



UNSW Course Outline

FOOD8320 Food Microbiology - 2024

Published on the 30 Aug 2024

General Course Information

Course Code : FOOD8320

Year : 2024

Term : Term 3

Teaching Period : T3

Is a multi-term course? : No

Faculty : Faculty of Engineering

Academic Unit : School of Chemical Engineering

Delivery Mode : In Person

Delivery Format : Standard

Delivery Location : Kensington

Campus : Sydney

Study Level : Postgraduate

Units of Credit : 6

Useful Links

[Handbook Class Timetable](#)

Course Details & Outcomes

Course Description

This is a lecture-laboratory course that introduces the basic concepts of food microbiology, covering the ecology, biochemistry, isolation, enumeration and identification of bacteria, yeasts, fungi and viruses associated with foods and beverages. Food spoilage: specific food

microorganism associations; taxonomy and biochemistry of major spoilage species; chemical and physical changes to food properties; spoilage of specific commodities. Foodborne microbial disease: foods as vectors of disease and food poisoning; statistics and epidemiology; ecology and taxonomy of foodborne pathogenic microorganisms; control and prevention by hygiene, microbiological standards and legislation. Food fermentation: microbial ecology and biochemistry of fermentations; fermentations of alcoholic beverages, bakery products, dairy products, meats, vegetables, cocoa beans, soy sauce; production of food ingredients and processing aids by fermentation. Microbiological examination of foods: sample preparation and sampling plans; sub-lethal injury; standard methods for determination of total plate counts, indicator organisms, food-borne pathogenic species, principal spoilage species. Microbiological quality assurance: specifications and standards; decision criteria; hazard analysis and critical control point (HACCP) concept; cleaning and sanitation.

Course Aims

This course is designed to apply the principles of microbiology to the production and service of foods and beverages, and introduce students to the discipline of food microbiology. Following a brief introduction to the history of food microbiology and the diversity of microorganisms associated with foods and beverages, the course considers the following topics:

- The occurrence and significance of microorganisms in foods
- Factors affecting the presence, growth and survival of microorganisms in foods (microbial ecology of foods)
- The biochemical activities of microorganisms in foods and their impacts on food quality and food safety
- Food spoilage by microorganisms; specific food/beverage commodities; specific microbial groups.
- Microorganisms in foods and public health (food borne disease and food poisoning)
- Microorganisms in the production of fermented foods and beverages
- Microorganisms as probiotics, biocontrol agents and in the production of food ingredients, additives and processing aids
- Microbiological analysis of foods; lecture-laboratory component
- Microbiological risk assessment for foods; quality assurance and control.

Relationship to Other Courses

Having taken MICR2011 Microbiology 1 will give additional meaning to FOOD2320 and enable greater depth of knowledge. Students who have not taken MICR2011 can still enrol in FOOD2320 and will still be able to successfully complete the course.

Course Learning Outcomes

Course Learning Outcomes
CLO1 : Develop broad knowledge and understanding of how microorganisms impact on the production, quality and safety of foods and beverages, and see the social and commercial significance of food microbiology
CLO2 : Become proficient in basic skills for the microbiological examination of foods and beverages, including the presentation and interpretation of analytical data
CLO3 : Develop a practical understanding and knowledge on how to manage and control the impact of microorganisms on the quality and safety of foods and beverages

Course Learning Outcomes	Assessment Item
CLO1 : Develop broad knowledge and understanding of how microorganisms impact on the production, quality and safety of foods and beverages, and see the social and commercial significance of food microbiology	<ul style="list-style-type: none">• Quiz 1• Quiz 2• Practical Exam• Final Exam
CLO2 : Become proficient in basic skills for the microbiological examination of foods and beverages, including the presentation and interpretation of analytical data	<ul style="list-style-type: none">• Quiz 1• Quiz 2• Practical Exam• Final Exam
CLO3 : Develop a practical understanding and knowledge on how to manage and control the impact of microorganisms on the quality and safety of foods and beverages	<ul style="list-style-type: none">• Quiz 1• Quiz 2• Practical Exam• Final Exam

Learning and Teaching Technologies

Moodle - Learning Management System | Blackboard Collaborate | Microsoft Teams

Learning and Teaching in this course

Food Microbiology is a core lecture-laboratory course in food science and technology programs. Lectures involve delivery of core concepts, through reference to text books and articles published in research journals and use of practical industry-community examples. There is a strong ecological theme running throughout the course, designed to show the relationships between microorganisms and foods and, ultimately, society. The laboratory component not only reinforces aspects of the lecture component but develops technical and analytical skills. Assessment tasks are designed to evaluate understanding and application of core concepts, while those in the practical component also determine the competency of students with respect to analytical techniques and interpretation of analytical data.

Other Professional Outcomes

Food8320 is part of UNSW Food Science specialisations approved (2021-2026) by the Institute of Food Technologists Higher Education Review Board (IFT HERB).

<https://www.unsw.edu.au/engineering/student-life/student-resources/program-design>

Additional Course Information

Some parts of the practical component will be delivered in collaboration with industry partners to further enhance their "real world" authenticity.

Assessments

Assessment Structure

Assessment Item	Weight	Relevant Dates
Quiz 1	15%	Start Date: Not Applicable Due Date: Week 3
Quiz 2	15%	Start Date: Not Applicable Due Date: Week 8
Practical Exam	20%	Start Date: 11/11/2024 02:00 PM Due Date: 11/11/2024 04:00 PM
Final Exam	50%	Start Date: Not Applicable Due Date: Exam Period

Assessment Details

Quiz 1

Assessment Overview

Quiz 1 (1 hour duration) consists of 8-10 questions requiring short (typically paragraph-length) answers and will be held in Week 3. Quiz 1 will be based on content relating to both the lecture and laboratory components of the course in the first three weeks (1-3) of term. The quiz will be scheduled during the laboratory period. Feedback will be provided prior to the census date. The quiz encourages regular study and engagement with core concepts in food microbiology.

Course Learning Outcomes

- CLO1 : Develop broad knowledge and understanding of how microorganisms impact on the production, quality and safety of foods and beverages, and see the social and commercial significance of food microbiology
- CLO2 : Become proficient in basic skills for the microbiological examination of foods and beverages, including the presentation and interpretation of analytical data

- CLO3 : Develop a practical understanding and knowledge on how to manage and control the impact of microorganisms on the quality and safety of foods and beverages

Detailed Assessment Description

Quiz 1 will be based on content relating to both the lecture and laboratory components of the course in the first three weeks (1-3) of term. The quiz will be scheduled during the class period. Feedback will be provided prior to the census date. The quiz encourages regular study and engagement with core concepts in food microbiology.

Assessment Length

1 hour

Assessment information

Further information on the quiz will be provided in class

Assignment submission Turnitin type

Not Applicable

Generative AI Permission Level

Not Applicable

Generative AI is not considered to be of assistance to you in completing this assessment. If you do use generative AI in completing this assessment, you should attribute its use.

For more information on Generative AI and permitted use please see [here](#).

Quiz 2

Assessment Overview

Quiz 2 (1 hour duration) consists of 8-10 questions requiring short (typically paragraph-length) answers and will be held in Week 8. Quiz 2 will be based on content relating to both the lecture and laboratory components of the course delivered in weeks 4-8 of term. The quiz will be scheduled during the laboratory period. Feedback will be provided within two weeks of completion. The quiz encourages regular study and engagement with core concepts in food microbiology.

Course Learning Outcomes

- CLO1 : Develop broad knowledge and understanding of how microorganisms impact on the production, quality and safety of foods and beverages, and see the social and commercial significance of food microbiology
- CLO2 : Become proficient in basic skills for the microbiological examination of foods and beverages, including the presentation and interpretation of analytical data

- CLO3 : Develop a practical understanding and knowledge on how to manage and control the impact of microorganisms on the quality and safety of foods and beverages

Detailed Assessment Description

Quiz 2 will be based on content relating to both the lecture and laboratory components of the course delivered in weeks 4-8 of term. The quiz will be scheduled during the calss period.

Feedback will be provided within two weeks of completion. The quiz encourages regular study and engagement with core concepts in food microbiology.

Assessment Length

1 hour

Assessment information

Further information on the quiz will be provided in class.

Assignment submission Turnitin type

Not Applicable

Generative AI Permission Level

Not Applicable

Generative AI is not considered to be of assistance to you in completing this assessment. If you do use generative AI in completing this assessment, you should attribute its use.

For more information on Generative AI and permitted use please see [here](#).

Practical Exam

Assessment Overview

A practical examination will be conducted in the last week of session. This will involve observation of basic laboratory skills, as well as interpretation of materials provided at laboratory workstations. This item assesses practical skills and reflects the professional need to interpret microbiological cultures and data.

Course Learning Outcomes

- CLO1 : Develop broad knowledge and understanding of how microorganisms impact on the production, quality and safety of foods and beverages, and see the social and commercial significance of food microbiology
- CLO2 : Become proficient in basic skills for the microbiological examination of foods and beverages, including the presentation and interpretation of analytical data
- CLO3 : Develop a practical understanding and knowledge on how to manage and control the impact of microorganisms on the quality and safety of foods and beverages

Detailed Assessment Description

The practical exam will be held between 2 pm to 3.30 pm, Monday, Week 10. The exam will be conducted online in a designated area adjacent to the food science laboratory on Level 1 of the Science and Engineering building (E8).

Assessment Length

1.5 hours

Assessment information

Further information on the practical exam will be provided in class.

Assignment submission Turnitin type

Not Applicable

Generative AI Permission Level

Not Applicable

Generative AI is not considered to be of assistance to you in completing this assessment. If you do use generative AI in completing this assessment, you should attribute its use.

For more information on Generative AI and permitted use please see [here](#).

Final Exam

Assessment Overview

The exam will consist of several essay-style questions, with some limited choice either between or within questions, and will cover material from the entire lecture and laboratory components of the course. This exam is designed to test basic knowledge and understanding of all aspects of food microbiology and how students apply this information to ‘real life’ examples in the industry and the community.

Course Learning Outcomes

- CLO1 : Develop broad knowledge and understanding of how microorganisms impact on the production, quality and safety of foods and beverages, and see the social and commercial significance of food microbiology
- CLO2 : Become proficient in basic skills for the microbiological examination of foods and beverages, including the presentation and interpretation of analytical data
- CLO3 : Develop a practical understanding and knowledge on how to manage and control the impact of microorganisms on the quality and safety of foods and beverages

Detailed Assessment Description

The exam will be 2 hours long. It will cover both the lecture and laboratory content. The exam will

be administrated centrally, and you will be notified of the time and venue when the exam office publishes the exam timetable.

Assessment Length

2 hours

Assessment information

Further information on the exam including past exam papers will be provided in class.

Assignment submission Turnitin type

Not Applicable

Generative AI Permission Level

Not Applicable

Generative AI is not considered to be of assistance to you in completing this assessment. If you do use generative AI in completing this assessment, you should attribute its use.

For more information on Generative AI and permitted use please see [here](#).

General Assessment Information

Grading Basis

Standard

Course Schedule

Teaching Week/Module	Activity Type	Content
Week 0 : 2 September - 8 September	Online Activity	Reading of Course Outline Class introduction.
Week 1 : 9 September - 15 September	Lecture	Introduction to food microbiology: scope, history; microbial ecology of foods; food spoilage.
	Laboratory	Laboratory safety and microbiology basics.
Week 2 : 16 September - 22 September	Lecture	Microbiological examination of foods: microbiological criteria; sampling plans; selective and differential media; identification.
	Laboratory	Examination of food by microscopy and standard plate counts.
Week 3 : 23 September - 29 September	Lecture	Microbiological examination of foods: indicator organisms; limitations and need for new methods; modern methods of analysis - impedance, optical growth monitoring; immunoassay; bioluminescence; molecular methods.
	Laboratory	Examination of food by contemporary methods (in collaboration with 3M).
	Assessment	Quiz 1
Week 4 : 30 September - 6 October	Lecture	Foodborne microbial disease: epidemiology, investigation, statistics, commercial and community impact. Foodborne infections; Gram negative pathogens: <i>Salmonella</i> , <i>Campylobacter</i> , <i>E. coli</i> , <i>Vibrio</i> spp.
	Laboratory	Primary beer and kombucha fermentation.
Week 5 : 7 October - 13 October	Lecture	Gram positive pathogens: <i>Listeria</i> , <i>Clostridium perfringens</i> , <i>Bacillus cereus</i> , <i>Clostridium botulinum</i> , <i>Staphylococcus aureus</i> . Foodborne intoxications (<i>Clostridium botulinum</i> , <i>Staphylococcus aureus</i> , <i>Bacillus cereus</i>). Spore forming pathogenic bacteria (<i>Clostridium</i> spp., <i>Bacillus cereus</i>).
Week 6 : 14 October - 20 October	Laboratory	Secondary beer and kombucha fermentation (voluntary).
Week 7 : 21 October - 27 October	Lecture	Other foodborne pathogenic bacteria; foodborne viruses; parasites. Mycotoxicogenic fungi; toxicogenic algae.
	Laboratory	Analysis of foodborne pathogens.
Week 8 : 28 October - 3 November	Lecture	Food and beverage fermentations; ecology and biochemistry. Fermentation of alcoholic beverages.
	Laboratory	Analysis of foodborne pathogens.
	Assessment	Quiz 2
Week 9 : 4 November - 10 November	Lecture	Fermented dairy products - general considerations, cheese, yoghurt. Fermented bakery products: bread. Asian fermented foods: soy sauce, tempeh.
	Laboratory	Analysis of foodborne pathogens.
Week 10 : 11 November - 17 November	Lecture	Fermented foods and beverages of indigenous peoples - Africa, S America. Probiotic microorganisms. Food microbiology; quality assurance and control; risk assessment.
	Assessment	Practical Exam (2 -3 pm, Monday, Week 10).
	Other	Beer and kombucha sensory evaluation (after the Practical Exam).
	Online Activity	Course review.

Attendance Requirements

Laboratory activities

Attendance and participation in laboratory activities are essential and mandatory components of this course. Unless approved by the course coordinator for special considerations, absence from a lab class will result in a 20% (4 marks) deduction from the practical exam.

Laboratory safety equipment

In certain classroom and laboratory situations where physical distancing cannot be maintained or the staff running the session believe that it will not be maintained, face masks will be designated by the course coordinator as **mandatory PPE** for students and staff. Students are required to bring and use their own face mask. Mask can be purchased from IGA Supermarket (Map B8, Lower Campus), campus pharmacy (Map F14, Middle Campus), the post office (Map F22, Upper Campus) and a vending machine in the foyer of the Biological Sciences Building (Map E26, Upper Campus).

Your health and the health of those in your class is critically important. You must stay at home if you have COVID-19 or have been advised to self-isolate by [NSW health](#) or government authorities.

Course Resources

Prescribed Resources

The textbook for this course is:

Food Microbiology, M.R. Adams and M.O. Moss, 4th Edition, The Royal Society of Chemistry, Cambridge, 2015.

Recommended Resources

Research or review articles, selected from a range of journals and books dealing with or covering food microbiology, will be mentioned at specific lectures. Students aiming for higher grades should consult these articles. Key research journals for the field are.

- International Journal of Food Microbiology
- Food Microbiology

Additional Costs

No additional costs for this course.

Course Evaluation and Development

It is very important to gather feedback on courses, so whenever practicable to do so, courses can be modified to improve them. To that end, there will be the normal on-line MyExperience survey for this course. Additional formal or informal feedback activities may also be conducted during the duration of the course.

Staff Details

Position	Name	Email	Location	Phone	Availability	Equitable Learning Services Contact	Primary Contact
Convenor	Jian Zhao		Room 421, Hilmer building (E8)	+61435980888	By email appointment	No	Yes
Lab staff	Richard Li		Food Science Laboratory, E10		By email appointment	No	No

Other Useful Information

Academic Information

I. Special consideration and supplementary assessment

If you have experienced an illness or misadventure beyond your control that will interfere with your assessment performance, you are eligible to apply for Special Consideration prior to, or within 3 working days of, submitting an assessment or sitting an exam.

Please note that UNSW has a Fit to Sit rule, which means that if you sit an exam, you are declaring yourself fit enough to do so and cannot later apply for Special Consideration.

For details of applying for Special Consideration and conditions for the award of supplementary assessment, please see the information on UNSW's [Special Consideration page](#).

II. Administrative matters and links

All students are expected to read and be familiar with UNSW guidelines and polices. In particular, students should be familiar with the following:

- [Attendance](#)
- [UNSW Email Address](#)
- [Special Consideration](#)
- [Exams](#)
- [Approved Calculators](#)
- [Academic Honesty and Plagiarism](#)
- [Equitable Learning Services](#)

III. Equity and diversity

Those students who have a disability that requires some adjustment in their teaching or learning environment are encouraged to discuss their study needs with the course convener prior to, or at

the commencement of, their course, or with the Equity Officer (Disability) in the Equitable Learning Services. Issues to be discussed may include access to materials, signers or note-takers, the provision of services and additional exam and assessment arrangements. Early notification is essential to enable any necessary adjustments to be made.

IV. Professional Outcomes and Program Design

Students are able to review the relevant professional outcomes and program designs for their streams by going to the following link: <https://www.unsw.edu.au/engineering/student-life/student-resources/program-design>.

Note: This course outline sets out the description of classes at the date the Course Outline is published. The nature of classes may change during the Term after the Course Outline is published. Moodle or your primary learning management system (LMS) should be consulted for the up-to-date class descriptions. If there is any inconsistency in the description of activities between the University timetable and the Course Outline/Moodle/LMS, the description in the Course Outline/Moodle/LMS applies.

Academic Honesty and Plagiarism

UNSW has an ongoing commitment to fostering a culture of learning informed by academic integrity. All UNSW students have a responsibility to adhere to this principle of academic integrity. Plagiarism undermines academic integrity and is not tolerated at UNSW. *Plagiarism at UNSW is defined as using the words or ideas of others and passing them off as your own.*

Plagiarism is a type of intellectual theft. It can take many forms, from deliberate cheating to accidentally copying from a source without acknowledgement. UNSW has produced a website with a wealth of resources to support students to understand and avoid plagiarism, visit: <student.unsw.edu.au/plagiarism>. The Learning Centre assists students with understanding academic integrity and how not to plagiarise. They also hold workshops and can help students one-on-one.

You are also reminded that careful time management is an important part of study and one of the identified causes of plagiarism is poor time management. Students should allow sufficient time for research, drafting and the proper referencing of sources in preparing all assessment tasks.

Repeated plagiarism (even in first year), plagiarism after first year, or serious instances, may also

be investigated under the Student Misconduct Procedures. The penalties under the procedures can include a reduction in marks, failing a course or for the most serious matters (like plagiarism in an honours thesis or contract cheating) even suspension from the university. The Student Misconduct Procedures are available here:

www.gs.unsw.edu.au/policy/documents/studentmisconductprocedures.pdf

Submission of Assessment Tasks

Work submitted late without an approved extension by the course coordinator or delegated authority is subject to a late penalty of five percent (5%) of the maximum mark possible for that assessment item, per calendar day.

The late penalty is applied per calendar day (including weekends and public holidays) that the assessment is overdue. There is no pro-rata of the late penalty for submissions made part way through a day. This is for all assessments where a penalty applies.

Work submitted after five days (120 hours) will not be accepted and a mark of zero will be awarded for that assessment item.

For some assessment items, a late penalty may not be appropriate. These will be clearly indicated in the course outline, and such assessments will receive a mark of zero if not completed by the specified date. Examples include:

- Weekly online tests or laboratory work worth a small proportion of the subject mark;
- Exams, peer feedback and team evaluation surveys;
- Online quizzes where answers are released to students on completion;
- Professional assessment tasks, where the intention is to create an authentic assessment that has an absolute submission date; and,
- Pass/Fail assessment tasks.

Faculty-specific Information

[Engineering Student Support Services](#) – The Nucleus - enrolment, progression checks, clash requests, course issues or program-related queries

[Engineering Industrial Training](#) – Industrial training questions

[UNSW Study Abroad](#) – study abroad student enquiries (for inbound students)

UNSW Exchange – student exchange enquiries (for inbound students)

UNSW Future Students – potential student enquiries e.g. admissions, fees, programs, credit transfer

Phone

(+61 2) 9385 8500 – Nucleus Student Hub

(+61 2) 9385 7661 – Engineering Industrial Training

(+61 2) 9385 3179 – UNSW Study Abroad and UNSW Exchange (for inbound students)

School-specific Information

Course Workload

Course workload is calculated using the Units-Of-Credit (UOC). The normal workload expectation for one UOC is approximately 25 hours per term. This includes class contact hours, private study, other learning activities, preparation and time spent on all assessable work.

Most coursework courses at UNSW are 6 UOC and involve an estimated 150 hours to complete, for both regular and intensive terms. Each course includes a prescribed number of hours per week (h/w) of scheduled face-to-face and/or online contact. Any additional time beyond the prescribed contact hours should be spent in making sure that you understand the lecture material, completing the set assignments, further reading, and revising for any examinations. Most 6 UoC courses will involve approximately 10-12 hours per week of work on your part. If you're not sure what to do in these hours of independent study, the resources on the [UNSW Academic Skills](#) pages offer some suggestions including: making summaries of lectures, read/summarise sections from the textbook, attempt workshop problems, reattempting workshop problems with some hints from the solutions, looking for additional problems in the textbook.

Full-time enrolment at university means that it is a *full-time* occupation for you and so you would typically need to devote 35 hours per week to your studies to succeed. Full-time enrolment at university is definitely incompatible with full-time employment. Part-time/casual employment can certainly fit into your study schedule but you will have to carefully balance your study obligations with that work and decide how much time for leisure, family, and sleep you want left after fulfilling your commitments to study and work. Everyone only gets 168 hours per week;

overloading yourself with both study commitments and work commitments leads to poor outcomes and dissatisfaction with both, overtiredness, mental health issues, and general poor quality of life.

On-campus Class Attendance

Most classes at UNSW are "In Person" and run in a face-to-face mode only. Attendance and participation in the classes is expected. As an evidence-driven engineer or scientist, you'll be interested to know that education research has shown students learn more effectively when they come to class, and less effectively from lecture catch-up recordings. If you have to miss a class due to illness, for example, we expect you to catch up in your time, and within the coming couple of days.

For most courses that are running in an "in person" mode:

- Lectures are normally recorded to provide an opportunity to review material after the lecture; lecture recordings are not a substitute for attending and engaging with the live class.
- Workshops/tutorials are not normally recorded as the activities that are run within those sessions normally cannot be captured by a recording. These activities may also include assessable activities in some or all weeks of the term.
- Laboratories are not recorded and require in-person attendance. Missing laboratory sessions may require you to do a make-up session later in the term; if you miss too many laboratory sessions, it may be necessary to seek a Permitted Withdrawal from the course and reattempt it next year, or end up with an Unsatisfactory Fail for the course.
- Assessments will often require in-person attendance in a timetabled class or a scheduled examination.

Submission of Assessment Tasks

In the School of Chemical Engineering, all written work will be submitted for assessment via Moodle unless otherwise specified. Attaching cover sheets to uploaded work is *not* required unless specifically requested for an individual assessment task; when you submit work through Moodle for assessment you are agreeing to uphold the Student Code.

Some assessments will require you to complete the work online and it may be difficult for the course coordinator to intervene in the system after the due date. You should ensure that you are familiar with assessment systems well before the due date. If you do this, you will have time to get assistance before the assessment closes.

All submissions are expected to be neat and clearly set out. Your results are the pinnacle of all

your hard work and should be treated with respect. Presenting results clearly gives the marker the best chance of understanding your method; even if the numerical results are incorrect. Please make it easy for the markers who are looking at your work to see your achievement and give you due credit.

Marking guidelines for assignment submissions will be provided at the same time as assignment details to assist with meeting assessable requirements. Submissions will be marked according to the marking guidelines provided.

Academic Integrity

Academic integrity is fundamental to success at university. Academic integrity can be defined as a commitment to six fundamental values in academic pursuits: honesty, trust, fairness, respect, responsibility and courage (International Center for Academic Integrity, 'The Fundamental Values of Academic Integrity', T. Fishman (ed), Clemson University, 2013). At UNSW, this means that your work must be your own, and others' ideas should be appropriately acknowledged. If you don't follow these rules, plagiarism may be detected in your work.

Further information about academic integrity and plagiarism can be located at:

- The [Current Students site](#)
- The [ELISE training site](#)

The Conduct and Integrity Unit provides further resources to assist you to understand your conduct obligations as a student: <https://student.unsw.edu.au/conduct>.

To help describe what we are looking for, here are some things that we consider to be quite acceptable (even desirable!) actions for many assessments, and some that we consider to be unacceptable in most circumstances. Please check with the instructions for your assessments and your course coordinator if you're unsure. As a rule of thumb, if you don't think you could look the lecturer in the eye and say "this is my own work", then it's not acceptable.

Acceptable actions

- ☒ reading/searching through material we have given you, including lecture slides, course notes, sample problems, workshop problem solutions
- ☒ reading/searching lecture transcripts

- reading/searching resources that we have pointed you to as part of this course, including textbooks, journal articles, websites
- reading/searching through your own notes for this course
- all of the above, for any previous courses
- using spell checkers, grammar checkers etc to improve the quality of your writing
- studying course material with other students

Unacceptable actions

- asking for help completing an assessment from other students, friends, family
- asking for help on Q&A or homework help websites
- searching for answers to the specific assessment questions online or in shared documents
- copying material from any source into your answers
- using generative AI tools to complete or substantially complete an assessment for you
- paying someone else to do the assessment for you

Referencing is a way of acknowledging the sources of information that you use to research your assignments. You need to provide a reference whenever you draw on someone else's words, ideas or research. Not referencing other people's work can constitute plagiarism. Further information about referencing styles can be located at <https://student.unsw.edu.au/referencing>.

For assessments in the School of Chemical Engineering, we recommend the use of referencing software such as [Mendeley](#) or [EndNote](#) for managing references and citations. Unless required otherwise specified (i.e. in the assignment instructions) students in the School of Chemical Engineering should use either the APA 7th edition, or the American Chemical Society (ACS) referencing style as canonical author-date and numbered styles respectively.

Artificial intelligence tools such as ChatGPT, CodePilot, and built-in tools within Word are modern tools that are useful in some circumstances. In your degree at UNSW, we're teaching you skills that are needed for your professional life, which will include how to use AI tools responsibly plus lots of things that AI tools cannot do for you. AI tools already are (or will soon be) part of

professional practice for all of us. However, if we were only teaching you things that AI could do, your degree would be worthless, and you wouldn't have a job in 5 years.

Whether the use of AI tools in an assessment is appropriate will depend on the goals of that assessment. As ever, you should discuss this with your lecturers – there will certainly be assessments where the use of AI tools is encouraged, as well as others where it would interfere with your learning and place you at a disadvantage later. Our goal is to help you learn how to ethically and professionally use the tools available to you. To learn more about the use of AI, [see this discussion we have written](#) where we analyse the strengths and weaknesses of generative AI tools and discuss when it is professionally and ethically appropriate to use them.

While AI may provide useful tools to help with some assessments, UNSW's policy is quite clear that taking the output of generative AI and submitting it as your own work will never be appropriate, just as paying someone else to complete an assessment for you is serious misconduct.

Asking Questions

Asking questions is an important part of learning. Learning to ask good questions and building the confidence to do so in front of others is an important professional skill that you need to develop. The best place to ask questions is during the scheduled classes for this course, with the obvious exception being questions that are private in nature such as special consideration or equitable learning plans. Between classes, you might also think of questions – some of those you might save up for the next class (write them down!), and some of them you might ask in a Q&A channel on Teams or a Q&A forum on Moodle. Please understand that staff won't be able to answer questions on Teams/Moodle immediately but will endeavour to do so during their regular working hours (i.e. probably not at midnight!) and when they are next working on this particular course (i.e. it might be a day or two). Please respect that staff are juggling multiple work responsibilities (teaching more than one course, supervising research students, doing experiments, writing grants, ...) and also need to have balance between work and the rest of their life.

School Contact Information

For assistance with enrolment, class registration, progression checks and other administrative matters, please see [the Nucleus: Student Hub](#). They are located inside the Library – first right as you enter the main library entrance. You can also contact them via <http://unsw.to/webforms> or

reserve a place in the face-to-face queue using the UniVerse app.

For course administration matters, please contact the Course Coordinator.

Questions about this course should normally be asked during the scheduled class so that everyone can benefit from the answer and discussion.