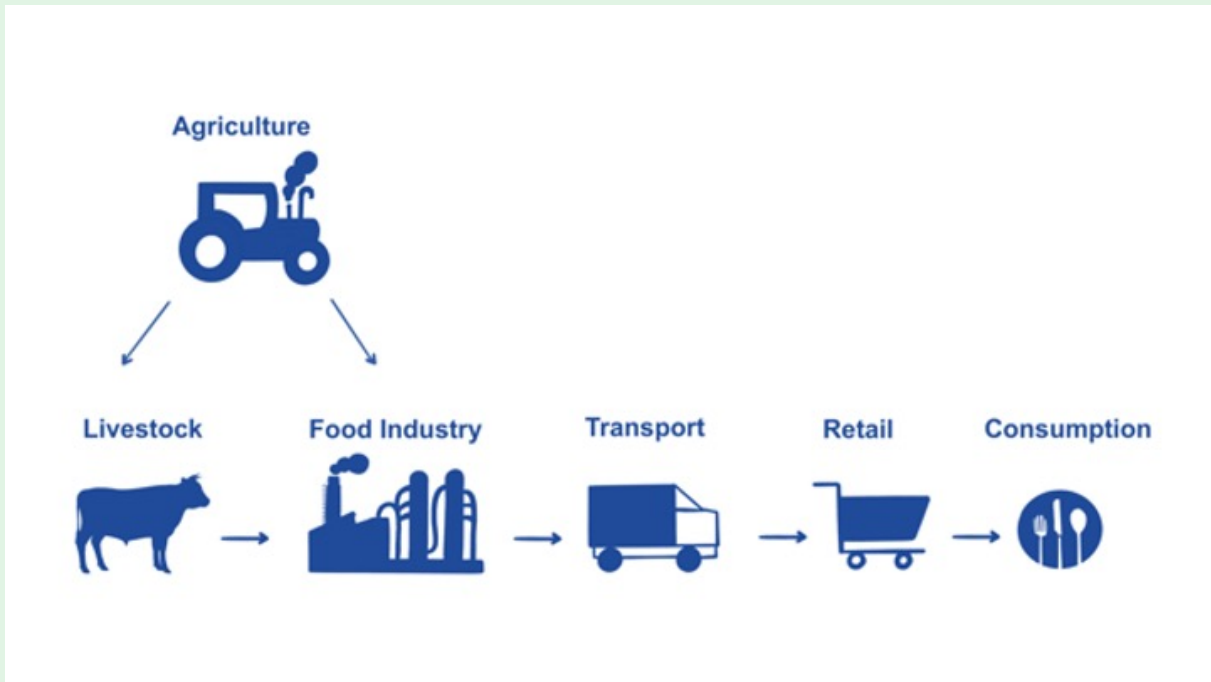


FOOD1120

Food Science, Society and Sustainability

Term 2, 2023



Course Overview

Staff Contact Details

Convenors

Name	Email	Availability	Location	Phone
Johannes le Coutre	johannes.lecoutre@unsw.edu.au	working hours	SEB Room 437	02 9385 7195

Lecturers

Name	Email	Availability	Location	Phone
Jayashree Arcot	j.arcot@unsw.edu.au			
Alison Jones	alison.jones@unsw.edu.au			
Jian Zhao	jian.zhao@unsw.edu.au			
Yong Wang	yong.wang2@unsw.edu.au			

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.

If circumstances outside your control impact on submitting assessments, Special Consideration may be granted, usually in the form of an extension or a supplementary assessment. Applications for Special Consideration must be submitted [online](#).

For course administration matters, please contact the Course Coordinator.

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

Course Details

Units of Credit 6

Summary of the Course

These days everyone has an opinion on food - its health effects, its quality and taste, its environmental impact. In this course you will examine the development, the science, and the place of food in society so you can engage in these contemporary debates about the future of food.

Society's attitudes and understanding of the role that food plays in our health has been rapidly changing in the last decade. Existing food hierarchies have been overturned and diet orthodoxies disrupted. We are learning more and more how changes to diet can promote or discourage chronic disease like diabetes, osteoporosis, and Alzheimer's. At the same time, we are increasingly aware of the way that food production, packaging, and distribution is impacting the environment and contributing to climate change. This leads many to consider the ethics of food creation and consumption.

This course will give you insights into the breadth and depth of food science - a rapidly evolving discipline. The course will introduce you to some of the common scientific principles, practices, and challenges related to our food systems. You will examine the interactions between the food industry and consumer ethics, health, and behaviour. Finally, you will consider the arguments around food packaging and the role of innovation in food product development, food waste and sustainability.

Course Aims

This course aims to introduce students to the origins of our diets, food supply chains, and the connections between food and health. Further, the course will expose students to breadth and depth of food science and explore how a multi-disciplinary systems approach is addressing contemporary challenges to provide food that is cheap and nutritious, safe and sustainable.

Course Learning Outcomes

1. Define introductory concepts in food science, including the components, properties, and functions of foods
2. Explain how food science contributes to individual, societal, planetary, and economic health.
3. Apply systems thinking to current and future challenges in the supplying the world with sufficient, sustainable, and nutritious food.
4. Explain the contributions that people, professions, and food science disciplines can make to addressing current and future food challenges.
5. Critically analyse relevant material from a range of scientific and public information sources.
6. Explain scholarly and reflective perspectives through written and oral communication

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

Teaching Strategies

As an Introductory Knowledge and General Education course, this course combines both didactic, deliberative and discursive learning activities to enable students achieve the course outcomes. The course will follow a semi-asynchronous format with students working through course content

Each topic will be introduced through a combination of weekly mini-lectures and online activities, where students will be encouraged to consider and debate the ethical considerations, social implications and technological challenges in delivering a safe, healthy, sustainable and affordable food supply globally. These self-directed online activities are also designed to inspire students on how they can make informed decisions regarding their food choices as well as considering ways to address global food issues such as climate change, poverty and increased population pressure on limited food resources.


Students will also be prepared to critically evaluate real-world issues via a series of self-directed online activities where they will draw on their prior knowledge and course learning to debate issues in a collaborative setting with their peers. Each student's general knowledge and understanding of the course content will be assessed via online quizzes. Students will demonstrate higher order learning through the portfolio task as collate readings from the scholarly and popular literature, and reflect on their connections course content, personal values and their broader program of study. Finally, the video presentation will develop peer learning communities as they work collaboratively to identify and evaluate solutions to current and future challenges in food production, composition, and consumption.

Additional Course Information

This year, for the first time, we welcome students from the UNSW faculty of Medicine. As a result, FOOD-1120 will be presented to a large group made up to about 60% of students from the Engineering and Science faculties and about 40% of aspiring Dietitians from the faculty of Medicine. Throughout the initial lectures and classes we will obtain a better understanding of the existing background knowledge in these cohorts and we might adapt the content accordingly.

It is expected that all students engage personally with the subject matter, with their peers, and with the teaching academics.

Assessment

Assessment task	Weight	Due Date	Course Learning Outcomes Assessed
1. Quiz 1	30%	21/06/2023 02:30 PM	2, 3, 4, 5, 6
2. Quiz 2	30%	02/08/2023 02:30 PM	1, 2, 3
3. Food Science Video 	30%	11/08/2023 12:00 PM	2, 3, 4, 5, 6
4. Brief Essay on AI & Food Science	10%	11/08/2023 01:00 PM	2, 3, 4, 5, 6

Assessment 1: Quiz 1

Start date: 21/06/2023 02:00 PM

Assessment length: 30 minutes

Due date: 21/06/2023 02:30 PM

Students will collect articles related to the topics covered in the course, and write short reflections demonstrating what they have learnt about the topic and how it integrates with their professional and personal interests.

Assessment 2: Quiz 2

Start date: 02/08/2023 02:00 PM

Assessment length: 30 minutes

Due date: 02/08/2023 02:30 PM

Online quiz consisting of multiple choice and short-answer questions based on the classes. Designed to engage you with the content of the technical lectures, and to provide feedback on your progress in the course.

Assessment 3: Food Science Video (Group)

Assessment length: ongoing from week five

Due date: 11/08/2023 12:00 PM

Student teams will prepare a video on a current or future challenge to our food systems. Groups will have the choice to select their own topic or choose from a list of topics. Teams will investigate the problem and proposed solutions to their chosen challenge. This will require teams to gather and review scholarly information related to the topic, investigate, and evaluate potential solutions. The video should highlight the problem and impacts, the evidence and the solution.

Team evaluation will be employed to account for individual contributions.

Assessment 4: Brief Essay on AI & Food Science

Assessment length: 1 page

Due date: 11/08/2023 01:00 PM

Provide a forward looking essay (one-pager !) on the utility of AI and AI based technologies such as BARD, CHAT-GPT or DALL-E to deliver real innovation in the food sciences.

How can AI help?

What are the limitations?

Examples for innovative concepts?

AI and the SDGs?

Attendance Requirements

Students are strongly encouraged to attend all classes and review lecture recordings.

Course Schedule

[View class timetable](#)

Timetable

Date	Type	Content
Week 1: 29 May - 2 June	Lecture	Mo 29. May <ul style="list-style-type: none">• Food & Nutrition Science – a look back in time (JleC)• UNSW Food Science Association (FSA, 1h) Wed 31. May Food categories and their sources (JleC)
Week 2: 5 June - 9 June	Lecture	Mo 05. Jun Chemistry of food components (JleC) Wed 07. Jun Food properties and functionality (JleC)
Week 3: 12 June - 16 June	Lecture	Mo 12. Jun Food and bugs – an introduction to microorganisms in food (JZ) Wed 14. Jun Microbial food poisoning and spoilage; fermented foods (JZ)
Week 4: 19 June - 23 June	Lecture	Mo 19. Jun <ul style="list-style-type: none">• Food safety – major food hazards for society (JleC)• (build teams for group assignment) Wed 21. Jun <ul style="list-style-type: none">• Quiz 1• Food safety - how to ensure food safety

		(JleC) • Food allergy - Public health and food safety (JleC)
	Assessment	Quiz 1
Week 5: 26 June - 30 June	Lecture	Mo 26. Jun Food engineering basics (YW) Wed 28. Jun • Food preservation - principles and technologies (AJ) • Thermal preservation (heating and cold chain) (AJ)
Week 6: 3 July - 7 July	Homework	Flexibility week: Students to revise lessons learned so far, start working in teams & get started with group assignment.
Week 7: 10 July - 14 July	Lecture	Mo 10. Jul Food processing - drying, chemical methods, novel technologies (AJ) Wed 12. Jul The Food packaging dilemma: Shelf life and sustainability (JleC)
Week 8: 17 July - 21 July	Lecture	Mo 17. Jul Food for nutrition – nutritional requirements and sources of nutrients; how do we digest and absorb nutrients? (JA) Wed 19. Jul Food and health – major disorders of nutrient deficiency/over-consumption (JA)
Week 9: 24 July - 28 July	Lecture	Mo 24. Jul Food Anthropology – Consumers, wanting, liking & perception (JleC) Wed 26. Jul Sensory analysis - how do we taste food? (JleC)
Week 10: 31 July - 4 August	Lecture	Mo 31. Jul

		Guest lecture “Surprise Speaker” Wed 02. Aug <ul style="list-style-type: none"> • Quiz 2 • Foods for the future (JleC)
	Assessment	Quiz 2
Stuvac: 7 August - 11 August	Assessment	Food Science Video
	Assessment	Brief Essay on AI & Food Science

Resources

Recommended Resources

There is no dedicated textbook for this course, though texts dealing with food science, and used in later courses, are available through the UNSW Bookshop and Library. You may consult or obtain these texts as references:

1. Hutton, T. (2004) Food Preservation: an introduction. Key Topics in Food Science and Technology, No. 9. Chipping Camden.
2. Vieira, E.R. (1996) Elementary food science. 4th ed. Chapman & Hall, New York.
3. Mark Wahlqvist (2011) Food and Nutrition. Food and Health Systems in Australia and New Zealand. 3rd Edition. ISBN: 9781741758979. A&U Academic, Australia.
4. Potter, N.N. and Hotchkiss, J.H. (1998) Food science. 5th ed. Chapman & Hall, New York.
5. Fellows, P.J. 1998, Food processing technology. Woodhead Publ. Ltd, London.
6. Excellent review articles summarising recent development and advances in areas of food science and technology are available from a range of journals. Students aiming for higher grades should get familiar with the recent literature. Some of the key journals are:
 - Food Technology
 - Trends in Food Sci. Tech.
 - Frontiers in Nutrition
 - Food Australia
 - NATURE Food.

All these journals can be accessed electronically through the UNSW Library.

<http://www.library.unsw.edu.au/servicesfor/students.html>

Course Evaluation and Development

Feedback on the course is gathered periodically using various means, including the UNSW myExperience process, informal discussion in the final class for the course, and the School's Student/Staff meetings. Your feedback is taken seriously, and continual improvements are made to the course based, in part, on such feedback.

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.

Late penalties

Unless otherwise specified, submissions received after the due date and time will be penalised at a rate of 5% per day or part thereof (including weekends) and will not be accepted more than 5 days late. For some activities including Exams, Quizzes, Peer Feedback, and Team Evaluation surveys, extensions and late submissions are not possible.

Special consideration

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 submitting an assessment or sitting an exam.

UNSW has a [Fit to Sit / Submit rule](#), which means that if you attempt an exam or submit a piece of assessment, 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](#).

Please note that for **all** special consideration requests (including COVID-19-related requests), students will need documentary evidence to support absences from any classes or assessments.

Academic Honesty and Plagiarism

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	Unacceptable actions
<ul style="list-style-type: none"> ✓ 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 	<ul style="list-style-type: none"> ✗ asking for help with 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.

Academic Information

To help you plan your degree, assistance is available from academic advisors in [The Nucleus](#) and also in the [School of Chemical Engineering](#).

Additional support for students

- [Current Student Gateway](#) for information about key dates, access to services, and lots more information
- [Engineering Student Life - Current Student Resources](#) for information about everything from getting to campus to our first year guide
- [Student Support and Success](#) for our UNSW team dedicated to helping with university life, visas, wellbeing, and academic performance
- [Academic Skills](#) to brush up on some study skills, time management skills, get one-on-one support in developing good learning habits, or join workshops on skills development
- [Student Wellbeing, Health and Safety](#) for information on the UNSW health services, mental health support, and lots of other useful wellbeing resources
- [Equitable Learning Services](#) for assistance with long term conditions that impact on your studies
- [IT Service Centre](#) for everything to do with computing, including installing UNSW licensed software, access to computing systems, on-campus WIFI and off-campus VPNs

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

In 2023, most classes at UNSW are running in a face-to-face mode only. Attendance is expected as is

participation in the classes. 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.

This course outline will have further details in the Course Schedule and Assessment sections.

Class numbers are capped in each class to ensure appropriate facilities are available, to maintain student:staff ratios, and to help maintain adequate ventilation in the spaces. Only students enrolled in each specific classes will be allowed in the room. Class rosters will be attached to corresponding rooms and circulated among lab demonstrators and tutors. No over-enrolment is allowed in face-to-face classes.

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.

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.

Note: This course outline sets out 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 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 (as updated in Moodle), the description in the Course Outline/Moodle applies.

Image Credit

Cover image: UNSW cellular Agriculture laboratories

CRICOS

CRICOS Provider Code: 00098G

Acknowledgement of Country

We acknowledge the Bedegal people who are the traditional custodians of the lands on which UNSW Kensington campus is located.