



CHEM12077 Food Science & Analysis

Term 2 - 2018

Profile information current as at 28/04/2024 09:29 pm

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 - 2018

- 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 Student Evaluation

Feedback

The textbook... much of the content is unnecessary for this level of unit. This not only places undue financial burden on students but also undue stress for being unable to understand the context within the textbook. I believe with care and attention these issues may be resolved and this could be a great unit within both nutrition and chemistry disciplines

Recommendation

The text was earmarked with the Unit in its pilot delivery in 2016. It matches the content that has been mapped to the learning outcomes of a second-year unit on Food Science. An examination of prices of similar texts online reveals the price is within a similar range.

Feedback from Student Evaluation

Feedback

The group assessment was too early in the term, leaving many groups short on numbers. I feel it would be better to be planned to open after census date to insure adequate group members are allocated. Also the group assessment task was quite heavy when compared to the percentage allocated for the assessment.

Recommendation

In 2018, the groups will be finalised after census date to ensure parity of numbers and that no group is disadvantaged. If we get a unit amendment proposal in, the weighting for Assessment Task 1 will most definitely be reviewed. Thank you for this excellent suggestion.

Feedback from Student Evaluation

Feedback

I feel like the final exam should draw more from what was learnt during the residential school, since it is a large portion of active learning for most. So maybe some additional questions/problems that were from residential school exercises would be a nice addition.

Recommendation


Another excellent suggestion - you have my assurance that it will be heeded and implemented in 2018.

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

 N/A Level Introductory Level Intermediate Level Graduate Level Professional Level Advanced Level

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

(2014)

Authors: Velisek, J

John Wiley and Sons

Hoboken, NJ, USA

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: [Vancouver](#)

For further information, see the Assessment Tasks.

Teaching Contacts

Shaneel Chandra Unit Coordinator

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Schedule

Week 1 - 09 Jul 2018

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

Week 2 - 16 Jul 2018

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

Week 3 - 23 Jul 2018

Module/Topic	Chapter	Events and Submissions/Topic
Saccharides	4	

Week 4 - 30 Jul 2018

Module/Topic	Chapter	Events and Submissions/Topic
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Vitamins	5	Friday: Group Assessment 1 sign-ups due at 12 pm AEST
Week 5 - 06 Aug 2018		
Module/Topic	Chapter	Events and Submissions/Topic
Minerals	6	
Vacation Week - 13 Aug 2018		
Module/Topic	Chapter	Events and Submissions/Topic
Week 6 - 20 Aug 2018		
Module/Topic	Chapter	Events and Submissions/Topic
Water	7	
Week 7 - 27 Aug 2018		
Module/Topic	Chapter	Events and Submissions/Topic
Flavour Active Compounds	8	
Week 8 - 03 Sep 2018		
Module/Topic	Chapter	Events and Submissions/Topic
Colouring and Pigments	9	Written Assessment Due: Week 8 Monday (3 Sept 2018) 12:00 pm AEST
Week 9 - 10 Sep 2018		
Module/Topic	Chapter	Events and Submissions/Topic
Probiotics, Prebiotics and Synbiotics	External readings	
Week 10 - 17 Sep 2018		
Module/Topic	Chapter	Events and Submissions/Topic
Food Poisoning and Prevention	External readings	Residential School: Wednesday to Friday
Week 11 - 24 Sep 2018		
Module/Topic	Chapter	Events and Submissions/Topic
Food Contaminants	12	
Week 12 - 01 Oct 2018		
Module/Topic	Chapter	Events and Submissions/Topic
Review of Topics and Examination Preparation		Practical report from Residential School Due: Week 12 Monday (1 Oct 2018) 12:00 pm AEST
Review/Exam Week - 08 Oct 2018		
Module/Topic	Chapter	Events and Submissions/Topic
Exam Week - 15 Oct 2018		
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 undertake this task in groups of 4 (or otherwise assigned) by signing up for the assignment topic of your choice available on Moodle. These sign-ups will close on Friday, Week 4. If you have not signed-up by Friday, you will be assigned to a topic by the Unit Coordinator (non-negotiable).

The final output from the assessment will be a group manuscript formatted according to the expectations of the journal, *Current Opinion in Food Science*. **Selected, quality assignments will be improved and submitted as scientific, peer-reviewed papers to various journals for publication.**

The main body of your paper should be a minimum of 2700 and a maximum of 3300 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. The assessment task must be completed and submitted by the due date and time. If you do not meet the minimum pass mark for this assessment, you may not be eligible for a supplementary exam or assessment.

The manuscript must be formatted as per the requirements of *Current Opinion in Food Science*. A link to formatting guidelines is [here](#). The Guide also includes the referencing style. Strictly, works or methods quoted must be limited to 2013. This does not apply to the Introduction, where the prevailing challenge is described. The Introduction should be clear and concise and convince the reader of the challenge that is being addressed. The manuscript should be coherent, have flow and all material sourced externally must be cited in the correct format. Any figures and tables included should be correctly labelled. There should be no typographical errors.

A self and peer assessment (SPA) component will be part of the assessment task and contribute 50% to its weighting. In this exercise, you will evaluate the contribution of all group members and award them marks accordingly. The SPA will thus constitute 50% of your mark for this task, and the remaining 50% will be as awarded by the marker for your submitted review. More details of the SPA will be available on Moodle.

Assessment Due Date

Week 8 Monday (3 Sept 2018) 12:00 pm AEST

To be submitted via Moodle.

Return Date to Students

Via assessment feedback file, marking rubric sheet on Moodle.

Weighting

20%

Minimum mark or grade

20%

Assessment Criteria

More specific marking guidelines (i.e. smart rubric) will be available on Moodle. Briefly, the elements of your review that will be evaluated will be according to the following:

- Introduction and Background: 25%
- Literature search: 20%
- Graphs and figures to support arguments and reasoning: 25%
- Interpretation of data and literature: 20%
- Overall presentation: 10%

A self and peer assessment (SPA) component will be part of the assessment task and contribute 50% to its weighting. Here, you will use 10 questions to evaluate the contribution of all group members to the written task. More details of the SPA will be available on Moodle.

Referencing Style

- [Vancouver](#)

Submission

Online Group

Submission Instructions

One nominated member from the group may submit the assessment task on the group's behalf. It is the responsibility of the group that the submission is done before the due date and time.

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 report from Residential School

Assessment Type

Practical and Written Assessment

Task Description

Succinct expression is an integral aspect of research and scientific writing in all disciplines. Often, such writing is bound by economy of words and enforced by word limits. This assessment task aims to encourage you to get into the habit of concise expression by applying it in your Residential School report.

In the Residential School, you will undertake a range of analytical and qualitative measurements to characterise food and beverages. At the end of the Residential School, you must list a summarised version of all your findings from the analyses conducted. This report is compulsory, and should be **individually** submitted. The report should not exceed 800 words and must contain the aim and conclusion(s) from each experiment undertaken. The text should be word-processed, with appropriate layout and use of headings/sub-headings. Tables and figures to illustrate specific aspects may be included as appendices with titles and acknowledgement where necessary. Tables and figures will not contribute towards the word count. Irrespective of appendicised results, the main findings must be included in the summary for the experiment. The report must be word-processed.

- The assessment task must be completed and submitted by the due date and time. If you do not meet the minimum pass mark for this assessment, you may not be eligible for a supplementary exam or assessment.
- There should be no typographical errors.

Assessment Due Date

Week 12 Monday (1 Oct 2018) 12:00 pm AEST

A summary to be uploaded via Moodle.

Return Date to Students

Week 12 Friday (5 Oct 2018)

Feedback in-text through Moodle.

Weighting

20%

Minimum mark or grade

20%

Assessment Criteria

Marking criteria

Aims and findings: 50%

- The aim should be clearly articulated.
- All findings must be described and explained.
- Any anomalous observations must be justified to evidence your understanding of the practical exercise.

Overall presentation: 50%

- Word processed.
- Graphs to be plotted using spreadsheet software.
- No typos or grammatical errors must be present.

Referencing Style

- [Vancouver](#)

Submission

Online

Submission Instructions

To be submitted via Moodle

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

180 minutes

Minimum mark or grade

50%

Exam Conditions

Closed Book.

Materials

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

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

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