

Printed: 11 May 2021, 12:44AM

The published on-line version of the Course Profile is the authoritative version and by the publication of the Course Profile on-line the University deems the student has been notified of and read the course requirements.

1. General Course Information

1.1 Course Details

COURSE CODE	1014NSC
COURSE TITLE	Fundamentals of Biochemistry
ACADEMIC ORGANISATION	ESC School of Environment and Science
TRIMESTER	Trimester 2 2020
MODE	Blended
LEVEL	Undergraduate
LOCATION	Nathan, On Campus
CREDIT POINT VALUE	10

Course Description:

This course considers the molecular organisation of cells and the biochemical properties of the major classes of biological compounds which exist in, and contribute to, the cellular environment eg amino acids, carbohydrates and lipids. It covers the properties of water, pH and buffers, the structure and function of proteins, including an introduction to enzymes, the cell membrane and membrane transport.

Assumed Background:

Students in this course will be assumed to have fulfilled the entry requirements for the Griffith Science programs that include 1014NSC as a core course. An understanding of Chemistry 1A (1021SCG) and Biological Systems (1041SCG) or equivalent would be advantageous.

1.2 Course Introduction

Biochemistry is the chemistry of life. It is a basic discipline underpinning the study of all biological sciences. Understanding the chemistry of life is essential for practitioners in all professions related to the Biological, Biomedical and Biomolecular Sciences. This course covers important concepts which are fundamental and necessary for further studies in the Bachelors of Biomedical Science, Medical Science and Forensic Science, and the Bachelor of Science (B.Sc) majors in Biochemistry and Molecular Biology, Microbiology and Clinical Sciences.

The course addresses in detail an integrated view of the molecular components of cells and their functions. The topics covered include the aqueous environment in which all biological life exists, pH, buffers, amino acids, proteins, enzymes, carbohydrates, lipids, membranes and membrane transport.

Previous Student Feedback

Students of this course have found the content very interesting and the course well-structured and organised. They particularly enjoyed the interactive lectures with keypads (clickers) or other audience response systems, and tutorials providing discussion opportunities. They found that the online quizzes, the take home assignments and the regular revision questions helped with the understanding and the application of the course content. Below are student comments from the course offering in Trimester 2, 2018 and 2019.

"This course was good because it helped you understand more how biology and chemistry go together & help living things function. Very interesting content."

"It's very well structured, with everything from the proteins, enzymes, lipids and membranes all working together in a very nice way that makes it a very interesting and satisfying course to study. It was so interesting, in fact, that I didn't mind staying behind for the later lectures. All of the lecturers are also really lovely and great at teaching the content."

"The course filled in the gaps that I had in my knowledge about biological systems. It allowed me to develop a basic biochemistry understanding which can be used to help in many other subjects. The content was also interesting to learn."

"I found the online quizzes really helpful in solidifying my understanding and the tutorials were also a great way to get in some practice questions."

"This Course was very well structured and presented. It had many opportunities to help support our learning with the assessment"

and study plans."

"I have thoroughly enjoyed this course and the content/material that was covered. I believe the knowledge and understanding I have gained has use within a workplace/lab which is excellent. The online quiz structures and study plan has been very beneficial and supportive for my learning."

1.3 Course Staff

Primary Convenor **Dr Christopher Love**

PHONE	373 53768
EMAIL	c.love@griffith.edu.au
CAMPUS	Nathan Campus
BUILDING	Science 2 (N34)
ROOM	2.26
CONSULTATION	<p>Learning@Griffith: The course convenor will communicate regularly with students via the course websites. Students should check the course noticeboard on Learning@Griffith on a regular basis. This will provide a major mechanism for communication to the student body within this course.</p> <p>Consultation: The course convenor will be available for student consultations; times for these weekly consultations will be posted on Learning@Griffith. Students are encouraged to make use of these consultation times to address concerns or clarify course requirements or teaching and learning issues.</p> <p>Email: Students may also contact the course convenor via email. Students are advised to limit email communication to issues that require a short and definitive answer. If the issue requires discussion students are advised to visit the course convenor during consultation times.</p>

Lecturer **Dr Michael Weible**

PHONE	373 54497
EMAIL	m.weible@griffith.edu.au
CAMPUS	Nathan Campus
BUILDING	Science 2 (N34)
ROOM	2.27

1.4 Timetable

Timetables are available on [the Programs and Courses website](#).

NB: Details contained in this Section of the course profile and Section 4.1 Learning Activities are to be read in conjunction with the official class timetable. The published class timetable which is the authoritative source for timetabling information for all campuses can be located by clicking on the above link.

Additional Timetable Information

Lectures are crucial for obtaining an understanding of the key concepts of the course and how they relate to other material being learned. Videos of lectures will be provided online and will be located on the course website. It is strongly recommended that students view the lectures prior to online classes.

Online classes will review/support lecture material providing explanations of the important concepts and will cover problem-based tutorial questions.

Additional resources from a number of sources will be provided on the course website on Learning@Griffith.

1.5 Lecture Capture

It is standard practice at Griffith University that lectures timetabled in lecture capture-enabled venues are recorded and made available to students on the relevant course site, in accordance with the University's [Lecture Capture Policy](#).

The lecture series delivered as part of this course will be recorded and accessible via the Learning@Griffith course site.

1.6 Technical Specifications

The course is delivered in class. Lecture capture will be utilised, and PDFs of the powerpoint slides made available. Assessment items will be a mixture of written (predominantly) and online.

2. Aims, Outcomes & Graduate Attributes

2.1 Course Aims

The course aims to introduce you to the structure and function of the major biological molecules found in living organisms. The content addresses in detail an integrated view of the molecular components of cells - the properties of water and biological acids, bases and buffers, and the chemical properties of proteins, carbohydrates, lipids and their function. The course will cover the fundamentals of enzyme reactions and kinetics, membrane organisation and transport.

2.2 Learning Outcomes

After successfully completing this course you should be able to:

- 1 Describe the properties of water that make it ideal for the support of living organisms.
- 2 Solve problems relating to pH and buffers in biological systems
- 3 Explain the types of inter-atomic bonding in biological systems
- 4 Relate the structure of various biological molecules to their function
- 5 Solve problems relating to enzyme kinetics
- 6 Interpret and analyse basic experimental data relating to the analysis and function of biological molecules

2.3. Graduate Attributes

For further details on the Griffith Graduate please [click here](#)

Griffith University prepares influential graduates to be:

- [Knowledgeable and skilled, with critical judgement](#)
- [Effective communicators and collaborators](#)
- [Innovative, creative and entrepreneurial](#)
- [Socially responsible and engaged in their communities](#)
- [Culturally capable when working with First Australians](#)
- [Effective in culturally diverse and international environments](#)

This table demonstrates where each of the Griffith Graduate Attributes is taught, practised and assessed in this course.

For further details on the Griffith Graduate Attributes please refer to [The Griffith Graduate policy](#).

University wide attributes

GRADUATE ATTRIBUTE	TAUGHT	PRACTISED	ASSESSED
Knowledgeable and skilled, with critical judgement	•	•	•
Effective communicators and collaborators	•	•	•
Innovative, creative and entrepreneurial	•	•	
Socially responsible and engaged in their communities		•	
Culturally capable when working with First Australians		•	
Effective in culturally diverse and international environments		•	

Additional Course Information on Graduate Attributes

This course aims to promote deep learning, the application of knowledge and higher order thinking/problem -solving skills as opposed to rote learning.

3. Learning Resources

3.1 Required Resources

Details of your Required Learning Resources are available from the [Reading List](#).

3.2 Recommended Resources

Details of your Recommended Learning Resources are available from the [Reading List](#).

3.3 University Learning Resources

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

[Readings](#) - New online service enabling students to access Required and Recommended Learning resources. It connects to the

library catalogue to assist with quickly locating material held in Griffith libraries and enables students to manage and prioritise their readings, add personal study notes and export citations.

[Learning@Griffith](#) - there is a dedicated website for this course via the Learning@Griffith at myGriffith.

[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 academic misconduct, understand what skills you will need in order to maintain academic integrity, and learn about the processes of referencing styles.

[Student Support](#) - provides a range of services to support students throughout their studies including personal support such as Counselling and Health Services; Academic support; and Financial and Welfare support.

[Careers and Employment Service](#) can assist all enrolled students and recent graduates with career direction, course uncertainty, interview preparation, job search tips, LinkedIn reviews and much more. Our [Unitemps Recruitment Service](#) can assist you with finding paid casual work while you study.

[Library and Learning Services](#): Library and Learning Services provides a wide range of quality client-focused services and programs to students, researchers and staff of the University. Library and Learning Services works in collaboration with the academic community to achieve academic and research outcomes.

[Support for learning](#) - the University provides access to common use computing facilities for educational purposes.

[Code of Practice](#) - Griffith Information Technology Resources.

3.5 Other Learning Resources & Information

Relevant learning resources such as PDF files of lecture powerpoints, tutorial problems and web links, will be made available through the Learning@griffith course website.

Recommended textbook : Lehninger, Principles of Biochemistry by Nelson and Cox. (Publisher W.H. Freeman & Co Ltd). Both the 6th and the 7th editions of this text book provide appropriate information relating to this course, and which the lecture content will generally follow.

The library has other Biochemistry texts which may also be used, for example "Biochemistry a short course" 2nd edition by JL Tymoczko, J Berg and L. Stryer; and "Biochemistry" by T. Brown (These are very basic texts and less detailed than Lehninger). An alternative to Lehninger is Fundamentals of Biochemistry: Life at the Molecular Level" by Voet Voet and Pratt. 4th edition, Wiley.

4. Teaching & Learning Activities

4.1 Learning Activities

Week Commencing	Activity	Learning Outcomes
13 Jul 20	Module 1 (Lecture Series): Water, weak interactions	1, 3
20 Jul 20	Module 1 (Lecture Series): pH and buffers	2
27 Jul 20	Module 2 (Lecture Series): amino acids, peptide bonds, charge on a peptide	3, 4
3 Aug 20	Module 2 (Lecture Series): Protein structure	4
17 Aug 20	Module 3 (Lecture Series): Fibrous proteins, tertiary and quaternary structure	4
24 Aug 20	Module 3 (Lecture Series): Globular Proteins, Hemoglobin and Myoglobin	4
31 Aug 20	Module 4 (Lecture Series): How enzymes work	4, 5
7 Sep 20	Module 4 (Lecture Series): Enzyme Kinetics	4, 5, 6
14 Sep 20	Module 5 (Lecture Series): Carbohydrates and Polysaccharides	4
21 Sep 20	Module 6 (Lecture Series): Lipids	4
28 Sep 20	Module 6 (Lecture Series): Membranes, Membrane proteins, Membrane Permeability and Transport	4
5 Oct 20	Revision utorials (Lecture Series): Final section of Module 6, and Revision of all modules	1, 2, 3, 4, 5, 6

4.2 Other Teaching and Learning Activities Information

The course is divided into six modules, with ~two weeks allocated per module.

Each week there are two two-hour time slots for online interactive lecture/tutorials. Attendance in one of the two online classes is expected for students, and highly correlates with overall performance in the course.

Short sets of problems will be posted throughout the course, often to be attempted prior to online classes, to assist with learning course material. These questions are similar to questions that you might expect to see on the short response section of the final exam.

Lecture powerpoints (as PDFs), problem sets and other activities to assist your learning of the material will be placed on the course website. The course website also contains resources such as self-assessment online quizzes and links to other resources including those from the textbook.

Disability. If any student has a disability and/or health condition that may impact on their ability to successfully undertake required learning activities in this course, they are encouraged to complete the [Griffith University Disclosure Statement](#) and

advise their Course Convenor.

5. Assessment Plan

5.1 Assessment Summary

This is a summary of the assessment in the course. For detailed information on each assessment, see [5.2 Assessment Detail](#) below.

ASSESSMENT TASK	DUE DATE	WEIGHTING	MARKED OUT OF	LEARNING OUTCOMES	MAXIMUM EXTENSION PERIOD
<i>Portfolio - evidence</i> Biochemistry Learning Journal	13 Jul 20 09:00 - 9 Oct 20 16:00	50%	50 marks	1, 2, 3, 4, 5, 6	
<i>Test or quiz</i> Module Quizzes	27 Jul 20 - 28 Jul 20	5%	10 marks	1, 2, 3, 4	
<i>Test or quiz</i> Module Quiz	7 Sep 20 09:00 - 11 Sep 20 17:00	15%	30 marks	2, 3, 4, 5, 6	
<i>Exam - selected and constructed responses</i> End of Trimester Exam	Examination Period	30%	90 marks	1, 2, 3, 4, 5, 6	

5.2 Assessment Detail

Title: Biochemistry Learning Journal

Type: Portfolio - evidence

Learning Outcomes Assessed: 1, 2, 3, 4, 5, 6

Due Date:

13 Jul 20 09:00 - 9 Oct 20 16:00

Weight: 50%

Marked out of: 50

Task Description:

The Biochemistry Learning Journal encompasses the following submission items:

1. Completion of biochemical tutorial questions in the journal.
2. Evaluation of online quizzes and development of study plans for success in biochemistry.
3. Submission of biochemistry assignments.

Criteria & Marking:

The marking criteria for the Biochemistry Learning Journal is broken into 3 sections.

1. **Biochemical problem/tutorial questions (10%).** All items must be completed for full marks.
2. **Quiz evaluations and development of study plans (10%).** All items must be completed by due dates to obtain the full 10%
3. **Assignments (30%).** There will be two assignments each worth 15%. These will be graded and must be completed by the due dates. Late submissions may result in lost marks in line with the assessment policy (Griffith University).

NOTE: While you are encouraged to discuss problems with each other, everyone must hand in an assignment that is entirely their own work. Any instances of collusion, copying and plagiarism, and copying and pasting from the internet will be reported to the academic integrity officer.

Submission: Via the 'Assignments' tool in Learning@Griffith.

This assessment item:

- is a school based activity
- is an individual activity
- includes a self assessment activity
- does not have a resubmission provision

Title: Module Quizzes

Type: Test or quiz

Learning Outcomes Assessed: 1, 2, 3, 4

Due Date:

27 Jul 20 - 28 Jul 20

Weight: 5%

Marked out of: 10

Task Description:

Online Quiz involving multiple choice question for assessment of course content from Module 1.

Criteria & Marking:

The online Module quiz contains multiple choice questions for which there is only one answer.

Submission: Via the 'Assignments' tool in Learning@Griffith.

This assessment item:

- is a school based activity
- is an individual activity

- does not include a self assessment activity
 - does not have a re-attempt provision
-

Title: Module Quiz

Type: Test or quiz

Learning Outcomes Assessed: 2, 3, 4, 5, 6

Due Date:

7 Sep 20 09:00 - 11 Sep 20 17:00

Weight: 15%

Marked out of: 30

Task Description:

Online Quiz involving multiple choice question for assessment of course content from Module 2, Module 3 and Module 4.

Criteria & Marking:

The online Module quiz contains multiple choice questions for which there is only one answer.

Submission: Via the 'Assignments' tool in Learning@Griffith.

This assessment item:

- is a school based activity
 - is an individual activity
 - does not include a self assessment activity
 - does not have a re-attempt provision
-

Title: End of Trimester Exam

Type: Exam - selected and constructed responses

Learning Outcomes Assessed: 1, 2, 3, 4, 5, 6

Due Date:

Examination Period

Weight: 30%

Marked out of: 90

Perusal: 10 minutes

Duration: 120 minutes

Format: Open Book, Online

Task Description:

The end of trimester examination will consist of a mixture of multiple choice and short answer questions.

Total marks 90, covering all modules in the course.

Students must obtain at least 30% on the final exam in order to pass the course.

Criteria & Marking:

Written answers to questions must demonstrate understanding and explain the reasoning processes used.

Partial marks will be given for incorrect numerical answers provided that the correct reasoning and procedure has been demonstrated.

This assessment item:

- is a centrally organised activity
 - is an individual activity
 - does not include a self assessment activity
-

5.3 Late Submission

For all non-Honours Dissertation courses: An assessment item submitted after the due date, without an approved extension, will be penalised. The standard penalty is the reduction of the mark allocated to the assessment item by 5% of the total weighted mark for the assessment item, for each working day that the item is late. A working day will be defined as Monday to Friday. Assessment items submitted more than five working days after the due date will be awarded zero marks. To understand how the mark is reduced please refer to [Assessment Submission and Return Procedures](#).

For all Honours Dissertation courses: Enrolment in an Honours degree shall be cancelled and the candidature terminated if the candidate fails to lodge their Honours dissertation by the prescribed date including any approved extensions.

5.4 Other Assessment Information

Supplementary Assessment is available in this course in accordance with Section 8 of the University Assessment Policy. To achieve a Pass grade for the course a pass mark for the supplementary assessment item must be achieved.

Final Grades

A student's final grade for this course will be based on the aggregation and weighting of marks across assessment, any mandatory pass components and grade cut-offs. Grade cut-offs can vary, so you will need to wait for the official release of grades to be sure of your grade for this course.

- This course is a graded course (i.e 7, 6, 5, 4, 3, 2, 1).

6. Policies & Guidelines

This section contains the details of and links to the most relevant policies and course guidelines. For further details on University Policies please visit the [Policy Library](#)

6.1 Assessment Related Policies and Guidelines

University Policies & Guidelines

The University's assessment-related policies can be found in the [Griffith Policy Library](#).

The Assessment policy covers topics including: assessment requirements; award of grades; supplementary assessment; special consideration; extensions and deferred assessment; conduct of students in examinations; cheating; plagiarism; notification of results; appeals against the award of grades.

Academic Integrity

Student academic misconduct encompasses all behaviour:

- involving the misrepresentation of academic achievement; or
- undermining the core values (honesty, trust, fairness, respect and responsibility) of academic integrity; or
- breaching academic integrity;

whether intentional or unintentional. Student academic misconduct includes doing as well as attempting to do any of the acts, omissions or things that constitute academic misconduct.

Student academic misconduct is defined in the [Institutional Framework for Promoting Academic Integrity among Students](#).

Please also refer to the [Student Academic Misconduct Policy](#).

Reasonable Adjustments for Assessment - Students with Disabilities Policy

The [Reasonable Adjustments for Assessment - Students with Disabilities](#) Policy sets out the principles and processes that guide the University in making reasonable adjustments to assessment for students with disabilities while maintaining the academic integrity of its programs.

Griffith University Disclosure Statement

The [Griffith University Disclosure Statement](#) has been developed to identify and negotiate whether necessary and reasonable accommodations and adjustments can be made, wherever possible, to enable students with disabilities and/or health conditions to undertake required learning activities. Course Convenors are encouraged to reference the Griffith University Disclosure Statement in the Learning Activities and Assessment Plan sections of their course profiles.

Assessment, how to submit an assignment and exams, viewing your grades

All you need to know about [assessment, exams and grades](#)

Text Matching Software

The University uses text matching software. Students should be aware that your Course Convenor may use software to check submitted assessment tasks. If this is the case, your Course Convenor will provide more detailed information about how the software will be used for individual assessment items.

Related links:

- [Academic Integrity website](#)
- [Academic Standing, Progression and Exclusion Policy](#)
- [Assessment Policy](#)
- [Assessment Submission and Return Procedures](#)
- [End of Trimester Centrally Administered Examinations Policy and Procedures](#)
- [Governance of Assessment and Academic Achievement Standards](#)
- [Standards for First Year Assessment](#)
- [Institutional Framework for Promoting Academic Integrity among Students](#)
- [Student Academic Misconduct Policy](#)

6.2 Other Policies and Guidelines

University Policies and Guidelines

Students are responsible for ensuring that they have read all sections of the Course Profile for the course/s in which they are enrolled in any enrolment period. The published online version of the Course Profile is the authoritative version and by the publication of the Course Profile online, the University deems the student has been notified of and read the course requirements. Variations to the Course Profile during the trimester of offer are not permitted except in exceptional circumstances and will be advised in writing to all enrolled students and via the [Learning@Griffith](#) website. Additional information regarding the content of this course may be published on the [Learning@Griffith](#) website.

Copyright matters

Copyright applies to all teaching materials and materials generated by students which substantially relate to Griffith University courses. *Students are warned against selling Griffith University teaching materials and their student notes online through commercial websites during and after their studies.* You will almost certainly be in breach of copyright law and Griffith's IT Code of Practice if you post these materials on the internet and commercial websites. Please refer to the [Copyright Guide for Students](#) for further information.

Health and Safety

Griffith University is committed to providing a safe work and study environment. However, all students, staff and visitors have an obligation to ensure the safety of themselves and those whose safety may be affected by their actions. Staff in control of learning activities will ensure as far as reasonably practical, that those activities are safe and that all safety obligations are being met. Students are required to comply with all safety instructions and are requested to report safety concerns to the University.

General health and safety information is available on the [Health, Safety and Wellbeing](#) website.

Other Key Student-Related Policies

All University policy documents are accessible to students via the [Griffith Policy Library](#) and links to key policy documents, in addition to those listed in 6.1 above, are included below for easy reference:

- [Student Communications Policy](#)
- [Health and Safety Policy](#)
- [Student Administration Policy](#)

- [Student Charter](#)
- [Student Review and Appeals Policy](#)
- [Student Review and Appeals Procedures](#)
- [Student Complaints Policy](#)