



1. General Course Information

1.1 Course Details

Course Code:	1015MSC
Course Name:	Chemistry of Biological Systems II
Trimester:	Trimester 2, 2022
Program:	Diploma of Health Sciences
Credit Points:	10
Course Coordinator:	Darren Holland
Document modified:	13/06/22

Course Description

Chemistry of Biological Systems II, builds on material presented in Chemistry of Biological Systems I. The course introduces organic and biological chemistry, which underpins all biochemical processes and the molecular basis of life. The knowledge obtained will provide a solid foundation for following courses in biomedical science, health science, physiotherapy & exercise science, and pharmaceutical science.

The course has an emphasis on practical laboratory skills. This, with the other components of the course, will allow students to develop problem solving skills relevant to the scientific method, competency in laboratory methods, and an ability to interpret laboratory results. The course covers the following topics: introductory organic chemistry, an overview of carbohydrate, lipid, nucleic acid, amino acid and protein chemistry, the chemistry of food, exercise & medicine, metals, and fundamentals of bioenergetics.

Assumed Knowledge

To successfully enrol in this course, you must provide evidence that you have completed one of the following Courses:

- 1001GRC- Chemistry of Biological Systems I
- 1013ENV - Chemistry of Biological Systems I
- 1001MSC - Essentials of Chemistry & Physics

1.2 Teaching Team

Your teacher/s can be contacted via email as below:

You will also find their email in the Teacher's tile on your Course Site.

Name	Email
Darren Holland	DAHO@portal.griffithcollege.edu.au
Luke Hencz	LUHE@portal.griffithcollege.edu.au

1.3 Meet with your teacher

Your teacher is available each week to meet outside of normal class times. This is called consultation. Times that your teacher will be available for consultation will be found on the Teacher's tile on your Course Site.

1.4 Timetable

Your timetable is available on the Griffith College Digital Campus at My Apps, Timetable.

1.5 Technical Specifications

All students must have access to a computer or suitable mobile device such as desktop, laptop, or tablet. In addition, up-to-date browser access, a reliable high-speed internet connection with enough upload and download capacity, a webcam and headset including microphone are needed.

2. Aims, Outcomes & Generic Skills

2.1 Course Aims

The purpose of the course is to provide essential knowledge and understanding of introductory general and organic, analytical chemistry, then to build an understanding of biochemical processes; hence the molecular basis of life.



2.2 Learning Outcomes

After successfully completing this course you should be able to:

1. Demonstrate an understanding of selected chemistry related concepts, principles and theories and solve chemistry related problems for functional groups such as alkanes, carboxylic acid, esters with an application into lipids and chemistry of food.
2. Demonstrate knowledge and solve problems in stereochemistry and carbohydrates chemistry with an application into chemistry of food.
3. Demonstrate understanding and solve chemistry related problems for some biological macromolecules (proteins, enzymes and nucleic acids) and bioenergetics with an application into chemistry of medicine and exercise.
4. Demonstrate knowledge of basic chemistry laboratory skills and interpret laboratory results by integrating the laws, concepts, and principles of chemistry in the form of a workbook and lab report.
5. Develop a professional identity and employability-related skills through creating, controlling and curating an organised electronic evidence base of your work through ePortfolio and a LinkedIn Profile.



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

Hein, M., Pattison, S., & Arena. (2015). Introduction to general, organic and biochemistry (11th ed.). Hoboken, NJ: John Wiley & Sons Inc. (ISBN: 978-1-118-41389-0)

E-Book <https://www.wiley.com/en-au/Introduction+to+General%2C+Organic%2C+and+Biochemistry%2C+11th+Edition-p-9781118801994> (ISBN: 978-1-118-80199-4)

Griffith College Laboratory Lessons for Chemistry of Biological Systems II. Available on the course site.

Griffith College Laboratory Workbook for Chemistry of Biological Systems II. Available on the course site.

Griffith College Content notes for Chemistry of Biological Systems II. Available on the course site.

3.2 Recommended Learning Resources

No other recommended resources

3.3 College Support Services and Learning Resources

Griffith College provides many facilities and support services to assist students in their studies. Links to information about 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.
- [Study Toolbox](#) – there is a dedicated website for this course on the Griffith College Digital Campus.
- 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 Academic Integrity online modules within the Academic and Professional Studies course.
- [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

Preparation and Participation in Learning

You need to prepare before attending your scheduled learning experience. Work through the learning content prepared by your teacher which is found on the course site. 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.

Attendance

You are expected to actively engage in all learning experiences 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.

Laboratories

ATTENDANCE AT LABORATORIES WILL BE RECORDED AND IS

COMPULSORY. This course has four (4) face to face labs and one (1) online Lab report support session. Each laboratory session runs for two (2) hours as per the laboratory timetable made available on the Griffith College student portal.

Students who are absent from laboratory classes for medical reason will require a proper medical certificate as indicated by Griffith College policy. If the student does not have appropriate evidence for their absence to the laboratory class, they will still have to complete the workbook but will not be awarded marks for the laboratory class they have missed.

These practical sessions provide learning activities that are essential to the learning outcomes in this course. Students will work in small groups to conduct experiments and develop problem solving skills.

Content covered in these laboratories complements lecture material and hence will be assessed in both laboratory reports and examinations.

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 the course site. 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 in the course.

In addition, **Anytime Anywhere** 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 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%, students are engaged in their learning 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 teachers. 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 Experiences and Learning Activities

4.1. Modules for Learning and Weekly Learning Content, Learning Experiences and Learning Activities

	Learning Content	Learning Experiences	Learning Activities	Evidence of Learning	Learning Outcome
					
	Module 1				
1	Alkanes Introduction to PebblePad e-Portfolio & LinkedIn account	Topic notes activities, Discussion groups, Design e-Portfolio & LinkedIn	Content Videos YouTube Khan academy		1
2	Alkene & Alkynes	Topic notes activities, Discussion groups, Weekly exercises Content questions	Content Videos YouTube Khan academy		1
3	Alcohols, Ethers, Phenols, Thiols	Topic notes activities, Discussion groups, Weekly exercises Content questions	Content Videos YouTube		1

4	Aldehydes, Ketones	Topic notes activities, Discussion groups, Weekly exercises Content questions	Content Videos YouTube Lab 1 – Aldehydes and Ketones	Learning Outcome 4: Academic Integrity Certificate due	1
5	Carboxylic Acid, Esters, Lipids & Chemistry of Food -Fatty Acids	Topic notes activities, Discussion groups, Weekly exercises Content questions	Content Videos YouTube	Learning Outcome 4: e-Portfolio & LinkedIn assessment (10%)	1
Module 2					
6	Stereoisomerism	Topic notes activities, Discussion groups, Weekly exercises Content questions	Content Videos YouTube Lab 2 – Synthesis of Aspirin	Learning Outcome 1: Module 1 Quiz (25%)	2
7	Carbohydrates & Chemistry of Food- Carbohydrates	Topic notes activities, Discussion groups, Weekly exercises Content questions	Content Videos YouTube Online Lab Tutorial		2
Module 3					
8	Amines, Amides	Topic notes activities, Discussion groups, Weekly exercises Content questions	Content Videos YouTube		3
9	Amino Acids, Proteins	Topic notes activities, Discussion groups, Weekly exercises Content questions	Content Videos YouTube Lab 3 – Glucose in Drinks	Learning Outcome 2: Module 2 Quiz (10%)	3
10	Enzymes, Metals in Biological Systems & Chemistry of Medicine	Topic notes activities, Discussion groups, Weekly exercises Content questions	Content Videos YouTube Lab 4 – The Chemistry of Medicine		3
11	Nucleic Acids & Bioenergetics	Topic notes activities, Discussion groups, Weekly exercises Content questions	Content Videos YouTube	Learning Outcome 5: Lab Report (13%)	3
12	Chemistry of Exercise	Topic notes activities, Discussion groups, Weekly exercises Content questions	Content Videos YouTube	Learning Outcome 5: Lab Workbook (12%)	3
Exam Week				Learning Outcome 3: Module 3 Quiz (30%)	
Module 4					

	PebblePad ePortfolio & LinkedIn account	Design PebblePad ePortfolio & LinkedIn account	Content Videos PebblePad Step by Step Guide & ePortfolio & LinkedIn account Guide	Online submission of PebblePad ePortfolio & LinkedIn account in week 5	
Module 5					
	Laboratory component In-person and online articulate lessons for international students	Online Lab Tutorial – Week 7 Glucose in Drinks – Lab Report Tutorial	Labs: Week 4 Lab 1: Identification of Aldehydes and Ketones Week 6 Lab 2: Synthesis of Aspirin and Molecular models Week 9 Lab 3: Glucose Concentration in Drinks Week 10 Lab 4: Chemistry of Medicine	Week 11: Lab report due Glucose in Drinks (Lab 3) Week 12: Lab Workbook due (assessing Labs 1, 2 and 4)	5

4.2. Practical Laboratory Classes

Practical laboratory classes are delivered in Weeks 2, 3, 4 & 8. Topics are detailed in 4.1 Learning Experience Simulation Laboratory sessions. Please look out for the timetable details.



5. Evidence of Learning

5.1 Evidence of Learning Summary

	Evidence of Learning	Weighting	Learning Outcome	Due Week
1	ePortfolio & LinkedIn profile	10%	4	Week 5
2	Module 1 Quiz	25%	1	Week 6
3	Module 2 Quiz	10%	2	Week 9
4	Module 3 Quiz	30%	3	Week 13
5	Laboratory Assignments (a) Laboratory report (b) Laboratory Workbook	13% 12%	5	Week 11 Week 12

5.2 Evidence of Learning Task Detail

1. Evidence of Learning Task 1: ePortfolio & LinkedIn Profile (10%)

Task Type: Assignment

Due Week: Week 5

Weight: 10%, Marked out of 100

Task Description: Students to update ePortfolio and create professional LinkedIn account

Criteria and Marking: Students are assessed on ePortfolio and LinkedIn profiles according to marking criteria provided

Submission: Turnitin via the course site

2. Evidence of Learning Task 2: Module 1 Quiz (25%)

Task Type: Examination

Due Week: Week 6

Weight: 25%, Marked out of 90

Length: 70 min

Task Description: Quiz assessing content Topics 1-5

Criteria and Marking: Students are assessed on material from Topics 1-5

Submission: Online quiz

3. Evidence of Learning Task 3: Module 2 Quiz (10%)

Task Type: Examination

Due Week: Week 9

Weight: 10%, Marked out of 48

Length: 62 min

Task Description: Quiz assessing Topics 6 and 7

Criteria and Marking: Students are assessed on material from Topics 6 and 7

Submission: Online quiz

4. Evidence of Learning Task 4: Module 3 Quiz (30%)

Task Type: Examination

Due Week: Week 13

Weight: 30%, Marked out of 112

Length: 120 min

Task Description: Quiz assessing content from Topics 8-12

Criteria and Marking: Students are assessed on material from Topics 8-12

Submission: Online quiz

5. Evidence of Learning Task 5: Laboratory Assignments (Report & Workbook - 13% & 12%)

Task Type: Written Assignments

Due Week: Laboratory Report week 11, Laboratory Workbook week 12

Weight: 25%, Laboratory Report 13% (Marked out of 100), Laboratory Workbook 12% (Marked out of 120)

Task Description: The lab component of the course will be assessed by written Laboratory report for Glucose in Drinks lab (13%) and Laboratory workbook questions (Labs 1-4, 12%)

Criteria and Marking: Students are assessed on Labs 1-4 for the Laboratory Workbook and Lab 3 for the Laboratory Report (Glucose in Drinks)

Submission: Turnitin via the course site

In order to pass this Course, students must:

A. Attempt all assessment items

B. demonstrate assurance of learning of all learning outcomes through graded Evidence of Learning Tasks

C. obtain at least 40% in the module 3 quiz.

5.3 Late Submission

An Evidence of Learning Task submitted after the Due Week, without an approved extension from the teacher, will be penalised. The standard penalty is the reduction of the mark allocated to the Evidence of Learning Task by 5% of the maximum mark applicable for the Evidence of Learning Task, for each working day or part working day that the task is late. Evidence of learning tasks submitted more than five working days after the Due Week 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 Evidence of Learning Tasks.

Return of Evidence of Learning Tasks

1. Marks awarded for in-trimester evidence of learning tasks, except those being moderated externally with Griffith University, will be available on the course site within fourteen [14] days of the Due Week. This does not apply to the final evidence of learning task in this course (marks for this task will be provided with the final course result).
2. Students will be advised of their final grade through the Digital Campus. 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 tasks including the final exam (if applicable) will be recorded in the Course Site and made available to students through the Course Site.

The sum of your marks of evidence of learning tasks 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 Evidence of Learning Tasks-related policies can be found in the [Griffith College Policy Library](#) which include the following policies:

[Assessment Policy](#), [Special Consideration](#), [Deferred Assessment](#), [Alternate Exam Sitings](#), [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 teachers 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 Evidence of Learning Tasks – 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 Evidence of Learning Tasks for students with disabilities while maintaining academic robustness of its programs.

Risk Assessment Statement

This course follows Griffith College and Griffith University Workplace Health and Safety Laboratory guidelines.

The aim of workplace health and safety is to make sure that people do not get sick or injured at the workplace. The legislation dealing with this in Queensland is called the Workplace Health and Safety Act, 1995. Anyone who can affect workplace health and safety has an obligation under this Act.

As a student, you have an obligation to yourself and others to undertake activities in a safe manner. You must follow instructions which are provided for safety. You must not put yourself or anyone else at risk. Care especially needs to be taken when you are performing activities which can affect others. Additional Laboratory Rules if applicable will be available on the course site via the Griffith College Digital Campus.

It is imperative that students follow all health and safety procedures & clinical nursing guidelines, as well as any staff instructions given whilst in the lab.

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