



CHEM12077 Food Science & Analysis

Term 2 - 2017

Profile information current as at 13/05/2024 12:09 am

All details in this unit profile for CHEM12077 have been officially approved by CQUniversity and represent a learning partnership between the University and you (our student). The information will not be changed unless absolutely necessary and any change will be clearly indicated by an approved correction included in the profile.

General Information

Overview

Food is a complex mixture of chemicals, including nutrients, odorants and tastants, as well as allergens and toxins. In this unit, students will study the chemistry of the major nutritive components of food (carbohydrates, lipids, and protein) as well as water, vitamins, minerals, enzymes, food additives, flavours, and colours. Students will investigate how food is altered during processing and storage and review techniques to enhance or prevent such changes. Students will also consider dietary requirements and food safety issues in modern society.

Details

Career Level: *Undergraduate*

Unit Level: *Level 2*

Credit Points: 6

Student Contribution Band: 8

Fraction of Full-Time Student Load: 0.125

Pre-requisites or Co-requisites

Pre-requisite: CHEM11041 Chemistry for the Life Sciences or CHEM11042 Fundamentals of Chemistry

Important note: Students enrolled in a subsequent unit who failed their pre-requisite unit, should drop the subsequent unit before the census date or within 10 working days of Fail grade notification. Students who do not drop the unit in this timeframe cannot later drop the unit without academic and financial liability. See details in the [Assessment Policy and Procedure \(Higher Education Coursework\)](#).

Offerings For Term 2 - 2017

- Distance
- Rockhampton

Attendance Requirements

All on-campus students are expected to attend scheduled classes - in some units, these classes are identified as a mandatory (pass/fail) component and attendance is compulsory. International students, on a student visa, must maintain a full time study load and meet both attendance and academic progress requirements in each study period (satisfactory attendance for International students is defined as maintaining at least an 80% attendance record).

Residential Schools

This unit has a Compulsory Residential School for distance mode students and the details are:

Click here to see your [Residential School Timetable](#).

Website

[This unit has a website, within the Moodle system, which is available two weeks before the start of term. It is important that you visit your Moodle site throughout the term. Please visit Moodle for more information.](#)

Class and Assessment Overview

Recommended Student Time Commitment

Each 6-credit Undergraduate unit at CQUniversity requires an overall time commitment of an average of 12.5 hours of study per week, making a total of 150 hours for the unit.

Class Timetable

[Regional Campuses](#)

Bundaberg, Cairns, Emerald, Gladstone, Mackay, Rockhampton, Townsville

[Metropolitan Campuses](#)

Adelaide, Brisbane, Melbourne, Perth, Sydney

Assessment Overview

1. **Written Assessment**

Weighting: 20%

2. **Practical and Written Assessment**

Weighting: 20%

3. **Examination**

Weighting: 60%

Assessment Grading

This is a graded unit: your overall grade will be calculated from the marks or grades for each assessment task, based on the relative weightings shown in the table above. You must obtain an overall mark for the unit of at least 50%, or an overall grade of 'pass' in order to pass the unit. If any 'pass/fail' tasks are shown in the table above they must also be completed successfully ('pass' grade). You must also meet any minimum mark requirements specified for a particular assessment task, as detailed in the 'assessment task' section (note that in some instances, the minimum mark for a task may be greater than 50%). Consult the [University's Grades and Results Policy](#) for more details of interim results and final grades.

CQUniversity Policies

All University policies are available on the [CQUniversity Policy site](#).

You may wish to view these policies:

- Grades and Results Policy
- Assessment Policy and Procedure (Higher Education Coursework)
- Review of Grade Procedure
- Student Academic Integrity Policy and Procedure
- Monitoring Academic Progress (MAP) Policy and Procedure – Domestic Students
- Monitoring Academic Progress (MAP) Policy and Procedure – International Students
- Student Refund and Credit Balance Policy and Procedure
- Student Feedback – Compliments and Complaints Policy and Procedure
- Information and Communications Technology Acceptable Use Policy and Procedure

This list is not an exhaustive list of all University policies. The full list of University policies are available on the [CQUniversity Policy site](#).

Previous Student Feedback

Feedback, Recommendations and Responses

Every unit is reviewed for enhancement each year. At the most recent review, the following staff and student feedback items were identified and recommendations were made.

Feedback from Unit Evaluation

Feedback

"The assessment task on fats and CVD was very interesting. It was a topic that I was interested in and was wanting to research further. I felt like I learned a lot during the research for that topic and yet still have so much more to learn. (Answering one question often creates a new one - knowledge is fascinating"

Recommendation

The Unit Team is encouraged by this feedback and where possible will continue to stimulate student interest by using relevant local-context topics for assessment tasks.

Feedback from Unit Evaluation

Feedback

"the text book is hard to follow and really in 'dept'"

Recommendation

The lecture slides will specify the relevant sections of the text chapters that need to be read and clarify the utility of the readings to students.

Feedback from Student emailed feedback

Feedback

"The course had been enjoyable and an 'eye opener'. Aimee would be an amazing mentor. She is fantastic at marking the assignments The chemistry team that CQU has is fantastic. Very supportive of each other and it really comes across...Makes learning easier"

Recommendation

The Unit Team is encouraged by this positive feedback and will strive to maintain this high level of student satisfaction. Well done Amie!

Feedback from Unit Evaluation

Feedback

"Students raised the issue of needing more hands on for practicals and less waiting times during Residential School"

Recommendation

This was the unit's pilot offering and the enrollment was higher than expected, which was pleasing. However, it also meant a re-rationalising of laboratory space which led to splitting of the class into two groups thus disallowing the earlier intended use of the vacant slots for setting up the next experiment. This would have considerably minimised waiting periods which the student correctly identifies. The Unit Team will nevertheless aim to be better organised in the next offering of the unit with reduced waiting times.

Unit Learning Outcomes

On successful completion of this unit, you will be able to:

1. Discuss the role of food and food technology in nutrition.
2. Outline the major reactions occurring in foods as a result of storage, preservation and processing.
3. Describe the beneficial and detrimental effects of microorganisms in food.
4. Analyse food and discuss the use and development of analytical methods for food.

Alignment of Learning Outcomes, Assessment and Graduate Attributes



Alignment of Assessment Tasks to Learning Outcomes

Assessment Tasks	Learning Outcomes			
	1	2	3	4
1 - Written Assessment - 20%			•	•
2 - Practical and Written Assessment - 20%		•		•
3 - Examination - 60%	•		•	

Alignment of Graduate Attributes to Learning Outcomes

Graduate Attributes	Learning Outcomes			
	1	2	3	4
1 - Communication	•	•	•	•
2 - Problem Solving	•	•	•	•
3 - Critical Thinking		•	•	
4 - Information Literacy		•		
5 - Team Work				•
6 - Information Technology Competence				
7 - Cross Cultural Competence	•		•	
8 - Ethical practice				•
9 - Social Innovation				
10 - Aboriginal and Torres Strait Islander Cultures				

Alignment of Assessment Tasks to Graduate Attributes

Assessment Tasks	Graduate Attributes									
	1	2	3	4	5	6	7	8	9	10
1 - Written Assessment - 20%	•	•	•	•		•	•	•		
2 - Practical and Written Assessment - 20%	•	•		•	•	•	•	•		
3 - Examination - 60%	•	•	•							

Textbooks and Resources

Textbooks

CHEM12077

Prescribed

The chemistry of food

Edition: 1st edn (2014)

Authors: Velisek, J

Wiley Blackwell

London, UK

ISBN: 9781118383810

Binding: Paperback

Additional Textbook Information

Digital copies of the text may be available for sale as well.

[View textbooks at the CQUniversity Bookshop](#)

IT Resources

You will need access to the following IT resources:

- CQUniversity Student Email
- Internet
- Unit Website (Moodle)

Referencing Style

All submissions for this unit must use the referencing style: [Harvard \(author-date\)](#)

For further information, see the Assessment Tasks.

Teaching Contacts

Shaneel Chandra Unit Coordinator

s.chandra@cqu.edu.au

Schedule

Week 1 - 10 Jul 2017

Module/Topic	Chapter	Events and Submissions/Topic
Introduction	Chapter 1	
Amino Acids, Peptides and Proteins	Chapter 2	

Week 2 - 17 Jul 2017

Module/Topic	Chapter	Events and Submissions/Topic
Fats, Oils and Lipids	Chapter 3	

Week 3 - 24 Jul 2017

Module/Topic	Chapter	Events and Submissions/Topic
Saccharides	Chapter 4	Repeating students apply for credit for Residential School

Week 4 - 31 Jul 2017

Module/Topic	Chapter	Events and Submissions/Topic
Vitamins	Chapter 5	

Week 5 - 07 Aug 2017		
Module/Topic	Chapter	Events and Submissions/Topic
Minerals	Chapter 6	
Vacation Week - 14 Aug 2017		
Module/Topic	Chapter	Events and Submissions/Topic
Week 6 - 21 Aug 2017		
Module/Topic	Chapter	Events and Submissions/Topic
Water	Chapter 7	Written Assessment Due: Week 6 Monday (21 Aug 2017) 11:45 pm AEST
Week 7 - 28 Aug 2017		
Module/Topic	Chapter	Events and Submissions/Topic
Flavour Active Compounds	Chapter 8	
Week 8 - 04 Sep 2017		
Module/Topic	Chapter	Events and Submissions/Topic
Colouring and Pigments	Chapter 9	
Week 9 - 11 Sep 2017		
Module/Topic	Chapter	Events and Submissions/Topic
Probiotics, Prebiotics and Synbiotics	External readings	
Week 10 - 18 Sep 2017		
Module/Topic	Chapter	Events and Submissions/Topic
Food Poisoning and Prevention	External readings	
Week 11 - 25 Sep 2017		
Module/Topic	Chapter	Events and Submissions/Topic
Food Contaminants	Chapter 12	Practical and Written Assessment Due: Week 11 Friday (29 Sept 2017) 11:45 pm AEST
Week 12 - 02 Oct 2017		
Module/Topic	Chapter	Events and Submissions/Topic
Review of Topics and Examination Preparation		
Review/Exam Week - 09 Oct 2017		
Module/Topic	Chapter	Events and Submissions/Topic
Exam Week - 16 Oct 2017		
Module/Topic	Chapter	Events and Submissions/Topic

Assessment Tasks

1 Written Assessment

Assessment Type

Written Assessment

Task Description

As emerging scientists, you are expected to be up-to-date with current research outputs and need to be able to collate, review and critique prior work in order to identify gaps in knowledge that can be addressed via new research inquiry.

Accordingly, this Assessment requires you to collaborate with your peers and prepare a brief review

manuscript on a topic of current scientific interest in Food Science. You will be assigned into groups of 4 and these would be put up in Week 3. The final output will be a group manuscript formatted according to the expectations of the journal, [Current Opinion in Food Science](#).

Each group must select one of the topics listed below, via Moodle by 12 pm, Wednesday, Week 3. Any group that fails to meet this deadline will be allocated a topic by the unit coordinator. Each topic will only be nominated by one group. In the event there are more groups than topics, multiple groups will be assigned a topic by the Unit Coordinator.

List of Assignment Topics

1. **Advances in fresh food (meat) spoilage detection**
2. **Lipid characterisation studies of beer**
3. **Recent advances in food sensory evaluation techniques**
4. **The role of nanotechnology in food quality evaluation and implementation**
5. **The use of biosensors in food analysis**

Details of the Assignment (word limit, possible guidelines on scope etc.) will be in **Assignment 1 Information** on Moodle (Week 1)

Assessment Due Date

Week 6 Monday (21 Aug 2017) 11:45 pm AEST

Return Date to Students

Week 10 Friday (22 Sept 2017)

Weighting

20%

Minimum mark or grade

40%

Assessment Criteria

Marks will be awarded for

- Grammar and writing skills,
- Structure and formatting
- Currency and relevance of content,
- Identification of knowledge gaps
- Quality of scientific argument
- Research and referencing.

A detailed marking scheme is available on the Moodle site.

Marks will not be allocated for sections that are [plagiarised](#) or copied, in line with CQU [Policy](#).

Referencing Style

- [Harvard \(author-date\)](#)

Submission

Online Group

Submission Instructions

Upload in Word format only (.doc or .docx).

Learning Outcomes Assessed

- Describe the beneficial and detrimental effects of microorganisms in food.
- Analyse food and discuss the use and development of analytical methods for food.

Graduate Attributes

- Communication
- Problem Solving
- Critical Thinking
- Information Literacy
- Information Technology Competence
- Cross Cultural Competence
- Ethical practice

2 Practical and Written Assessment

Assessment Type

Practical and Written Assessment

Task Description

Residential School

This unit has a compulsory three-day Residential School component in Rockhampton. Attendance on all three days is compulsory and a Pass grade is only awarded upon full attendance. A Pass in the Residential School is required to pass the unit. Students who are unable to attend for full duration must present a valid medical certificate or other documentation as per University policy governing [Assignment Extensions](#).

- The dates for the Residential School are 16 - 18 September.
- Students repeating this unit who wish to cross-credit marks from prior Residential School/practical sessions, **MUST** seek written approval from the unit coordinator **before end of Week 3**.
- All practical exercises allocated in the Residential School must be completed as per schedule.

Written Assessment from Residential School

Report writing is a key benchmark of the scientific endeavour and the same principles of knowledge value, accuracy of interpretation and succinct, timely communication apply equally to undergraduate and higher-degree experiments. Therefore, through this assessment you will be able to apply the rigors of scientific writing to your own practical experiments in the unit. You will work in pairs/groups as assigned and use advanced scientific instrumentation to undertake measurements of your work in the laboratory. One of the practical sessions will be assessed via a written report.

General Guidelines

- The report should contain elements of scientific report writing including: **Title, Introduction, Materials and Methods, Results and Discussion and Conclusion**.
- Main body of your paper should be a minimum of 2250 and a maximum of 2750 words. Works submitted that are beyond this range are unlikely to score as highly as those that make the best use of the specified length. However, a paper that is well-written, clear, concise and succinct with all useful information will be assessed without penalties for not meeting the length guideline.
- Text should be word-processed, with appropriate layout and use of headings/sub-headings. Tables and figures to illustrate specific aspects may be included with titles and acknowledgement where necessary.
- Please avoid images with very large file sizes as this will make your file too large to upload/download.
- The list of references should form the last page or two, at the end of the assessment. Referencing should be in a consistent style.
- The assessment task must be completed and submitted by the due date and time. In the absence of an approved extension, there will be no opportunity to complete the task after this date and there will be no supplementary exam or assessment offered should you come close to passing the unit but do not meet the criteria for a Pass grade for the overall unit.

More details of Written Assessment will be provided in the Laboratory Manual available on Moodle.

Assessment Due Date

Week 11 Friday (29 Sept 2017) 11:45 pm AEST

Return Date to Students

Week 12 Friday (6 Oct 2017)

Weighting

20%

Minimum mark or grade

40%

Assessment Criteria

- The Introduction should be clear and concise.
- Procedure (if applicable) should be in excellent detail allowing it to be replicated elsewhere.
- Data should be clearly presented, e.g. numerical data must be tabulated. Data obtained should be verified and where precision and/or accuracy is lacking, sufficient explanation using statistical treatment must be provided.
- The report should be coherent, have flow and all material sourced externally must be cited in the correct format.

- Any calculations must be performed correctly.
- Figures and tables should be correctly labelled.
- There should be no typographical errors.

Referencing Style

- [Harvard \(author-date\)](#)

Submission

Online

Submission Instructions

Upload in Word format only (.doc or .docx).

Learning Outcomes Assessed

- Outline the major reactions occurring in foods as a result of storage, preservation and processing.
- Analyse food and discuss the use and development of analytical methods for food.

Graduate Attributes

- Communication
- Problem Solving
- Information Literacy
- Team Work
- Information Technology Competence
- Cross Cultural Competence
- Ethical practice

Examination

Outline

Complete an invigilated examination.

Date

During the examination period at a CQUniversity examination centre.

Weighting

60%

Length

120 minutes

Minimum mark or grade

40%

Exam Conditions

Closed Book.

Materials

Calculator - all non-communicable calculators, including scientific, programmable and graphics calculators are authorised

Dictionary - non-electronic, concise, direct translation only (dictionary must not contain any notes or comments).

Academic Integrity Statement

As a CQUniversity student you are expected to act honestly in all aspects of your academic work.

Any assessable work undertaken or submitted for review or assessment must be your own work. Assessable work is any type of work you do to meet the assessment requirements in the unit, including draft work submitted for review and feedback and final work to be assessed.

When you use the ideas, words or data of others in your assessment, you must thoroughly and clearly acknowledge the source of this information by using the correct referencing style for your unit. Using others' work without proper acknowledgement may be considered a form of intellectual dishonesty.

Participating honestly, respectfully, responsibly, and fairly in your university study ensures the CQUniversity qualification you earn will be valued as a true indication of your individual academic achievement and will continue to receive the respect and recognition it deserves.

As a student, you are responsible for reading and following CQUniversity's policies, including the [Student Academic Integrity Policy and Procedure](#). This policy sets out CQUniversity's expectations of you to act with integrity, examples of academic integrity breaches to avoid, the processes used to address alleged breaches of academic integrity, and potential penalties.

What is a breach of academic integrity?

A breach of academic integrity includes but is not limited to plagiarism, self-plagiarism, collusion, cheating, contract cheating, and academic misconduct. The Student Academic Integrity Policy and Procedure defines what these terms mean and gives examples.

Why is academic integrity important?

A breach of academic integrity may result in one or more penalties, including suspension or even expulsion from the University. It can also have negative implications for student visas and future enrolment at CQUniversity or elsewhere. Students who engage in contract cheating also risk being blackmailed by contract cheating services.

Where can I get assistance?

For academic advice and guidance, the [Academic Learning Centre \(ALC\)](#) can support you in becoming confident in completing assessments with integrity and of high standard.

What can you do to act with integrity?



Be Honest

If your assessment task is done by someone else, it would be dishonest of you to claim it as your own



Seek Help

If you are not sure about how to cite or reference in essays, reports etc, then seek help from your lecturer, the library or the Academic Learning Centre (ALC)



Produce Original Work

Originality comes from your ability to read widely, think critically, and apply your gained knowledge to address a question or problem