culturally diverse environment | | ✓ | ✓ | |



3. Learning Resources

3.1 Required Learning Resources

Hillis, D.M., Sadava, D. Hill, R.W. and Price, M.V. (2019) Principles of Life. Third Edition Sinauer Associates MA U.S.A.

3.2 Recommended Learning Resources

Reece, J. B., & Campbell, N. A. (2011). Campbell biology. Boston: Benjamin Cummings / Pearson.

3.3 College Support Services and Learning Resources

The College provides many facilities and support services to assist students in their studies. Links to information about college support resources that are available to students are included below for easy reference.

[Digital Library](#) – Databases to which Griffith College students have access to through the Griffith Library Databases.

MyStudy – there is a dedicated website for this course via MyStudy on the Griffith College Portal.

Academic Integrity - Griffith College is committed to ensuring academic integrity is understood and maintained by all staff and students. All students learn about academic integrity through engagement with the weighted Epigeum modules within the suite of Academic and Professional Studies courses.

Services and Support provides a range of services to support students throughout their studies including academic advice and assignment help from Student Learning Advisors, and personal and welfare support from Student Counsellors.

Jobs and Employment in the [Student Hub](#) can assist students with career direction, resume and interview preparation, job search tips, and more.

[IT Support](#) provides details of accessing support, information on s numbers and internet access and computer lab rules.

3.4 Other Information about your Learning

Attendance

You are expected to actively engage in all learning experiences and learning activities which underpin the learning content in this course. You are expected to engage with the learning content and learning activities outside of timetabled class times. This requires you to be an active agent of your learning. You are expected to bring all necessary learning resources to class such as the required textbook and /or Workbook. In addition, you are encouraged to BYOD (bring your own device) to class such as a laptop or tablet. This is not a requirement as computer lab facilities are available on campus, however, the use of such devices in the classroom is encouraged with appropriate and considerate use principles being a priority.

Preparation and Participation in Learning

In order to enhance your learning, you need to prepare before participating in the learning experiences. Absorb the learning content and complete the learning activities that are provided online before you attend the scheduled learning experiences. Make sure you complete the learning activities set each week; they are designed to support your learning. Active participation in your learning will enhance your success. Ask questions when something is unclear or when you want to bring some issue to your teacher's attention; respond to questions to test your knowledge and engage in discussion to help yourself and others learn.

Consultation Sessions

Teachers offer extra time each week to assist students outside the classroom. This is known as 'consultation time.' You may seek assistance from your teacher on email or in person according to how the teacher has explained this to the class. Attendance during consultation time is optional but you are encouraged to use this extra help to improve your learning outcomes.

Course Learning Materials

Learning materials are made available to you in MyStudy on the Griffith College Portal. The learning materials are arranged in Modules. In each Module you will find Learning Content, Learning Experiences and Learning Activities. **Learning Content** will be engaged with prior to the scheduled **Learning Experience (your weekly class)**. This will ensure you are prepared for the scheduled Learning Experience by being aware of the content to be covered and therefore will be able to actively participate in the session. **Learning Activities** are accessed after the scheduled session for purposes of review, consolidation of learning, and preparation for the Evidence of Learning tasks (assessment) in the course.

In addition, missed class learning material is provided in the course. This learning material provides support, interactive tools and directions for students who occasionally cannot attend the weekly scheduled Learning Experience (either in person or on Zoom) perhaps due to illness or other commitments. The Anytime Anywhere learning material should also be used in conjunction with Learning Content and Learning Activities resources.

Self-Directed Learning

You will be expected to learn independently. This means you must organise and engage with the course learning content even when you are not specifically asked to do so by your teacher. The weekly guide will be helpful to organise your learning. This involves revising the weekly course learning material and completing the learning activities. It also means you will need to find additional information to evidence your learning (assessment) beyond that given to you, and to construct your own response to a question or topic. All of this requires careful planning of your time. Expect to spend on average, at least 10 hours per week including class time for each of your courses.

Program Progression

You are reminded that satisfactory Program Progression requires that attendance in classes is maintained at equal to or greater than 80%, and that GPA is maintained at equal to or greater than 3.5 [please see Griffith College Policy Library - [Program Progression Policy](#) - for more information].






Teacher and Course Evaluation

Your feedback is respected and valued by your teacher. You are encouraged to provide your thoughts on the course and teaching, both positive and critical, directly to your teacher or by completing course and teacher evaluations via Griffith College's evaluation tool whenever these are available.



4. Learning Content, Learning Activities and Learning Experiences

4.1 Modules for Learning and Weekly Learning Content, Learning Activities and Learning Experience

| | Learning Content  | Learning experiences  | Learning activities  | Evidence of learning  | Learning outcome  |
|--|---|--|---|---|---|
| Module 1: Explanation of the biological systems at cellular level | | | | | |
| 1 | Introduction, Principles of life & The chemistry of life | Face to face on campus Lectures Textbook ch.: 1 & 2 Study Guides Summarised online Content. Conceptual Questions Online Practice Quiz | Online recording of the lectures Online practice quiz Homework | | 1 & 3 |
| 2 | Macromolecules Cells & organelles | Face to face on campus Lectures Textbook ch.: 3 & 4 Study Guides Summarised online Content Conceptual Questions Online Practice Quiz Lab Demonstration (Cells) | Online recording of the lectures Online practice quiz Homework Lab homework | Lab activity sheet | 1, 3 & 4 |
| 3 | Cell Membrane Cell Signalling & Cell division | Face to face on campus Lectures Textbook ch.: 6 & 7 Study Guides Summarised Content Conceptual Questions Online Practice Quiz | Online recording of the lectures Online practice quiz Homework | | 1 |
| 4 | Metabolism Cell respiration Photosynthesis | Face to face on campus Lectures Textbook ch.: 5 Study Guides Summarised Content Conceptual Questions Online Practice Quiz Lab Demonstration (Osmosis) | Online recording of the lectures Online practice quiz Homework Lab homework Scientific Report | Lab activity sheet | 1, 4 & 5 |
| Module 2: Evolution and Evolutionary trend of Organisms | | | | | |
| 5 | Evolution Reconstructing & using Phylogenies Prokaryotes' Origin and Diversity | Face to face on campus Lectures Textbook ch.: 13, 14, & 18 Study Guides Summarised Content Conceptual Questions Online Practice Quiz | Online recording of the lectures Online practice quiz Homework | Quiz 1 | 3 |

| | | | | | |
|---|--|--|--|------------------------------|-------------|
| 6 | Plants and fungi evolution and Diversity | Face to face on campus Lectures Textbook ch.: 20 & 21 Study Guides Summarised Content Conceptual Questions Online Practice Quiz Lab Demonstration (Plants Diversity) | Online recording of the lectures Online practice quiz Homework Lab homework | Lab activity sheet | 2, 3 & 4 |
| 7 | Protists and Animals Origins and Diversity | Face to face on campus Lectures Textbook ch.: 19 & 22 Study Guides Summarised Content Conceptual Questions Online Practice Quiz | Online recording of the lectures Online practice quiz Homework | | 2 & 3 |
| Module 3: Explain biological systems at whole organism level | | | | | |
| 8 | Animals Nutrition and Digestion & Gas Exchange and Circulation | Face to face on campus Lectures Textbook ch.: 28 & 30 Study Guides Summarised Content Conceptual Questions Online Practice Quiz | Online recording of the lectures Online practice quiz Homework | Quiz 2 | 2, 3 & 5 |
| 9 | Nervous System Osmoregulation & Excretion | Face to face on campus Lectures Textbook ch.: 29 & 31 Study Guides Summarised Content Conceptual Questions Online Practice Quiz Lab Demonstration (Heart Dissection) | Online recording of the lectures Online practice quiz Homework Lab homework Lab report due. | Laboratory Report | 2, 3 & 4 |
| 10 | The Plant Body, Plant Nutrition & Transport | Face to face on campus Lectures Textbook ch.: 23 & 24 Study Guides Summarised Content Conceptual Questions Online Practice Quiz | Online recording of the lectures Online practice quiz Homework | Lab activity sheet | 2 & 3 |
| 11 | Plant growth and development & Plant defences | Face to face on campus Lectures Textbook ch.: 25 & 27 Study Guides Summarised Content Conceptual Questions Online Practice Quiz Lab Demonstration (Life Diversity) | Online recording of the lectures Online practice quiz Homework Lab homework | | 2, 3 & 4 |
| 12 | Revision of the course | Summarise the content and answer the questions | Study and ask questions | Quiz 3 Lab activity sheet | 1, 2, 3 & 4 |



5. Evidence of Learning (Assessment Plan)

5.1 Evidence of Learning Summary

Please note that web applications such as ChatGPT, Google, Google Translate, Grammarly and Youdao (or equivalent services) are not permitted for assessment creation, translation, or extensive language assistance purposes. Wikipedia, and Baidu, Weibo and WeTalk are not permitted to be used.

| |  |  |  |  |
|----------|---|---|--|---|
| | Evidence of learning | Weighting | Learning outcome | Due Date |
| 1 | Laboratory Activity Sheets | 10% | 1, 2, 3 & 4 | Weeks 2, 4, 6, 10, & 12 |
| 2 | Laboratory Report | 10% | 4 & 5 | Week 9 |
| 3 | 3 Online Quizzes | 40% | 1, 2, 3 & 4 | Weeks 5, 8 & 12 |
| 4 | Final Exam | 40% | 1, 2, 3 & 4 | Exam week |

5.2 Evidence of Learning Task Detail

1.Evidence of Learning Task 1: Laboratory Activity Sheets (10%)

Task Type: In Class written Assessment.

Due Date: weeks 2, 4, 8, 10, and 12

Weight: 10%, Marked out of: 10

Length: 3 hours

Task Description: Laboratory Practical skills and knowledge

Criteria and Marking: Students are assessed on their understanding of biological topics based on the designed lab-practices and ability to apply their knowledge practically.

Submission: Hand over the physical activity sheets after the practical laboratories.

2.Evidence of Learning Task 2: Laboratory Report (10%)

Task Type: Written Assignment

Due Date: Week 9

Weight: 10%, Marked out of: 100

Length: 6 weeks

Task Description: Scientific writing

Criteria and Marking: Students are assessed on their ability to write a scientific report or article based on the experiment they have performed in the lab 2.

Submission: Online submission via Turnitin

3.Evidence of Learning Task 3: 3 Online Module Quizzes (40%)

Task Type: Quiz - Selected and Constructed responses

Due Date: week 5, 8, and 12

Weight: 40% (Q1= 13%, Q2= 13%, & Q3= 14%), Marked out of: 50

Length: 60 minutes

Quiz type: Closed book

Task Description: Module quizzes

Criteria and Marking: Students are assessed on their understanding of the theoretical course content for each module.

Quiz Format: Online and invigilated quizzes on campus.

4.Evidence of Learning Task 4: Final Exam (40%)

Task Type: Examination

Due Date: Week 13

Weight: 40%, Marked out of: 154

Perusal: 10 minutes

Length: 100 minutes

Exam type: Closed book, invigilated.

Task Description: Final Assessment

Criteria and Marking: Students are assessed on their understanding of the whole course content during the trimester.

Exam format: Online and invigilated exam on campus

Laboratory Activity Sheets

Task Description: Laboratory Practical skills and knowledge

Laboratory Activity Sheets to be completed during labs 1 (Cell), 2 (Osmosis), 3 (Diversity of life), 4 (Animals), and 5 (Plants) laboratory sessions.

Criteria & Marking: Students are assessed on their understanding of biological topics based on the designed lab-practices and ability to apply their knowledge practically.

Students need to provide answers to various questions and to show relevant drawings. Each of the 5 laboratory activities is worth 2% of the final mark.

Lab Report (Osmosis)

Task Description: Learning how to write a scientific report or an article from the data that has been collected during a laboratory practical.

A lab report for the Osmosis lab (2). The report will include:

Cover page, Abstract, Introduction, Materials and Methods, Results, Discussion, Conclusions, References.

Some of the sections will be provided. Precise instructions on the marking scheme will be given in the lab.

Criteria & Marking: Students need to complete all required aspects of the report.

Marks will be awarded for correct labelling of graphs and figures, correct referencing, proper grammar and spelling, and logical argumentation.

More details will be given during the learning experience session and labs.

Three Module Quizzes

Task Description: Module quizzes that examine students' level of knowledge and understanding from each Module separately right after the module will be taught. The quizzes include multiple choice, multiple selection, labelling, matching, and true/false responses, as well as written questions.

Criteria & Marking: Marks will be awarded for correct and partially correct responses.

Final Exam

Task Description: Final Assessment examine the students' understanding of course concepts and content, including ability to apply course concepts and content to solve problems and biological complexities.

Criteria & Marking: Marks will be awarded for correct or partially correct responses.

Requirements to pass this course:

students must:

1. **attend and attempt all assessment items; AND**
2. **achieve an overall course result (sum of all assessments) of at least 50%**

5.3 Late Submission

An evidence of learning (assessment) item submitted after the due date, without an approved extension from the Course Coordinator, will be penalised. The standard penalty is the reduction of the mark allocated to the assessment item by 5% of the maximum mark applicable for the assessment item, for each working day or part working day that the item is late. Evidence of learning items submitted more than five working days after the due date are awarded zero marks.

Please refer to the Griffith College website - Policy Library > [Assessment Policy](#) for guidelines and penalties for late submission.

5.4 Other Information about Evidence of Learning

Retention of Originals

You must be able to produce a copy of all work submitted if so requested. Copies should be retained until after the release of final results for the course.

Requests for extension

To apply for an extension of time for an evidence of learning task you must submit an [Application for Extension of Assignment](#) form to your teacher at least 24 hours before the date the assignment is due. Grounds for extensions are usually: serious illness, accident, disability, bereavement or other compassionate circumstances and must be able to be substantiated with relevant documentation [e.g. [Griffith College Student Medical Certificate](#)]. Please refer to the Griffith College website - [Policy Library](#) - for guidelines regarding extensions and deferred assessment.

Return of Evidence of Learning Items

1. Marks awarded for in-trimester evidence of learning items, except those being moderated externally with Griffith University, will be available on the Student Portal within fourteen [14] days of the due date. This does not apply to the final evidence of learning item in this course (marks for this item will be provided with the final course result).
2. Students will be advised of their final grade through the Student Portal. Students can review their final exam papers after student grades have been published. Review of final exam papers will not be permitted after the final date to enrol.
3. Marks for **all** evidence of learning items including the final exam (if applicable) will be recorded in the Moodle Course Site and made available to students through the Moodle Course Site.

The sum of your marks of evidence of learning items in this course does not necessarily imply your final grade for the course. Standard grade cut off scores can be varied for particular courses, so you need to wait for the official release of grades to be sure of your grade for this course.

6. Policies & Guidelines

Griffith College assessment-related policies can be found in the [Griffith College Policy Library](#) which include the following policies:

[Assessment Policy](#), [Special Consideration](#), [Deferred Assessment](#), [Alternate Exam Sittings](#), [Medical Certificates](#), [Academic Integrity](#), [Finalisation of Results](#), [Review of Marks](#), [Moderation of Assessment](#), [Turn-it-in Software Use](#). These policies can be accessed within the [Policy Library](#)

Academic Integrity Griffith College is committed to maintaining high academic standards to protect the value of its qualifications. Academic integrity means acting with the values of honesty, trust, fairness, respect and responsibility in learning, teaching and research. It is important for students, teachers, researchers and all staff to act in an honest way, be responsible for their actions, and show fairness in every part of their work. Academic integrity is important for an individual's and the College's reputation.

All staff and students of the College are responsible for academic integrity. As a student, you are expected to conduct your studies honestly, ethically and in accordance with accepted standards of academic conduct. Any form of academic conduct that is contrary to these standards is considered a breach of academic integrity and is unacceptable.

Some students deliberately breach academic integrity standards with intent to deceive. This conscious, pre-meditated form of cheating is considered to be one of the most serious forms of fraudulent academic behaviour, for which the College has zero tolerance and for which penalties, including exclusion from the College, will be applied.

However, Griffith College also recognises many students breach academic integrity standards without intent to deceive. In these cases, students may be required to undertake additional educational activities to remediate their behaviour and may also be provided appropriate advice by academic staff.

As you undertake your studies at Griffith College, your teacher and academic advisors will provide you with guidance to understand and maintain academic integrity; however, it is also your responsibility to seek out guidance if and when you are unsure about appropriate academic conduct.

In the case of an allegation of a breach of academic integrity being made against a student he or she may request the guidance and support of a Griffith College Student Learning Advisor or Student Counsellor.

Please ensure that you are familiar with the Griffith College Academic Integrity Policy; this policy provides an overview of some of the behaviours that are considered breaches of academic integrity, as well as the penalties and processes involved when a breach is identified.

For further information please refer to the Griffith College website - Policy Library > [Academic Integrity Policy](#)

Reasonable Adjustments for Assessment – The Disability Services policy

The [Disability Services policy](#) (accessed within the [Policy Library](#)) outlines the principles and processes that guide the College in making reasonable adjustments to assessment for students with disabilities while maintaining academic robustness of its programs.

Risk Assessment Statement

There are no out of the ordinary risks associated with this course.

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