UNSW Course Outline

ENGG4111 Energy Storage - 2024

Published on the 25 Aug 2024

General Course Information

Course Code : ENGG4111
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 : Undergraduate
Units of Credit : 6

Useful Links

Handbook Class Timetable

Course Details & Outcomes

Course Description

Electrochemical energy storage is the most widely applied clean energy technology in this age and will be the central focus in this course. However, the course will also cover other energy storage technologies with equivalent importance in different fields of application, such as chemical storage, thermal storage, mechanical storage and biomass energy. Students will learn

the basic principles of electrochemical technologies in energy storage engineering: rechargeable batteries, flow batteries, supercapacitors, fuel cells, electrolysers, photo-electrochemical reactions, etc. Students will also be introduced to system integration and energy economy in the context of sustainability.

Course Aims

This course aims to introduce students to electrochemical energy storage from the perspectives of fundamental chemistry and applied technology. While the course is mainly concentrated on the science and engineering of electrochemical technologies for the conversion and storage of electrical energy in forms of chemical energy (i.e. electrochemical energy storage), it also covers essentially other energy storage technologies, such as chemical, solar, thermal or mechanical. The course also considers factors affecting technology integration. The use of electrochemical technology is placed in an industry-related background, with general orientation towards how the various electrochemical technologies are complementary to the contemporary energy systems, such as renewable power plant, smart grid systems and management, and their techno-economic impact.

Course Learning Outcomes

Course Learning Outcomes
CLO1 : Outline the principles and engineering design for energy storage and conversion using electrochemical technologies such as batteries and fuel cells and compare these with conventional fossil fuel systems.
CLO2 : Demonstrate and assess the feasibility and competency of batteries and alternative energy storage technologies within the context of real-world problems.
CLO3 : Explain and compare the strengths and weaknesses of batteries and alternative energy sources, such as hydrogen systems and fuel cells and the available technologies for the storage and transport of energy.
CLO4 : Integrate appropriate energy storage technology with a particular energy generation.

Course Learning Outcomes	Assessment Item
CLO1 : Outline the principles and engineering design for energy storage and conversion using electrochemical technologies such as batteries and fuel cells and compare these with conventional fossil fuel systems.	• Quizzes • Technical case study • Literature Review • Major project report
CLO2 : Demonstrate and assess the feasibility and competency of batteries and alternative energy storage technologies within the context of real-world problems.	• Quizzes • Technical case study • Major project report
CLO3 : Explain and compare the strengths and weaknesses of batteries and alternative energy sources, such as hydrogen systems and fuel cells and the available technologies for the storage and transport of energy.	• Literature Review • Quizzes • Technical case study • Major project report
CLO4 : Integrate appropriate energy storage technology with a particular energy generation.	• Technical case study • Major project report

Learning and Teaching Technologies

Moodle - Learning Management System | Microsoft Teams

Other Professional Outcomes

Engineers Australia, Professional Engineer Stage 1 Competencies

This course contributes to your development of the following EA Professional Engineer competencies:

- PE1.1 Comprehensive, theory based understanding of the underpinning natural and physical sciences and the engineering fundamentals applicable to the engineering discipline
- PE1.3 In-depth understanding of specialist bodies of knowledge within the engineering discipline
- PE1.5 Knowledge of engineering design practice and contextual factors impacting the engineering discipline
- PE2.1 Application of established engineering methods to complex engineering problem solving
- PE2.3 Application of systematic engineering synthesis and design processes
- PE2.4 Application of systematic approaches to the conduct and management of engineering projects

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

Assessments

Assessment Structure

Assessment Item	Weight	Relevant Dates
Quizzes Assessment Format: Individual Short Extension: Yes (3 days)	25%	Start Date: Not Applicable Due Date: Week 3, Week 4, Week 5, Week 8, Week 9
Technical case study Assessment Format: Individual Short Extension: Yes (3 days)	25%	Start Date: Not Applicable Due Date: Week 7
Literature Review Assessment Format: Individual Short Extension: Yes (3 days)	20%	Start Date: Not Applicable Due Date: 11/10/2024 05:00 PM
Major project report Assessment Format: Group	30%	Due Date: 15/11/2024 05:00 PM

Assessment Details

Quizzes

Assessment Overview

Students will be able to evaluate their learning efficacy by completing five tests (of equal value) on the core contents related to electrochemical energy principles. Students will receive feedback through tutorial and after-class contact hours.

Course Learning Outcomes

- CLO1 : Outline the principles and engineering design for energy storage and conversion using electrochemical technologies such as batteries and fuel cells and compare these with conventional fossil fuel systems.
- CLO2 : Demonstrate and assess the feasibility and competency of batteries and alternative

energy storage technologies within the context of real-world problems.
- CLO3 : Explain and compare the strengths and weaknesses of batteries and alternative energy sources, such as hydrogen systems and fuel cells and the available technologies for the storage and transport of energy.

Detailed Assessment Description

5 x 5% Quizzes (run on Moodle) which will open on Monday at 9am and close on Friday at 5pm. Each quiz will be given 1 attempt.

Assignment submission Turnitin type

Not Applicable

Generative AI Permission Level

Assistance with Attribution

This assessment requires you to write/create a first iteration of your submission yourself. You are then permitted to use generative AI tools, software or services to improve your submission in the ways set out below.
Any output of generative AI tools, software or services that is used within your assessment must be attributed with full referencing.
If outputs of generative AI tools, software or services form part of your submission and are not appropriately attributed, your Convenor will determine whether the omission is significant. If so, you may be asked to explain your submission. If you are unable to satisfactorily demonstrate your understanding of your submission you may be referred to UNSW Conduct & Integrity Office for investigation for academic misconduct and possible penalties.
For more information on Generative AI and permitted use please see here.

Technical case study

Assessment Overview

Following this assessment students will be able to recognize, describe and investigate one or more energy storage systems to assess their feasibility and integration in the context of techno-economic-political-environmental impact. Students are expected to comprehend the engineering principles of the chosen energy storage system and it's integration with an application and/or generation system, and then prepare the presentation using slides or videos.

Course Learning Outcomes

- CLO1 : Outline the principles and engineering design for energy storage and conversion using electrochemical technologies such as batteries and fuel cells and compare these with conventional fossil fuel systems.

- CLO2 : Demonstrate and assess the feasibility and competency of batteries and alternative energy storage technologies within the context of real-world problems.
- CLO3 : Explain and compare the strengths and weaknesses of batteries and alternative energy sources, such as hydrogen systems and fuel cells and the available technologies for the storage and transport of energy.
- CLO4 : Integrate appropriate energy storage technology with a particular energy generation.

Detailed Assessment Description

You are expected to select an emerging energy storage technology as the focus of your technical case study. On your chosen technology, you will prepare a 3-5 minute presentation (pre-recorded) that includes and overview and technical analysis of the chosen technology. After this, you will be given peer videos to review and provide a minimum of two questions for the presenter to be answered on the panel interview. Finally on your allocated panel interview, you will be asked questions from your peers and a panel of energy storage experts.

Assignment submission Turnitin type

Not Applicable

Generative AI Permission Level

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Literature Review

Assessment Overview

After selecting and investigating a novel energy storage technology, students will write a literature review that assesses the strengths and weakness of their chosen method and identifies current efforts to improve its feasibility.

Course Learning Outcomes

- CLO1 : Outline the principles and engineering design for energy storage and conversion using electrochemical technologies such as batteries and fuel cells and compare these with conventional fossil fuel systems.
- CLO3 : Explain and compare the strengths and weaknesses of batteries and alternative energy sources, such as hydrogen systems and fuel cells and the available technologies for the storage and transport of energy.

Detailed Assessment Description

In this assessment, you will work individually to investigate a novel energy storage technology. The report is designed to critically review a novel energy storage technology, its current standing as well as limitations and efforts to improve its feasibility.

The report should be a maximum of three (3) pages, not including references.

Refer to assessment guide for details.

Assessment Length

3 pages

Assignment submission Turnitin type

This assignment is submitted through Turnitin and students can see Turnitin similarity reports.

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Major project report

Assessment Overview

This project aims to prepare students to design and communicate professional solutions to energy storage applications addressing practical energy storage needs. The students are expected to demonstrate good comprehension of the theoretical and technological aspects of energy storage, employ high-level communication skills to offer technological and non-technological (e.g. environmental, political, economic) recommendations, and develop strong capabilities in critical thinking and collaboration through professional teamwork. Student teams will document the process and outcomes of their research in a technical report. Students will also complete team evaluations exercise to provide feedback to their team mates and moderate grades.

Course Learning Outcomes

- CLO1 : Outline the principles and engineering design for energy storage and conversion using electrochemical technologies such as batteries and fuel cells and compare these with conventional fossil fuel systems.
- CLO2 : Demonstrate and assess the feasibility and competency of batteries and alternative energy storage technologies within the context of real-world problems.
- CLO3 : Explain and compare the strengths and weaknesses of batteries and alternative energy sources, such as hydrogen systems and fuel cells and the available technologies for the storage and transport of energy.
- CLO4 : Integrate appropriate energy storage technology with a particular energy generation.

Detailed Assessment Description

In this group assignment, you will work with your team to propose an energy storage solution for a novel energy storage problem. Please refer to assesment guide for further details.

Assessment Length

10 pages

Assignment submission Turnitin type

This assignment is submitted through Turnitin and students can see Turnitin similarity reports.

Generative AI Permission Level

Assistance with Attribution

This assessment requires you to write/create a first iteration of your submission yourself. You are then permitted to use generative AI tools, software or services to improve your submission in the ways set out below.

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General Assessment Information

Grading Basis

Standard

Course Schedule

Teaching Week/Module	Activity Type	Content
Week 0 : 2 September - 8 September	Other	Watch course introduction video
Week 1 : 9 September - 15 September	Lecture	Monday Lecture, 9 – 11am, New South Global Theatre Dr Aditya General Aspects of Energy Storage
	Lecture	Friday Lecture, 9 – 11am, New South Global Theatre Dr Mohamed Energy Conversion and Storage
Week 2 : 16 September - 22 September	Lecture	Monday Lecture, 9 – 11am, New South Global Theatre Dr Mohamed Electrochemical Fundamentals
	Lecture	Friday Lecture, 9 – 11am, New South Global Theatre Dr Mohamed General Battery Chemistries
Week 3 : 23 September - 29 September	Lecture	Monday Lecture, 9 – 11am, New South Global Theatre Dr Aditya Lithium Batteries and their Futures
	Lecture	Friday Lecture, 9 – 11am, New South Global Theatre Dr Aditya Sodium Batteries and Beyond
	Assessment	Quiz 1 Opens Monday 9am, closes Friday 5pm
Week 4 : 30 September - 6 October	Lecture	Monday Lecture, 9 – 11am, New South Global Theatre Dr Mohamed Flow Batteries for Large System
	Lecture	Friday Lecture, 9 – 11am, New South Global Theatre Dr Aditya Supercapacitors
	Assessment	Quiz 2 Opens Monday 9am, closes Friday 5pm
Week 5 : 7 October - 13 October	Lecture	Friday Lecture, 9 – 11am, New South Global Theatre Dr Yuting Hydrogen Storage System
	Assessment	Quiz 3 Opens Monday 9am, closes Friday 5pm
	Assessment	Literature review due (20%) Friday 5pm
Week 6 : 14 October - 20 October	Other	No lectures - Flexi Week
Week 7 : 21 October - 27 October	Lecture	Monday Lecture, 9 – 11am, New South Global Theatre Dr Yuting Hydrogen Storage System Design Optimisation
	Lecture	Friday Lecture, 9 – 11am, New South Global Theatre Dr Aditya Chemical Energy Storage
	Assessment	Technical case study (25%) Due Friday 5pm
Week 8 : 28 October - 3 November	Lecture	Monday Lecture, 9 – 11am, New South Global Theatre Dr Yuting Thermal and Mechanical Energy Storage
	Lecture	Friday Lecture, 9 – 11am, New South Global Theatre Dr Yuting

		Solar Refinery and Biological Energy Storage
	Assessment	Quiz 4 Opens Monday 9am, closes Friday 5pm
Week 9 : 4 November - 10 November	Lecture	Monday Lecture, 9 – 11am, New South Global Theatre Dr Michelle Vaqueiro Contreras Guest Lecture: Solar energy storage
	Lecture	Friday Lecture, 9 – 11am, New South Global Theatre Dr Emma Lovell Panel Interview A
	Assessment	Quiz 5 Opens Monday 9am, closes Friday 5pm
Week 10 : 11 November - 17 November	Lecture	Monday Lecture, 9 – 11am, New South Global Theatre Dr Emma Lovell Panel Interview B
	Lecture	Friday Lecture, 9 – 11am, New South Global Theatre Dr Emma Lovell Panel Interview C
	Assessment	Major project report due (30%) Friday, 5pm

Attendance Requirements

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

Course Resources

Recommended Resources

1. Energy Storage: Fundamentals, Materials and Applications (2nd Edition), R. A. Huggins, Springer, 2016.

2. Lithium Batteries: Science and Technology, G-A. Nazri, & G. Pistoia, Springer, 2009.

3. Electrochemical Supercapacitors: Scientific Fundamentals and Technological Applications, B. E. Conway, Kluwer Academic, 1999.

4. Chemical Energy Storage, Robert Schlogl (Ed.), Walter de Gruyter GmbH, 2013

Staff Details

Position	Name	Email	Location	Phone	Availability	Equitable Learning Services Contact	Primary Contact
Convenor	Emma Lovell		Tyree Energy Technologies Building, TETB, Room 350	9385 53985	Via Microsoft Teams	Yes	Yes
Lecturer	Aditya Rawal				Via Microsoft Teams	No	No
	Yuting Zhuo				Via Microsoft Teams	No	No
	Mohamed Kilani				Via Microsoft Teams	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 Plagarism

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