



# CHEM12077 Food Science & Analysis

## Term 2 - 2023

Profile information current as at 28/04/2024 07:56 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 - 2023

- 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 recommended that the level of responses required for the take home exam questions should be reflective of the marks indicated for these.

##### Recommendation

The teaching team will ensure that the take home exam questions are designed so that the level of responses expected is reflective of the marks indicated.

#### Feedback from SUTE

##### Feedback

Considering that the prescribed textbook for this unit is American based, students recommended that more information should be provided to understand some of the concepts pertaining to Australian food standards.

##### Recommendation

Where feasible students will be provided with supplementary information pertaining to Australian food standards will be provided to enhance their learning experience.

#### Feedback from Self and peer review

##### Feedback

It would be beneficial for the students if more detailed information is provided about the final assessment task.

##### Recommendation

The unit coordinator will provide more detailed information pertaining to the final assessment task.

## 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%	•			
2 - Practical and Written Assessment - 30%		•	•	•

Assessment Tasks	Learning Outcomes			
	1	2	3	4
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

#### Additional Textbook Information

Both paper and eBook copies can now be purchased at the CQUni Bookshop here:

<http://bookshop.cqu.edu.au> (search on the Unit code).

[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](mailto:m.naiker@cqu.edu.au)

## Schedule

### Week 1 - 10 Jul 2023

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

### Week 2 - 17 Jul 2023

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

### Week 3 - 24 Jul 2023

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

### Week 4 - 31 Jul 2023

Module/Topic	Chapter	Events and Submissions/Topic
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Food Preservation I Heat and Cold	9 & 10
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#### Week 5 - 07 Aug 2023

Module/Topic	Chapter	Events and Submissions/Topic
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Food Preservation II Drying and Dehydration Radiant and Electrical Energy	11 & 12
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#### Vacation Week - 14 Aug 2023

Module/Topic	Chapter	Events and Submissions/Topic
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#### Week 6 - 21 Aug 2023

Module/Topic	Chapter	Events and Submissions/Topic
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Food Additives	14	<b>Written Assessment</b> Due: Week 6 Monday (21 Aug 2023) 11:45 pm AEST
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#### Week 7 - 28 Aug 2023

Module/Topic	Chapter	Events and Submissions/Topic
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Foods and Food Products Cereal Grains Legumes Oilseeds Beverages	20 & 24
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#### Week 8 - 04 Sep 2023

Module/Topic	Chapter	Events and Submissions/Topic
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Fermentation Microorganisms Biotechnology	13
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#### Week 9 - 11 Sep 2023

Module/Topic	Chapter	Events and Submissions/Topic
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Food Packaging	15
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#### Week 10 - 18 Sep 2023

Module/Topic	Chapter	Events and Submissions/Topic
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Environmental Concerns and Processing	25	<b>Residential School:</b> 20-22 September 2023
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#### Week 11 - 25 Sep 2023

Module/Topic	Chapter	Events and Submissions/Topic
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Food Regulation and Labeling	27
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#### Week 12 - 02 Oct 2023

Module/Topic	Chapter	Events and Submissions/Topic
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Review		<b>Practical and Written Assessment</b> Due: Week 12 Friday (6 Oct 2023) 11:45 pm AEST
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#### Review/Exam Week - 09 Oct 2023

Module/Topic	Chapter	Events and Submissions/Topic
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The take home exam will be accessible via Moodle starting from 9:00 am on Monday, October 9th, 2023, and it must be submitted by 9:00 am on Wednesday, October 11th, 2023.

#### Exam Week - 10 Oct 2023

Module/Topic	Chapter	Events and Submissions/Topic
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## Term Specific Information

All recorded lectures and additional learning resources will be available online. It is mandatory for ALL STUDENTS to participate in a three-day residential school at the North Rockhampton campus from 20 to 22 September 2023.

## Assessment Tasks

### 1 Written Assessment

#### Assessment Type

Written Assessment

#### Task Description

As an emerging scientist, it is expected that you stay updated with current trends in your field and possess the ability to gather, review, and critically analyse information related to your research topic. This enables you to identify gaps in 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
- Foliates
- 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 (21 Aug 2023) 11:45 pm AEST

To be submitted via Moodle as a Microsoft Word document

#### Return Date to Students

Week 8 Monday (4 Sept 2023)

Via assessment task feedback file in Moodle

#### Weighting

20%

#### Minimum mark or grade

50 %

**Assessment Criteria**

Please consult the marking rubric sheet accessible on Moodle for reference.

**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 engage in various chemical analysis and qualitative measurements to assess the components present in food and beverage samples. Upon completion of the residential school, it is essential 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. It is important to note that failing to achieve the minimum passing score in this assessment may render you ineligible for a supplementary exam or further assessment.

**Assessment Due Date**

Week 12 Friday (6 Oct 2023) 11:45 pm AEST

To be submitted via Moodle as a Microsoft Word document.

**Return Date to Students**

Exam Week Monday (16 Oct 2023)

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 preformat proforma for every experiment. The evaluation of your work will be based on these criteria.

**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 you have covered throughout the current term. This assessment will be in the form of a written examination and will be accessible on Moodle during the designated exam week. You will have 48 hours to complete the exam and submit it as a Word document via Moodle.

When undertaking this alternative assessment, please consider the following instructions:

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

The specific breakdown of topics to be addressed in the take-home exam, along with their corresponding marks, will be provided on Moodle in Week 12.

### **Assessment Due Date**

Review/Exam Week Wednesday (11 Oct 2023) 9:00 am AEST

The exam will be accessible via Moodle starting from 9:00 am on Monday, October 9th, 2023, and it must be submitted by 9:00 am on Wednesday, October 11th, 2023. Please note that the exam will only be accessible 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.

### **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