



FOSE3901

Advanced STEM III

Session 2, Weekday attendance, North Ryde 2021

Science and Engineering Faculty level units

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Session 2 Learning and Teaching Update

The decision has been made to conduct study online for the remainder of Session 2 for all units WITHOUT mandatory on-campus learning activities. Exams for Session 2 will also be online where possible to do so.

This is due to the extension of the lockdown orders and to provide certainty around arrangements for the remainder of Session 2. We hope to return to campus beyond Session 2 as soon as it is safe and appropriate to do so.

Some classes/teaching activities cannot be moved online and must be taught on campus. You should already know if you are in one of these classes/teaching activities and your unit convenor will provide you with more information via iLearn. If you want to confirm, see the list of [units with mandatory on-campus classes/teaching activities](#).

Visit the [MQ COVID-19 information page](#) for more detail.

General Information

Unit convenor and teaching staff

Unit Convenor

Scott Wilson

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Room 438, 12 Wally's Walk

Ken Cheng

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Credit points

10

Prerequisites

Bachelor of Advanced Science and Permission by Special Approval

Corequisites

Co-badged status

Unit description

In this unit students undertake a large scale project applying Science and Technology to a significant real world problem. Students will work in groups to select a topic area and develop innovative and practical solutions to their chosen problem. Project topics will be chosen from across the spectrum of challenges facing modern society, such as sustainable development, climate change, resource management, data security, health and global decision making and other areas identified in the UN sustainability goals. The project groups will consist of second and third year students, with the students enrolled in this unit providing leadership to their groups.

Important Academic Dates

Information about important academic dates including deadlines for withdrawing from units are available at <https://students.mq.edu.au/important-dates>

Learning Outcomes

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

ULO1: Analyse a complex sustainability problem and propose a solution to an instance of that problem.

ULO2: Apply core knowledge from their discipline to the solution of a real world problem.

ULO3: Plan and implement a project, including the design of necessary processes, information management and records keeping.

ULO4: Communicate project outcomes, in written and verbal forms, to a variety of audiences.

ULO5: Work effectively, constructively and safely, as an individual and as part of a team, applying knowledge of ethical principles and professional conduct.

ULO6: Demonstrate leadership and management skills to achieve team deliverables.

Assessment Tasks

Name	Weighting	Hurdle	Due
Participation in Workshops	0%	Yes	Throughout the session
Project Plan	30%	No	20th August 2021
Project Report	40%	No	29th October 2021
Pitch	20%	No	In the week ending 5th November 2021
Journal	10%	No	5th November 2021

Participation in Workshops

Assessment Type ¹: Participatory task

Indicative Time on Task ²: 0 hours

Due: **Throughout the session**

Weighting: **0%**

This is a hurdle assessment task (see [assessment policy](#) for more information on hurdle assessment tasks)

Assessment of the extent of active and consistent participation in activities and workshops held.

On successful completion you will be able to:

- Plan and implement a project, including the design of necessary processes, information management and records keeping.
- Work effectively, constructively and safely, as an individual and as part of a team, applying knowledge of ethical principles and professional conduct.

Project Plan

Assessment Type ¹: Project

Indicative Time on Task ²: 40 hours

Due: **20th August 2021**

Weighting: **30%**

Detailed description of problem and plan to address it

On successful completion you will be able to:

- Analyse a complex sustainability problem and propose a solution to an instance of that problem.
- Apply core knowledge from their discipline to the solution of a real world problem.
- Plan and implement a project, including the design of necessary processes, information management and records keeping.
- Communicate project outcomes, in written and verbal forms, to a variety of audiences.
- Work effectively, constructively and safely, as an individual and as part of a team, applying knowledge of ethical principles and professional conduct.
- Demonstrate leadership and management skills to achieve team deliverables.

Project Report

Assessment Type ¹: Project

Indicative Time on Task ²: 50 hours

Due: **29th October 2021**

Weighting: **40%**

Final project report detailing proposed solution

On successful completion you will be able to:

- Analyse a complex sustainability problem and propose a solution to an instance of that problem.
- Apply core knowledge from their discipline to the solution of a real world problem.
- Plan and implement a project, including the design of necessary processes, information management and records keeping.
- Communicate project outcomes, in written and verbal forms, to a variety of audiences.

- Work effectively, constructively and safely, as an individual and as part of a team, applying knowledge of ethical principles and professional conduct.
- Demonstrate leadership and management skills to achieve team deliverables.

Pitch

Assessment Type ¹: Presentation

Indicative Time on Task ²: 30 hours

Due: **In the week ending 5th November 2021**

Weighting: **20%**

The pitch will be conceptually aimed at investors and backers to demonstrate the worth and feasibility of the proposed projects

On successful completion you will be able to:

- Analyse a complex sustainability problem and propose a solution to an instance of that problem.
- Communicate project outcomes, in written and verbal forms, to a variety of audiences.
- Work effectively, constructively and safely, as an individual and as part of a team, applying knowledge of ethical principles and professional conduct.

Journal

Assessment Type ¹: Report

Indicative Time on Task ²: 16 hours

Due: **5th November 2021**

Weighting: **10%**

Individual journal showing evidence of work, including demonstration of leadership and group management

On successful completion you will be able to:

- Apply core knowledge from their discipline to the solution of a real world problem.
- Communicate project outcomes, in written and verbal forms, to a variety of audiences.
- Demonstrate leadership and management skills to achieve team deliverables.

¹ If you need help with your assignment, please contact:

- the academic teaching staff in your unit for guidance in understanding or completing this type of assessment
- the [Learning Skills Unit](#) for academic skills support.

² Indicative time-on-task is an estimate of the time required for completion of the assessment task and is subject to individual variation

Delivery and Resources

Teaching and Learning Strategy

Each student group is responsible for the delivery of a Research Report on an environmental or sustainability project for a client. The client may be either inside or outside the University. The projects prepared by each client are an example of work practice - they are real projects that the client wants done to advance their environmental or sustainability practice in one way or another.

Each student group will act like a professional in all of their relations with the client and in all activities undertaken on their behalf. The teaching and learning strategy includes:

- three skills workshops (1. Information session on the unit expectations and key considerations in undertaking a consultancy; 2. Successfully managing a research project; 3. Report writing for clients and ethical behaviour in the work place) ;
- self learning resources on handling group work and consultancies;
- regular group mentoring meetings on managing team processes, project management, and substantive components of the task with the convenor/ mentor;
- group interaction, dialogue and problem solving in a participative way;
- through class interaction, practice of presentations;
- learning to give and receive professional feedback from peers and mentors;
- reflection on your own professional practice; and
- feedback from clients.

As students are involved in a real life situation it is valuable to keep an individual log of hours and task completed. Also there is an expectation of self reflection to assess own performance in client and team interaction and to assist in writing the final professional reflection on experience. Some guidelines are set out below to help student groups in their relations with, and activities for their client organisation.

Relations with the client

Whenever the group meets with the client, each member should be appropriately dressed (smart casual) as becomes professionals. In order to manage the client-consultant relation it is advised to schedule at least four formal contacts between the group and the client representative or representatives (can be online meetings). These should be planned and agreed upon with the client at the first meeting.

1. Client Briefing: An initial meeting to define and scope the project. The unit staff will have already met with all clients to do preliminary work towards this and will accompany each group at the first meeting to give advice as necessary.
2. A progress meeting (or report without meeting) in about the sixth week of semester. At this point the group should indicate clearly to the client whether all planned outputs will be achieved and any necessary modifications to the contract put forward for agreement by both parties.
3. A findings meeting (draft report) to the client before the presentation and formal submission of the final report to foreshadow the key findings.
4. A final reporting meeting at the end of semester for the group to present their final report to the client. Some clients will only be prepared to commit to these four meetings, but others will welcome additional contact.

One of the first tasks for each group after the first meeting with the client will be to determine exactly what information they will require from the client. A consolidated list should be prepared and communicated to the client representative by the nominated group leader. This sort of contact with the client should be limited to ONE group member whose responsibility it is to keep the rest of the group informed.

The group should not treat the client organisation, or their representative(s), like another tutor or member of the university teaching staff. The client has 'contracted' the group to do the work and research necessary to complete the project. Your feedback sessions with the client are to see that you are on track to deliver what the client wants.

In between the agreed formal meetings the group representative should provide a monthly or fortnightly email update on progress - this too should be agreed at the first meeting. In the course of their work the group may be made privy to commercially, or otherwise sensitive material, and there may be a requirement to sign a confidentiality clause. In any case all members of every group are to respect the confidentiality of information or knowledge they acquire from the client in the course of completing their contract with them.

SOME PROJECTS MAY REQUIRE ETHICS APPROVAL. The time involved in achieving these approvals may restrict what activities can be undertaken.

Activities on behalf of the client

Group members must remember that when doing anything on behalf of the client, the reputation of the client will be affected by their behaviour and actions. So any survey or similar actions must also be cleared by the client.

Technology

There is an iLearn site associated with this unit. This will be the main form of communication for detailed information and updates. Students must be able to access the internet to research background for these projects.

Unit Schedule

Week	Class (Friday 1-3pm)	Task
1	Workshop 1 - Introduction and overview of the unit	Review and select project
2	Workshop 2 - Successful project management *Group meetings with project supervisor/client - opportunity to clarify client requirements.	
3	*Group meetings with project supervisor/client Work in groups (develop project proposal)	
4	Group presentations on project proposals (5-10 mins per group) (feedback on the proposals; not marked)	End Wk 4: Project proposals due (30%) Complete initial SparkPlus peer reviews
5	Work in groups (address proposal feedback from supervisor/client)	
6	Work in groups (group mentoring)	
7	Group presentations on progress (5-10 mins per group) (for feedback; not marked)	Initial Logbook submission
BREAK		
8	Workshop 3 – Writing technical reports and ethics in the workplace	
9	Work in groups (group mentoring)	
10	Group presentations on progress (5-10 mins per group) (for feedback; not marked)	Submit draft reports for feedback
11	Work in groups (address report feedback)	
12	Work in groups (finalise report)	End Wk 12: Final reports due (40%)
13/ exam period	*Group presentations to Supervisor/client (20 mins per group)	Give final presentation including SparkPlus peer review (20%); Logbooks and final reflection due (10%).

*dates and times to be determined depending on client availability

Policies and Procedures

Macquarie University policies and procedures are accessible from [Policy Central \(https://policies.mq.edu.au\)](https://policies.mq.edu.au). Students should be aware of the following policies in particular with regard to

Learning and Teaching:

- [Academic Appeals Policy](#)
- [Academic Integrity Policy](#)
- [Academic Progression Policy](#)
- [Assessment Policy](#)
- [Fitness to Practice Procedure](#)
- [Grade Appeal Policy](#)
- [Complaint Management Procedure for Students and Members of the Public](#)
- [Special Consideration Policy](#)

Students seeking more policy resources can visit [Student Policies](https://students.mq.edu.au/support/study/policies) (<https://students.mq.edu.au/support/study/policies>). It is your one-stop-shop for the key policies you need to know about throughout your undergraduate student journey.

To find other policies relating to Teaching and Learning, visit [Policy Central](https://policies.mq.edu.au) (<https://policies.mq.edu.au>) and use the [search tool](#).

Student Code of Conduct

Macquarie University students have a responsibility to be familiar with the Student Code of Conduct: <https://students.mq.edu.au/admin/other-resources/student-conduct>

Results

Results published on platform other than [eStudent](#), (eg. iLearn, Coursera etc.) or released directly by your Unit Convenor, are not confirmed as they are subject to final approval by the University. Once approved, final results will be sent to your student email address and will be made available in [eStudent](#). For more information visit ask.mq.edu.au or if you are a Global MBA student contact globalmba.support@mq.edu.au

Student Support

Macquarie University provides a range of support services for students. For details, visit <http://students.mq.edu.au/support/>

Learning Skills

Learning Skills (mq.edu.au/learningskills) provides academic writing resources and study strategies to help you improve your marks and take control of your study.

- [Getting help with your assignment](#)
- [Workshops](#)
- [StudyWise](#)
- [Academic Integrity Module](#)

The Library provides online and face to face support to help you find and use relevant information resources.

- [Subject and Research Guides](#)
- [Ask a Librarian](#)

Student Enquiry Service

For all student enquiries, visit Student Connect at ask.mq.edu.au

If you are a Global MBA student contact globalmba.support@mq.edu.au

Equity Support

Students with a disability are encouraged to contact the [Disability Service](#) who can provide appropriate help with any issues that arise during their studies.

IT Help

For help with University computer systems and technology, visit http://www.mq.edu.au/about_us/offices_and_units/information_technology/help/.

When using the University's IT, you must adhere to the [Acceptable Use of IT Resources Policy](#). The policy applies to all who connect to the MQ network including students.