



EDSE13001 *Culinary Science for Teachers*

Term 2 - 2023

Profile information current as at 02/05/2024 07:41 am

All details in this unit profile for EDSE13001 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

This unit explores why foods are prepared the way they are, why certain changes take place in food after undergoing mechanical or chemical manipulation, and how this knowledge may be used to improve food products. Knowledge and skills acquired in this unit form an integral component to the teaching of Home Economics and its related subjects in secondary schools. This unit provides opportunities to develop strategies for designing activities that will challenge and engage students in the classroom and beyond.

Details

Career Level: *Undergraduate*

Unit Level: *Level 3*

Credit Points: 6

Student Contribution Band: 7

Fraction of Full-Time Student Load: 0.125

Pre-requisites or Co-requisites

CC13 undergraduate preservice teachers must have completed at least two Professional Practice placements before enrolling in this unit. EDFE11038 Professional Practice 1 - Introduction to Teaching and EDFE12043 Professional Practice 2 (Secondary) - Application of Curriculum

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. **Laboratory/Practical**

Weighting: 30%

2. **Practical Assessment**

Weighting: 30%

3. **Group Work**

Weighting: 30%

4. **Peer assessment**

Weighting: 10%

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

At-home experiments

Recommendation

Consider the cost to students to conduct the fortnightly experiments.

Feedback from SUTE

Feedback

Unit requirements

Recommendation

Ensure that the unit requirements are effectively communicated to students.

Unit Learning Outcomes

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

1. Design and perform a series of food-based experiments that develop practical skills associated with cookery and recipe construction
2. Apply appropriate problem-solving procedures to plan, sequence, implement and assess food production processes used in recipe construction
3. Recognise and apply skills, sequences and procedures using design and problem-solving processes required for teaching a range of cookery skills
4. Critically evaluate specific applications of recipes and ingredients used in the production of edible foods
5. Apply appropriate workplace health and safety practices for cookery.

This unit aligns with the following Australian Professional Standards for Teachers (Graduate Career Stage):

Standard 2: Know the content and how to teach it

2.1 Content and teaching strategies of the teaching area

2.2 Content selection and organisation

Standard 4: Create and maintain supportive and safe learning environments

4.4 Maintain student safety

Standard 7: Engage professionally with colleagues, parents/carers and the community

7.2 Comply with legislative, administrative and organisational requirements

Alignment of Learning Outcomes, Assessment and Graduate Attributes



Alignment of Assessment Tasks to Learning Outcomes

Assessment Tasks	Learning Outcomes				
	1	2	3	4	5
1 - Laboratory/Practical - 30%	•	•	•	•	•
2 - Practical Assessment - 30%	•	•			•
3 - Group Work - 30%	•	•	•	•	•
4 - Peer assessment - 10%			•	•	

Alignment of Graduate Attributes to Learning Outcomes

Graduate Attributes	Learning Outcomes				
	1	2	3	4	5
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					

Textbooks and Resources

Textbooks

EDSE13001

Prescribed

Cooking as a Chemical Reaction: Culinary Science with Experiments

Second Edition (2019)

Authors: Sibel Z. Ozilgen

CRC Press

Boca Raton , Fl. , USA

ISBN: 9781138597129

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)
- MS Teams

Referencing Style

All submissions for this unit must use the referencing style: [American Psychological Association 7th Edition \(APA 7th edition\)](#)

For further information, see the Assessment Tasks.

Teaching Contacts

Jay Deagon Unit Coordinator

j.deagon@cqu.edu.au

Schedule

Week 1 - 10 Jul 2023

Module/Topic	Chapter	Events and Submissions/Topic
Water	Chapter 1 - Measurements and Units (pp. 1-22) Chapter 2 - Basic Food Chemistry (pp. 23-37) Chapter 3 - Water in Culinary Transformations (pp. 39-87)	Conduct Experiment 3.4 (p.63) Orange Juice Test

Week 2 - 17 Jul 2023

Module/Topic	Chapter	Events and Submissions/Topic
Water	Chapter 3 - Water in Culinary Transformations (pp. 39-87)	Submit draft Orange Juice Test Lab Report

Week 3 - 24 Jul 2023

Module/Topic	Chapter	Events and Submissions/Topic
Fats & Oils	Chapter 6 - Fats & Oils in Culinary Transformations (pp. 213-256)	Conduct Experiment 6.4 (p. 231) Sugar Cookie

Week 4 - 31 Jul 2023

Module/Topic	Chapter	Events and Submissions/Topic
Fats & Oils	Chapter 6 – Fats & Oils in Culinary Transformations (pp. 213-256)	Submit draft Sugar Cookie Lab Report

Week 5 - 07 Aug 2023

Module/Topic	Chapter	Events and Submissions/Topic
Carbohydrates Pigments: Acids & Bases	Chapter 4 – Carbohydrates in Culinary Transformations (pp. 89-143)	Conduct Experiment (not from textbook - see Moodle for details) Acids & Bases

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
Carbohydrates Pigments: Acids & Bases	Chapter 4 – Carbohydrates in Culinary Transformations (pp. 89-143)	Submit draft Acids & Bases Lab Report Commence preparation for Assessment Task 3 "Play with Your Food" Experiment and Teacher Demonstration

Week 7 - 28 Aug 2023

Module/Topic	Chapter	Events and Submissions/Topic
Proteins	Chapter 5 – Proteins in Culinary Transformations (pp. 145-212)	Conduct Experiment 5.3 (p.163) Steak

Week 8 - 04 Sep 2023

Module/Topic	Chapter	Events and Submissions/Topic
Proteins	Chapter 5 – Proteins in Culinary Transformations (pp. 145-212)	No drafts due. Finalise Assessment Task 1 for submission.

Week 9 - 11 Sep 2023

Module/Topic	Chapter	Events and Submissions/Topic
Proteins	Chapter 5 – Proteins in Culinary Transformations (pp. 145-212) Chapter 10 - Safety & Hygiene (pp. 347-376)	If required, email the ingredient list for Assessment Task 3 to Unit Coordinator by 4:00 PM Tuesday 12th September 2023 (one week prior to Residential School) Laboratory Reports & Resources Due: Week 9 Tuesday (12 Sept 2023) 11:45 pm AEST

Week 10: Residential School - 19 Sep 2023

Module/Topic	Chapter	Events and Submissions/Topic
Residential School Dates: Tuesday 19 September to Friday 22 September 2023 Times: 9.00am to 4.30pm (or as otherwise directed) Venue: B Block, Rockhampton City Campus, Canning Street, Rockhampton	Textbook required to conduct experiments at Residential School Chapters 1-6 + Chapter 7 - New Food Development and Sensory Testing	Residential School: Compulsory attendance and participation in all Residential School activities (all days inclusive). Food Experiment Demonstration: Be prepared to present at the allocated date and time. All written work is to be submitted via Moodle by Friday 22 September 2023 by 11:00 PM.

Week 11 - 25 Sep 2023

Module/Topic	Chapter	Events and Submissions/Topic
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Flavour Pairing
Food Additives

Chapter 8 - The Science of Flavour and
Flavour Pairing
Chapter 9 - Food Additives in Culinary
Transformations

Week 12 - 02 Oct 2023

Module/Topic	Chapter	Events and Submissions/Topic
Peer reviews and professional reflection		Peer Feedback Due: Week 12 Friday (6 Oct 2023) 11:45 pm AEST

Review/Exam Week - 09 Oct 2023

Module/Topic	Chapter	Events and Submissions/Topic
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Exam Week - 16 Oct 2023

Module/Topic	Chapter	Events and Submissions/Topic
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Assessment Tasks

1 Laboratory Reports & Resources

Assessment Type

Laboratory/Practical

Task Description

Rational

To teach food related topics, you need to know the chemical reactions and processes that occur when food is prepared, cooked and stored. A knowledgeable, successful and inspiring food educator needs to possess the vocabulary, skills and abilities to construct and deliver content in fun and challenging ways. An appropriate teaching strategy to explain complex scientific processes is to perform laboratory testing and experiments on food. This experimental approach complements the 'hands on' and practical approach that underpins learning and teaching in food contexts.

The Task: 4 Food Experiments:

Conduct 4 experiments as directed, drawn from the textbook and/or Moodle unit material. Each experiment will need to be completed at your home. The experiments are:

- Water: Orange Juice Yield Test
- Fats & Oils: Sugar Cookies
- Carbohydrates: Acids & Bases: Pigments
- Proteins: Steak

What to Submit:

Complete 4 laboratory reports and accompanying resources. You will use Laboratory Report and Resources templates provided in Moodle which include:

1. Experiment Objective
2. Equipment and Ingredients
3. Method
4. Results tables
5. Discussion, comparison and application of theory
6. Glossary of key terms
7. 50-100 word theoretical explanations of 3 key procedures or chemical processes for each experiment with accompanying photographs

Detailed task descriptions and templates for laboratory reports are located on the Moodle site for this unit. Further instructions will be discussed in tutorials and available in Moodle.

Assessment Due Date

Week 9 Tuesday (12 Sept 2023) 11:45 pm AEST

Submit 4 x final laboratory reports via Moodle

Return Date to Students

Week 10 Friday (22 Sept 2023)

Feedback will be provided prior to Residential School

Weighting

30%

Minimum mark or grade

Pass

Assessment Criteria

- Apply culinary science theory and technical concepts
- Generate, record, analyse and interpret food experiment data and observations
- Construct educational resources for theoretical and practical culinary science lessons
- Demonstrate professional levels of personal literacy

Referencing Style

- [American Psychological Association 7th Edition \(APA 7th edition\)](#)

Submission

Online

Submission Instructions

Drafts due fortnightly for feedback. All final reports uploaded via Moodle as directed.

Learning Outcomes Assessed

- Design and perform a series of food-based experiments that develop practical skills associated with cookery and recipe construction
- Apply appropriate problem-solving procedures to plan, sequence, implement and assess food production processes used in recipe construction
- Recognise and apply skills, sequences and procedures using design and problem-solving processes required for teaching a range of cookery skills
- Critically evaluate specific applications of recipes and ingredients used in the production of edible foods
- Apply appropriate workplace health and safety practices for cookery.

2 Residential School

Assessment Type

Practical Assessment

Task Description

Compulsory attendance at Residential School and completion of all practical cookery tasks as instructed.

In groups and individually, students perform a variety of food experiments and receive instruction on teaching and learning strategies to facilitate safe and efficient practices for high-risk kitchen environments. Topics will include (but are not limited to):

Culinary Science:

1. Caramelisation, Milliard Reaction, Dextrinisation
2. Casein, lactose, rennin, rennet, coagulation (milk proteins), pasteurisation
3. Cheese sauces, tofu, fetta
4. Coagulation, retrogradation
5. Correct lipid choices for cooking and sensory properties
6. Eggs
7. Emulsions
8. Entomophagy
9. Enzymes, Enzymic Browning, Oxidisation
10. Fermentation
11. Flavour pairing & food additives
12. Foam formation, aquafaba
13. Gelatinisation, syneresis
14. Gelification, gelling agents, pectin (amylose & amylopectin)
15. Gluten and gluten-free
16. Impacts of temperature on product development
17. Mechanical force
18. Milk, yoghurt, ice cream
19. New food development

20. Powerderisation, maltodextrin
21. Sensory testing
22. Sugar theory, nucleation, crystallisation
23. Smoke points of oils
24. Spherification, reverse spherification
25. Structural properties of starches

Safety, pedagogy and management:

1. Workplace health & safety procedures
2. High-risk activity management
3. Behaviour management and organisation skills
4. Time management and kitchen organisation
5. Planning and delivery of theory and practical lessons

Further information about Residential School is available on the Moodle site for this unit.

Assessment Due Date

WEEK 10: Compulsory attendance and participation in all Residential School activities (all days inclusive)

Return Date to Students

Feedback will be given during the Residential School and final results released after certification of grades

Weighting

30%

Minimum mark or grade

Pass

Assessment Criteria

1. Demonstrate a range of practical cookery skills
2. Apply decision-making skills to select and use appropriate methods, techniques and equipment
3. Collaborate and manage groups and work independently
4. Consider food waste, ethics and sustainability practices suitable for kitchen environments
5. Implement personal hygiene, food safety and workplace health and safety procedures.

Referencing Style

- [American Psychological Association 7th Edition \(APA 7th edition\)](#)

Submission

Offline

Submission Instructions

Continuous observation across all 4-days at Residential School

Learning Outcomes Assessed

- Design and perform a series of food-based experiments that develop practical skills associated with cookery and recipe construction
- Apply appropriate problem-solving procedures to plan, sequence, implement and assess food production processes used in recipe construction
- Apply appropriate workplace health and safety practices for cookery.

3 Food Experiment Demonstration

Assessment Type

Group Work

Task Description

Team Teaching

Team teaching encourages creativity, strengthens professional relationships and helps students share workloads, successes and failures (AITSL, 2022). For this task, students will work in teams to develop teaching episodes to be delivered to their peers at Residential School at an allocated day and time.

Demonstration of Food Experiment

Food educators not only require the skills and knowledge to demonstrate specific practical cookery skills, but also have the confidence to simultaneously deliver theory to an audience. A demonstration provides a "snapshot" of a complex task.

Food experiments are a fun and interactive way to engage an audience with content but require considerable organisation and preparation. Practical Home Economics, Food & Nutrition or Food Technology classes are set apart from many other school subjects because of their 'hands-on' pedagogies. Especially relevant in busy kitchen environments, students need to understand explicitly what is required and expected. To scaffold (coach) students through new cookery knowledge and techniques, a "show and tell" demonstration usually precedes each practical cookery lesson and can take 10 minutes or a whole lesson to complete.

The Task

In teams you will research, plan and present "in kitchen" theory and food experiment demonstrations suitable for secondary schools.

Requirements:

1. **Research:** write a theory statement that explains the scientific procedures and processes for a "play with your food" themed experiment. The theory statement must explain the complex chemical and/or mechanical reactions that occur (500-700 words).
2. **Plan:** develop teaching tools including lesson plan and workplan to effectively deliver the teacher demonstration.
3. **Present:** teacher demonstration to your peers at Residential School at an allocated day and time.

Theory Topics:

- Caramelisation, Milliard Reaction, Dextrinisation
- Casein, lactose, rennin, rennet
- Emulsions
- Entomophagy
- Enzymes, Enzymic Browning, Oxidisation
- Fermentation
- Foam formation, aquafaba
- Gelification, gelling agents (agar-agar, carrageen, gellan gum)
- Gluten and Gluten-free
- Nucleation, crystallisation
- Pectin (amylose & amylopectin)
- Powderisation, maltodextrin
- Spherification, reverse spherification
- Gelatinisation, syneresis, coagulation, retrogradation
- Other (as negotiated with the lecturer)

Each team will be allocated the topic/s by the Lecturer. A detailed task description is available in Moodle and will be discussed in tutorials.

Assessment Due Date

Be prepared to present at Residential School at your allocated date and time. All written work to be submitted via Moodle by Friday 22 September 2023 by 11:00pm.

Return Date to Students

Feedback will be given during the Residential School and final results released after certification of grades

Weighting

30%

Minimum mark or grade

Pass

Assessment Criteria

- Research and apply culinary science theory and technical language
- Create a challenging and engaging food science activity suitable for senior secondary school students
- Implement complex planning and preparation processes suitable to deliver a cookery demonstration
- Collaborate in teams to plan and deliver a demonstration to a live audience
- Simultaneously demonstrate and verbally express cookery skills, chemical reaction theory and manage an audience

- Apply scope and sequence to scaffold student learning suitable for the senior years of schooling
- Develop teaching tools and resources suitable for senior secondary school contexts.

Referencing Style

- [American Psychological Association 7th Edition \(APA 7th edition\)](#)

Submission

Offline Online Group

Submission Instructions

Hardcopy of theory statement, lesson plan and workplan to be handed to Lecturer just prior to presentation AND submitted electronically via Moodle by due date.

Learning Outcomes Assessed

- Design and perform a series of food-based experiments that develop practical skills associated with cookery and recipe construction
- Apply appropriate problem-solving procedures to plan, sequence, implement and assess food production processes used in recipe construction
- Recognise and apply skills, sequences and procedures using design and problem-solving processes required for teaching a range of cookery skills
- Critically evaluate specific applications of recipes and ingredients used in the production of edible foods
- Apply appropriate workplace health and safety practices for cookery.

4 Peer Feedback

Assessment Type

Peer assessment

Task Description

Purpose

The purpose of peer assessment is to help educators refine their feedback skills. Students will be given guidelines about how to respond to peers' work so they can practice giving constructive feedback in a supported environment.

The Task

Students will complete an assessment of their peers' work and teacher demonstrations.

Focus areas

- Clarity of concepts
- Quality of presentation and materials
- Use of voice and personal presence
- Team collaboration
- Command of space and time
- Audience engagement

Assessment Due Date

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

Return Date to Students

Final results released after certification of grades

Weighting

10%

Assessment Criteria

- Engage in constructive peer feedback
- Critically reflect on teaching practice and performance.

Referencing Style

- [American Psychological Association 7th Edition \(APA 7th edition\)](#)

Submission

Online

Submission Instructions

Students will receive instruction on how to submit peer feedback via the Lecturer and at Residential School

Learning Outcomes Assessed

- Recognise and apply skills, sequences and procedures using design and problem-solving processes required for teaching a range of cookery skills
- Critically evaluate specific applications of recipes and ingredients used in the production of edible foods

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