



## 1. General Course Information

### 1.1 Course Details

<b>Course Code:</b>	1015MSC
<b>Course Name:</b>	Chemistry of Biological Systems II
<b>Trimester:</b>	1, 2021
<b>Program:</b>	Diploma of Health Sciences
<b>Credit Points:</b>	10
<b>Course Coordinator:</b>	Darren Holland
<b>Document modified:</b>	09/12/20

### 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 lecturer/tutor can be contacted via the email system on the portal.

Name	Email
Darren Holland	DAHO@portal.griffithcollege.edu.au

## 1.3 Staff Consultation

Your lecturer/tutor is available each week for consultation outside of normal class times. Times that your lecturer/tutor will be available for consultation will be given in the first week of lectures. A list of times will be published on the Griffith College Portal on the 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

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

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 Tutorial](#) - this tutorial helps students to understand what academic integrity is and why it matters. You will be able to identify types of breaches of academic integrity, understand what skills you will need in order to maintain academic integrity, and learn about the processes of referencing styles.

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 lecturer or tutor'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 the learning content, learning activities and learning experiences. Actively working your way through these course learning materials together with your lecturer or tutor will prepare you to succeed when completing the evidence of learning (assessment).

## **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 lecturer or tutor. 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 lecturers and tutors. You are encouraged to provide your thoughts on the course and teaching, both positive and critical, directly to your lecturer and tutor or by completing course and lecturer 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 
<b>Module 1</b>					
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 Virtual Lab		1
5	Carboxylic Acid, Esters, Lipids & Chemistry of Food -Fatty Acids	Topic notes activities, Discussion groups, Weekly exercises Content questions	Content Videos YouTube Virtual Lab	Online submission of e-Portfolio & LinkedIn account	1
<b>Module 2</b>					
6	Stereoisomerism	Topic notes activities, Discussion groups, Weekly exercises Content questions	Content Videos YouTube	Module 1 Quiz	2
7	Carbohydrates & Chemistry of Food- Carbohydrates	Topic notes activities, Discussion groups, Weekly exercises Content questions	Content Videos YouTube Virtual Lab		2
<b>Module 3</b>					
8	Amines, Amides	Topic notes activities, Discussion groups, Weekly exercises	Content Videos YouTube		3

		Content questions	Virtual lab		
<b>9</b>	Amino Acids, Proteins	Topic notes activities, Discussion groups, Weekly exercises Content questions	Content Videos YouTube	Lab report virtual lab 4  Module 2 Quiz	3
<b>10</b>	Enzymes, Metals in Biological Systems & Chemistry of Medicine	Topic notes activities, Discussion groups, Weekly exercises Content questions	Content Videos YouTube Virtual Lab		3
<b>11</b>	Nucleic Acids & Bioenergetics	Topic notes activities, Discussion groups, Weekly exercises Content questions	Content Videos YouTube	Lab Workbook virtual labs 1-3	3
<b>12</b>	Chemistry of Exercise	Topic notes activities, Discussion groups, Weekly exercises Content questions	Content Videos YouTube		3
<b>Exam week</b>				Module 3 Quiz	
<b>Module 4</b>					
	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	4
<b>Module</b>					
	Laboratory component	Support sessions	Virtual labs: 1. Identification of Aldehydes and Ketones 2. Synthesis of Aspirin and Molecular models 3. Chemistry of Medicine 4. Glucose Concentration in Drinks	Lab Workbook virtual labs 1-3 in week 11  Lab report virtual lab 4 in week 9	5

## 5. Evidence of Learning (Assessment Plan)

### 5.1 Evidence of Learning Summary

	 Evidence of learning	 Weighting	 Learning outcome	 Due Date
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 reports (b) Laboratory Workbook	13% 12%	5	Week 9 Week 11

### 5.2 Evidence of Learning Task Detail

#### 1. ePortfolio & LinkedIn Profile

**Rationale:** In designing and presenting the ePortfolio and LinkedIn Profile students are able to start collecting, curating, communicating and sharing their personal capabilities and professional skills.

**Assessment details:** Students are to develop a LinkedIn Profile, and an ePortfolio, and then link the two. As part of this assessment item, students must complete the Academic Integrity module and the Consent Matters module on Learning @Griffith.

**Marking criteria:** The marking criteria sheet for the ePortfolio and LinkedIn profile will be provided on the course site on the Griffith College Student Portal in advance of the submission date.

#### 2. Module 1 Quiz

**Rationale:** The aim of the quiz is to assess comprehension of the material covered in module 1.

**Assessment details:** This quiz will be in the form of multi-choice questions and short answer questions.

**Marking criteria:** The quiz will be marked against established model answers and undergo a full moderation process.

#### 3. Module 2 Quiz

**Rationale:** The aim of the exam is to assess comprehension of the material covered in module 2.

**Assessment details:** This quiz will be in the form of multi-choice questions and short answer questions.

**Marking criteria:** The quiz will be marked against established model answers and undergo a full moderation process.



#### 4. Module 3 Quiz

**Rationale:** The aim of the exam is to assess comprehension of the material covered in module 3.

**Assessment details:** This quiz will be in the form of multi-choice questions and short answer questions.

**Marking criteria:** The quiz will be marked against established model answers and undergo a full moderation process.

#### 5. Laboratory Assignments

**Rationale:** The virtual laboratory series aims to teach students basic practical laboratory skills and competencies in presenting and analysing experimental data and is designed to illustrate and extend the learning content.

**Assessment details:** (a) Students are to complete a laboratory report following the criteria outlined on the marking criteria sheet provided on the course site on the Griffith College Student Portal. Reports must contain: an abstract, and introduction, a very brief material and method section, the results; a discussion of the results obtained in the lab as they relate to the literature; and a reference list.

(b) Students are to do a reasonable attempt of completing each of the results sections and the corresponding calculations for the three laboratory classes in their laboratory workbook.

**Marking criteria:** (a) The marking criteria sheet will be provided on the course site on the Griffith College Student Portal in advance of the submission date.

(b) Marks will be awarded for completing all parts of the lab workbook, with each section being marked against established criteria.

Further detailed explanations of assessment expectations will be provided during class and where necessary on the course site on the student portal.

#### Requirements to pass this course:

In addition to meeting the laboratory requirements, students must:

1. **attend and attempt all assessment items; AND**
2. **obtain at least 40% in the module 3 quiz, AND**
3. **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 item, 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 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 lecturers, tutors 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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