



Unit Outline (Higher Education)

Institute / School: Institute of Innovation, Science & Sustainability

Unit Title: BREWING RAW MATERIALS

Unit ID: SCBRW5081

Credit Points: 15.00

Prerequisite(s): Nil

Co-requisite(s): Nil

Exclusion(s): Nil

ASCED: 019905

Description of the Unit:

This unit will describe the raw materials which are used to produce beer and related products. It will include the structure and chemical composition of barley and the biochemical changes and process of its conversion to malt. It will also cover the chemistry and processing of hops and hop products, the use of cereal and sugar adjuncts, and brewing water chemistry.

Grade Scheme: Graded (HD, D, C, P, MF, F, XF)

Work Experience:

No work experience: Student is not undertaking work experience in industry.

Placement Component: No

Supplementary Assessment: Yes

Where supplementary assessment is available a student must have failed overall in the Unit but gained a final mark of 45 per cent or above, has completed all major assessment tasks (including all sub-components where a task has multiple parts) as specified in the Unit Description and is not eligible for any other form of supplementary assessment

Course Level:

Level of Unit in Course	AQF Level of Course					
	5	6	7	8	9	10
Introductory	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Intermediate	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Advanced	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Learning Outcomes:

Knowledge:

- K1.** Define and describe the raw materials used in the production of fermented, malt-based beverages.
- K2.** Identify and define the processes and parameters used in the production of barley malt.
- K3.** Relate the quality attributes used to measure barley malt quality with malt modification.
- K4.** Compare and contrast the production and utilisation of hops and hop products.
- K5.** Describe the sources, quality parameters and treatment processes of brewery water.
- K6.** Contrast dogma, theory and facts in brewing.

Skills:

- S1.** Assess raw material specification sheets.
- S2.** Effectively and efficiently access information relevant to brewing.
- S3.** Communicate by written means using different media.

Application of knowledge and skills:

- A1.** Evaluate the suitability of brewing raw materials.
- A2.** Critically evaluate scientific data.
- A3.** Select the appropriate analysis for evaluating raw materials.

Unit Content:

The following material will be normally presented during this unit.

Topics may include:

- Structure and chemical composition of barley.
- Malting technology and biochemistry.
- Cereal and sugar adjuncts.
- Hop science and technology.
- Brewing water chemistry.
- How raw materials influence flavour active compounds.
- Process aids.

FEDTASKS

Federation University Federation recognises that students require key transferable employability skills to prepare them for their future workplace and society. FEDTASKS (**T**ransferable **A**tttributes **S**kills and **K**nowledge) provide a targeted focus on five key transferable Attributes, Skills, and Knowledge that are embedded within curriculum, developed gradually towards successful measures and interlinked with cross-discipline and Co-operative Learning opportunities. *One or more FEDTASK, transferable Attributes, Skills or Knowledge must be evident in the specified learning outcomes and assessment for each FedUni Unit, and all must be directly assessed in each Course.*

FEDTASK attribute and descriptor	Development and acquisition of FEDTASKS in the Unit	
	Learning Outcomes (KSA)	Assessment task (AT#)

FEDTASK attribute and descriptor		Development and acquisition of FEDTASKS in the Unit	
		Learning Outcomes (KSA)	Assessment task (AT#)
FEDTASK 1 Interpersonal	<p>Students will demonstrate high-level skills to effectively communicate, interact and work with others both individually and in groups. Students will be required to display (in person and/or online) high-level skills in-person and/or online in:</p> <ul style="list-style-type: none"> • Effective verbal and non-verbal communication via a range of synchronous and asynchronous methods • Active listening for meaning and influencing • High-level empathy for others • Negotiating and demonstrating extended conflict resolution skills • Working respectfully in cross-cultural and diverse teams 	K6, S3	AT1, AT2, AT4
FEDTASK 2 Leadership	<p>Students will demonstrate the ability to apply leadership skills and behaviours Students will be required to display skills in:</p> <ul style="list-style-type: none"> • Creating, contributing to, and enabling collegial environments • Showing self-awareness and the ability to self-reflect for personal growth • Inspiring and enabling others • Making informed and evidence-based decisions through consultation with others • Displaying initiative and ability to solve problems 	S1, A1 - A3	AT1, AT2, AT4
FEDTASK 3 Critical Thinking and Creativity	<p>Students will demonstrate an ability to work in complex and ambiguous environments, using their imagination to create new ideas. Students will be required to display skills in:</p> <ul style="list-style-type: none"> • Reflecting critically on complex problems • Synthesising, evaluating ideas, concepts and information • Proposing alternative perspectives to refine ideas • Challenging conventional thinking to clarify concepts through deep inquiry • Proposing creative solutions in problem solving 	K3, K4, K6, S1 - S3, A1 - A3	AT1, AT2, AT4
FEDTASK 4 Digital Literacy	<p>Students will demonstrate the ability to work proficiently across a range of tools, platforms and applications to achieve a range of tasks Students will be required to display high-level skills in:</p> <ul style="list-style-type: none"> • Finding, accessing, collating, evaluating, managing, curating, organising and appropriately and securely sharing complex digital information at a high-level • Receiving and responding to messages in a range of digital media • Using digital tools appropriately to conduct research • Contributing proficiently to digital teams and working groups • Participating in and utilising digital learning opportunities 	K1 - K6, S2, S3, A2	AT1, AT2, AT3, AT4

FEDTASK attribute and descriptor		Development and acquisition of FEDTASKS in the Unit	
		Learning Outcomes (KSA)	Assessment task (AT#)
FEDTASK 5 Sustainable and Ethical Mindset	Students will demonstrate the ability to think ethically and sustainably. Students will be required to display (in person and/or online) high-level skills in-person and/or online in: <ul style="list-style-type: none"> • The responsible conduct of research • Making informed judgments that consider the impact of devising solutions in multiple global economic environmental and societal contexts • Demonstrating commitment to social responsibility as a professional and a citizen • Generating research solutions which are sustainable, ethical, socially responsible and/or sustainable • Extending lifelong, life-wide and life-deep learning to be open to diverse others • Demonstrate extended actions to foster sustainability in their professional and personal life. 	K1, K5, S1, S2, A1 - A3	AT1, AT2, AT3, AT4

Learning Task and Assessment:

Learning Outcomes Assessed	Assessment Tasks	Assessment Type	Weighting
K1-K5, S2, A2	Tutorial questions - short answers to technical questions covering all aspects of brewing raw materials.	Tutorial questions.	30-50%
S1-S3, A1-3 and any of K1-K5	Assignment - an essay topic describing quality parameters of raw materials.	Assignment.	20-40%
K1-K5, S2	On-line multiple choice tests.	On-line tests.	20-30%
K6, S3	Discussion board (or other media) contribution.	Written comments.	10%

Alignment to the Minimum Co-Operative Standards (MiCS)

The Minimum Co-Operative Standards (MiCS) are an integral part of the Co-Operative University Model. Seven criteria inform the MiCS alignment at a Course level. Although Units must undertake MiCS mapping, there is NO expectation that Units will meet all seven criteria. The criteria are as follows:

1. Co-design with industry and students
2. Co-develop with industry and students
3. Co-deliver with industry
4. FedTASK alignment
5. Workplace learning and career preparation
6. Authentic assessment
7. Industry-link/Industry facing experience

MiCS Course level reporting highlights how each Course embraces the principles and practices associated with the Co-Operative Model. Evidence of Course alignment with the MiCS, can be captured in the Course Modification Form.

MICS Mapping has been undertaken for this Unit No

Date:

Adopted Reference Style:

Australian Harvard

Refer to the [library website](#) for more information

Fed Cite - [referencing tool](#)