



## 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>	Trimester 1, 2020
<b>Program:</b>	Diploma of Health Sciences
<b>Credit Points:</b>	10
<b>Course Coordinator:</b>	Tessa Daal
<b>Document modified:</b>	12 January 2020

### 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
Tessa Daal	Tessa.daal@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 and rooms will be published on the Griffith College Portal under the "Support and Services/Teacher Consultation Times" link.

## 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;
2. Solve chemistry related problems competently and strategically;
3. Demonstrate basic chemistry laboratory skills;
4. Interpret laboratory results by integrating the laws, concepts, and principles of chemistry;
5. Demonstrate academic writing and referencing skills in written form;
6. Design a LinkedIn profile and ePortfolio which displays your skills, experiences and your understanding of the academic integrity policy.

## 2.3 Generic skills

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:

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

## 3. Learning Resources

### 3.1 Required Resources

Either of the two editions of the text by Hein et al., are acceptable:

Hein M., Pattison S. and Arena S. (2015) Introduction to general, organic, and biochemistry (11<sup>th</sup> ed.).. Hoboken, NJ: Wiley **Or**

Hein M., Pattison S. and Arena S. (2012) Introduction to general, organic, and biochemistry (10<sup>th</sup> ed.).. Danvers, MA: Wiley.

Printed Griffith College Laboratory Manual for Chemistry of Biological Systems II. Available from Griffith University Campus Bookshop G40.

Printed Griffith College Laboratory Workbook for Chemistry of Biological Systems II. Available on the Course site & Griffith University Campus Bookshop G40.

Printed Griffith College lecture notes for Chemistry of Biological Systems II. Available from Griffith University Campus Bookshop G40.

### 3.2 Recommended 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 personal support such as Counselling; Academic support; and Welfare support.

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 Learning Information

#### **Attendance**

You are expected to attend all lectures and tutorials and to actively engage in learning during these sessions. You are expected to bring all necessary learning resources to class such as the required textbook and /or Workbook. In addition, you may 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 Class**

In order to enhance learning, prepare before lectures and tutorials. Read the relevant section of your text book before a lecture, and for a tutorial read both the textbook and the relevant lecture notes. If you have been given tutorial exercises, make sure you complete them. Active participation in lectures and tutorials will improve your learning. 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 Materials**

Lecture notes will be made available to you in MyStudy on the Griffith College Portal and you are advised to either print these out and bring them to each class so that extra notes can be added or BYOD (bring your own device) and add extra notes digitally.

#### **Self-Directed Learning**

You will be expected to learn independently. This means you must organise and learn the course content even when you are not specifically asked to do so by your lecturer or tutor. This involves revising the weekly course material. It also means you will need to find additional information for some assessment items beyond that given to you in textbooks and lecture notes, 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 and Teaching Activities

### Class Contact Summary

- \* **Lectures:** 4 hours per week.
- \* **Workshops:** 1 hour per week
- \* **Laboratories:** Five two (2) hours laboratory sessions throughout the trimester. The laboratory course will include the following topics;
  - Identification of Aldehydes and Ketones
  - Synthesis of Aspirin and Molecular Models
  - Chemistry of Food
  - Glucose Content of Drinks
  - Chemistry of Medicine

With the laboratory timetable made available on the Griffith College student portal.

### **Note: ATTENDANCE AT LABORATORIES IS COMPULSORY.**

**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 an 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. Students are expected to attend their scheduled laboratory class except in extenuating circumstances.

An attendance roll will be maintained for all laboratories. Students must read the Laboratory Safety requirements prior to attending their first laboratory, and comply with the dress and behaviour codes as described; Students **MUST WEAR LABORATORY GOWN AND CLOSED IN SHOES FOR ALL LABORATORIES**. Students will be required to bring their laboratory manuals to laboratories. Content covered in these laboratories complements lecture material and hence will be assessed in both laboratory reports and examinations.

**IMPORTANT: All students must undertake the on-line health and safety training prior to being permitted entry into laboratories.** As part of your studies you are required to complete the following online Health and Safety Induction modules before you commence your formal learning activities.

- 1. Student Basic Health and Safety Induction module (no need to print off completion certificate)**
- 2. Health Lab Safety Induction module (no need to print off completion certificate)**

## 4.1 Weekly Learning Activities

Week	Topic	Activity	Readings	Learning Outcomes
1	Saturated Hydrocarbons LinkedIn Profile and ePortfolio	Lecture Workshop	Chapter 19	1, 2
2	Unsaturated Hydrocarbons	Lecture Workshop	Chapter 20	1, 2
3	Alcohols, phenols, ethers & thiols	Lecture Workshop	Chapter 22	1, 2
4	Stereoisomers	Lecture Workshop	Chapter 26	1, 2
5	Aldehydes and Ketones, Carboxylic Acids, Esters	Lecture Workshop	Chapter 23 & 24	1, 2
6	Chemistry of Food, Exercise & Medicine	Lecture Workshop	Lecture Notes	1, 2
7	Carbohydrates	Lecture Workshop	Chapter 27	1, 2
8	Lipids & Amines and Amides	Lecture Workshop	Chapter 28 & 25	1, 2
9	Amino Acids and Proteins	Lecture Workshop	Chapter 29	1, 2
10	Metals in biological systems	Lecture Workshop	Lecture Notes	1, 2
11	Nucleic Acids & Bioenergetics	Lecture Workshop	Chapter 31 & 33	1, 2
12	Revision and Exam preparation	Lecture Workshop	Week 6- week 11 material	1, 2

## 5. Assessment Plan

### 5.1 Assessment Summary

Item	Assessment Task	Weighting	Learning Outcomes	Due Date
1	e-Portfolio & LinkedIn Profile	10%	6	Week 5
2	Mid-trimester exam	25%	1, 2	Week 7
3	Laboratory workbook	12%	1, 2, 3, 4	Week 7
4	Laboratory report	13%	1, 2, 3, 4, 5	week 9
5	End of trimester exam; The exam will cover material from weeks 6 - week 12 - <i>Students must pass this assessment with a mark of at least 80 out of 200 to pass the course</i>	40%	1, 2	Week 13-14

## 5.2 Assessment Detail

### 1. ePortfolio & LinkedIn Profile

**Rationale:** In developing and presenting the ePortfolio and LinkedIn Profile students are able to demonstrate their skills and experience.

**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 demonstrate competency in pipetting, 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. Mid-trimester Examination

**Rationale:** The aim of the exam is to assess comprehension of the subject matter and will cover material from weeks 1 to 5.

**Assessment details:** This 90-minute exam will be in the form of multi-choice questions (approx. 75%) and short answer questions (approx. 25%).

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

### 3. Laboratory Workbook

**Rationale:** The laboratory practical 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 lecture content.

**Assessment details:** Students are to do a reasonable attempt of completing each of the results sections and the corresponding calculations for the four laboratory classes in their laboratory workbook.

**Marking criteria:** Marks will be awarded for completing all parts of the lab workbook, with each section being marked against established criteria.

### 4. Laboratory Report

**Rationale:** The laboratory practical 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 lecture content.

**Assessment details:** 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.

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

### 5. End-of-trimester Examination:

**Rationale:** The aim of the exam is to assess comprehension of the subject matter through answers to multi-choice questions and short answer questions and will cover material from week 6 to week 12

**Assessment details:** This 2-hour exam will be in the form of multi-choice questions and short answer

questions and will cover material from.

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

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% (80/200) in the final examination, AND**
3. **achieve an overall course result (sum of all assessments) of at least 50%.**

## 5.3 Late Submission

An 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. Assessment 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 Assessment Information

### **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 assignment, 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 Assessment Items**

1. Marks awarded for in-trimester assessment 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 assessment 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 exam papers after student grades have been published (see relevant Griffith College Fact Sheet for allocated times at Support> Factsheets). Review of exam papers will not be permitted after the final date to enrol.
3. Marks for **all** assessment 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 overall assessment 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 Sitting, Medical Certificates, Academic Integrity, Finalisation of Results, Review of Marks, Moderation of Assessment, Turn-it-in Software Use. These policies can be accessed using the 'Document Search' feature 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 using the Document Search' feature with 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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