



CHEM12077 Food Science & Analysis

Term 2 - 2024

Profile information current as at 15/07/2024 01:04 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

In this unit, you will learn theoretical and practical applications in food science and analysis. You will become familiar with laboratory compliance procedures, interpret risks and appropriate risk-minimisation approaches. The theoretical concepts will include an overview of food science, systems and sustainability, food chemistry and composition, food quality and safety, food preservation, food additives, foods and food products, fermentation, microorganisms, biotechnology, food packaging, environmental concerns and processing, and food regulation and labelling. Contents covered in this unit will provide a sturdy basis for studies in food science, systems and sustainability. Contents covered in this unit will enable you to be able to understand the implications of food science and analysis associated with manufacturing, environment, biotechnology and regulations. Accompanying the theory, you will enhance your practical skills by learning the operation and maintenance of common instrumentation used for food analysis, perform wet chemical analysis, data interpretation and appropriate communication of the results.

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

Prerequisites: CHEM11041 OR CHEM11043 or (CHEM11044 and CHEM11045)

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 - 2024

- Mixed Mode

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: 30%

3. **Take Home Exam**

Weighting: 50%

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 SUTE

Feedback

Students expressed that the diverse range of assessments in this unit offered valuable learning opportunities, and they particularly appreciated the structure of the take home exam.

Recommendation

The teaching team is committed to consistently providing and managing a diverse range of assessments to ensure valuable and enriching learning opportunities for students.

Feedback from SUTE

Feedback

Students felt that guided support from the teaching team during the residential school significantly transformed their learning experiences, providing clarity in experiment processes and practical applications.

Recommendation

The teaching team will continue to provide a high level of support and engagement during residential school classes.

Feedback from SUTE, Self and peer review

Feedback

Students expressed a preference for more consistent engagement with the teaching team throughout the year, beyond the residential school period

Recommendation

The teaching team is planning to conduct regular Zoom Q&A sessions with students throughout the term to enhance engagement and enrich their overall learning experience.

Unit Learning Outcomes

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

1. Evaluate the importance of food systems, sustainability, composition, quality and safety
2. Critically discuss the application of food preservation, food product processing, biotechnology and food packaging
3. Discuss the legislation, regulation policies and guidelines relevant to labeling and manufacturing of food
4. Demonstrate skills in manipulation of laboratory apparatus, careful and systematic observation, precise recording and communication of experimental data.

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%	•			

Assessment Tasks	Learning Outcomes			
	1	2	3	4
2 - Practical and Written Assessment - 30%		•	•	•
3 - Take Home Exam - 50%	•	•	•	

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 - 30%	•	•	•	•	•	•		•		
3 - Take Home Exam - 50%	•	•	•							

Textbooks and Resources

Textbooks

CHEM12077

Prescribed

INTRODUCTION TO FOOD SCIENCE AND FOOD SYSTEMS

Edition: 2 (2016)

Authors: Rick Parker, Miriah Pace

Cengage Learning

ISBN: 9781435489394

Binding: Hardcover

[View textbooks at the CQUniversity Bookshop](#)

IT Resources

You will need access to the following IT resources:

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

Referencing Style

All submissions for this unit must use the referencing style: [Vancouver](#)

For further information, see the Assessment Tasks.

Teaching Contacts

Mani Naiker Unit Coordinator

m.naiker@cqu.edu.au

Schedule

Week 1 - 08 Jul 2024

Module/Topic	Chapter	Events and Submissions/Topic
Overview of Food Science	1 & 2	
Systems and Sustainability		

Week 2 - 15 Jul 2024

Module/Topic	Chapter	Events and Submissions/Topic
Food Chemistry and Composition	3 & 5	

Week 3 - 22 Jul 2024

Module/Topic	Chapter	Events and Submissions/Topic
Food Quality and Safety	6 & 26	

Week 4 - 29 Jul 2024

Module/Topic	Chapter	Events and Submissions/Topic
Food Preservation I Heat and Cold	9 & 10	

Week 5 - 05 Aug 2024

Module/Topic	Chapter	Events and Submissions/Topic
Food Preservation II Drying and Dehydration Radiant and Electrical Energy	11 & 12	

Vacation Week - 12 Aug 2024

Module/Topic	Chapter	Events and Submissions/Topic
--------------	---------	------------------------------

Week 6 - 19 Aug 2024

Module/Topic	Chapter	Events and Submissions/Topic
Food Additives	14	Written Assessment Due: Week 6 Monday (19 Aug 2024) 11:45 pm AEST

Week 7 - 26 Aug 2024

Module/Topic	Chapter	Events and Submissions/Topic
Foods and Food Products Cereal Grains Legumes Oilseeds	20 & 24	
Beverages		

Week 8 - 02 Sep 2024

Module/Topic	Chapter	Events and Submissions/Topic
Fermentation Microorganisms Biotechnology	13	

Week 9 - 09 Sep 2024

Module/Topic	Chapter	Events and Submissions/Topic
Food Packaging	15	

Week 10 - 16 Sep 2024

Module/Topic	Chapter	Events and Submissions/Topic
Environmental Concerns and Processing	25	

Week 11 - 23 Sep 2024

Module/Topic	Chapter	Events and Submissions/Topic
Food Regulation and Labeling	27	Practical and Written Assessment Due: Week 11 Monday (23 Sept 2024) 11:45 pm AEST

Week 12 - 30 Sep 2024

Module/Topic	Chapter	Events and Submissions/Topic
Review		Take Home Exam Due: Week 12 Friday (4 Oct 2024) 9:00 am AEST

Review/Exam Week - 07 Oct 2024

Module/Topic	Chapter	Events and Submissions/Topic
--------------	---------	------------------------------

Exam Week - 14 Oct 2024

Module/Topic	Chapter	Events and Submissions/Topic
--------------	---------	------------------------------

Term Specific Information

Please be advised that a mandatory residential school is scheduled for Week 9, from September 9th to September 11th, 2024, at the Rockhampton campus.

Assessment Tasks

1 Written Assessment

Assessment Type

Written Assessment

Task Description

As an emerging scientist, it is crucial to stay updated with current trends in your field and to develop the ability to gather, review, and critically analyse information related to your research topic. This skill enables you to identify gaps in existing knowledge that can be addressed through new research inquiries. To facilitate this process, it is strongly recommended that you engage in communication and collaboration with researchers, experts, and peers during the reviewing and literature search process for this assessment.

For this assessment, you are required to develop a literature review focusing on one of the following nutrients:

- Dietary fiber
- Anthocyanins
- Saturated fatty acids
- Unsaturated fatty acids
- Vitamin A
- Biotin
- Choline
- Folates
- Tocopherols
- Iron
- Selenium
- Manganese
- Zinc

Your literature review should include the following relevant information regarding the chosen nutrient:

- Title (not included in word count)
- Definition and physio-chemical properties (400 words)
- Functions and regulation in the body (500 words)
- Major sources in the diet (300 words)
- Recommended dietary intake (100 words)
- Availability of supplements, including their efficacy for human consumption (100 words)
- Health problems associated with deficiencies/toxicities (500 words)
- Conclusion (100 words)
- References (not included in word count)

Ensure that you include in-text references for all cited literature and provide a complete reference list at the end of the review. The text should be word processed and submitted as a Microsoft Word document.

The complete literature review should have a word count between 1500 and 2000 words.

Assessment Due Date

Week 6 Monday (19 Aug 2024) 11:45 pm AEST

To be submitted via Moodle as a Microsoft Word document

Return Date to Students

Week 8 Monday (2 Sept 2024)

Via assessment task feedback file in Moodle

Weighting

20%

Minimum mark or grade

50 %

Assessment Criteria

The key elements listed in the marking rubric sheet, accessible on Moodle for reference, will primarily assess your ability to provide clear details on information interpretation, demonstrate coherent understanding, and draw appropriate conclusions about the concept and topic under review.

Referencing Style

- [Vancouver](#)

Submission

Online

Submission Instructions

Ensure that your submission is made on time through Moodle as a Microsoft Word document. It is your responsibility to verify the completion of the submission before the due date.

Learning Outcomes Assessed

- Evaluate the importance of food systems, sustainability, composition, quality and safety

Graduate Attributes

- Communication
- Problem Solving
- Critical Thinking
- Information Literacy
- Information Technology Competence

2 Practical and Written Assessment

Assessment Type

Practical and Written Assessment

Task Description

Throughout the residential school, you will participate in various chemical analyses and qualitative measurements to assess the components present in food and beverage samples. Upon completion, you are required to submit a comprehensive proforma for each individual experimental analysis conducted. Each report must be prepared using word processing software and submitted as a Microsoft Word document.

The Submission should consist of all the reports combined into a single file.

Assessment Due Date

Week 11 Monday (23 Sept 2024) 11:45 pm AEST

To be submitted via Moodle as a Microsoft Word document.

Return Date to Students

Week 12 Monday (30 Sept 2024)

Via assessment task feedback file in Moodle.

Weighting

30%

Minimum mark or grade

50 %

Assessment Criteria

The assessment marking criteria will be determined by the allocation of marks for each component in the provided proforma for every experiment. The evaluation of your work will be based on these criteria. Notably, you will be assessed on your ability to provide clear and concise aims, record, interpret, and calculate data, answer post-laboratory questions, and provide a clear conclusion. Additionally, your work will be evaluated for completeness and correctness of answers, including the use of correct units.

Referencing Style

- [Vancouver](#)

Submission

Online

Submission Instructions

To be submitted via Moodle as a Microsoft Word document. It is your responsibility to make sure that the submission is done by the due date.

Learning Outcomes Assessed

- Critically discuss the application of food preservation, food product processing, biotechnology and food packaging
- Discuss the legislation, regulation policies and guidelines relevant to labeling and manufacturing of food

- Demonstrate skills in manipulation of laboratory apparatus, careful and systematic observation, precise recording and communication of experimental data.

Graduate Attributes

- Communication
- Problem Solving
- Critical Thinking
- Information Literacy
- Team Work
- Information Technology Competence
- Ethical practice

3 Take Home Exam

Assessment Type

Take Home Exam

Task Description

The take-home exam will encompass all the material covered throughout the current term. This assessment will be in the form of a written examination and you will have 48 hours to complete the exam and submit it as a Word document via Moodle.

When undertaking this assessment, please follow these instructions:

- Answer all questions provided.
- Ensure all submissions are typed and saved as Word documents.
- Clearly demonstrate any calculations required.
- Upload the completed assessment via the Moodle page.

A specific breakdown of topics to be addressed in the take-home exam, along with their corresponding marks, will be provided on Moodle in Week 11.

Assessment Due Date

Week 12 Friday (4 Oct 2024) 9:00 am AEST

The exam will be accessible via Moodle from 9:00 am on Wednesday, October 2nd, 2024, until 9:00 am on Friday, October 4th, 2024. Please note that the exam will only be available for a period of 48 hours. Once you have completed the exam, submit it via Moodle as a Microsoft Word document.

Return Date to Students

The marks for the take-home exam will be released 14 days after the submission deadline. You will be able to access your marks through the assessment task feedback file on Moodle.

Weighting

50%

Minimum mark or grade

50 %

Assessment Criteria

The assessment marking criteria will be determined by the allocation of marks for each question in the take-home exam. Your work will be evaluated based on these criteria. Notably, you will be assessed on your ability to provide clear, concise, and well-balanced responses to the specific questions. Additionally, the completeness and correctness of your answers, including the use of correct units, will be carefully evaluated.

Referencing Style

- [Vancouver](#)

Submission

Online

Submission Instructions

The submission should be made through Moodle as a Microsoft Word document. You are responsible for ensuring that the submission is completed by the specified due date.

Learning Outcomes Assessed

- Evaluate the importance of food systems, sustainability, composition, quality and safety
- Critically discuss the application of food preservation, food product processing, biotechnology and food packaging

- Discuss the legislation, regulation policies and guidelines relevant to labeling and manufacturing of food

Graduate Attributes

- Communication
- Problem Solving
- Critical Thinking

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