FOSE2901
Advanced STEM II
Session 2, Weekday attendance, North Ryde 2021
Science and Engineering Faculty level units

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Notice

Some on-campus classes have moved online for the first two weeks of Session, before returning to campus in Week 3. If you are studying a unit outside of the primary Session 2 timetable, please contact your teaching staff team for further details.

Some classes/teaching activities cannot be moved online and must be taught on campus. To find out if you are enrolled in one of these classes/teaching activities, you can check to see if your unit is on the list of units with mandatory on-campus classes/teaching activities.

Your Unit Convenor will provide more information via an iLearn announcement when your iLearn unit becomes available.

https://unitguides.mq.edu.au/unit_offerings/138218/unit_guide/print
General Information

Unit convenor and teaching staff
Unit Convenor
Scott Wilson
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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 work as part of a team addressing 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 a specific aspect of 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 working under the leadership of more senior students.

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 specific aspect of a complex sustainability problem and propose a solution to an instance of that aspect of the problem.

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

**ULO3:** Implement a project plan, 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 effective self-management

## Assessment Tasks

<table>
<thead>
<tr>
<th>Name</th>
<th>Weighting</th>
<th>Hurdle</th>
<th>Due</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participation in Workshops</td>
<td>0%</td>
<td>Yes</td>
<td>Throughout the session</td>
</tr>
<tr>
<td>Support for project plan</td>
<td>30%</td>
<td>No</td>
<td>20th August 2021</td>
</tr>
<tr>
<td>Project report</td>
<td>40%</td>
<td>No</td>
<td>29th October 2021</td>
</tr>
<tr>
<td>Pitch</td>
<td>20%</td>
<td>No</td>
<td>In the week ending 5th November 2021</td>
</tr>
<tr>
<td>Journal</td>
<td>10%</td>
<td>No</td>
<td>5th November 2021</td>
</tr>
</tbody>
</table>

### 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:
- Implement a project plan, 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.
Support for project plan

Assessment Type 1: Literature review
Indicative Time on Task 2: 40 hours
Due: 20th August 2021
Weighting: 30%

A research proposal plan will be developed based on a review of relevant literature.

On successful completion you will be able to:

• Analyse a specific aspect of a complex sustainability problem and propose a solution to an instance of that aspect of the problem.
• Apply core knowledge from their discipline to the solution of an aspect of a real world problem.
• Communicate project outcomes, in written and verbal forms, to a variety of audiences.

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 specific aspect of a complex sustainability problem and propose a solution to an instance of that aspect of the problem.
• Apply core knowledge from their discipline to the solution of an aspect of a real world problem.
• Implement a project plan, 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 effective self-management
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 present findings and recommendations of the project to client/s.

On successful completion you will be able to:
• Analyse a specific aspect of a complex sustainability problem and propose a solution to an instance of that aspect of the 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 self-management

On successful completion you will be able to:
• Apply core knowledge from their discipline to the solution of an aspect of a real world problem.
• Communicate project outcomes, in written and verbal forms, to a variety of audiences.
• Demonstrate effective self-management

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.
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 professional work; 2. Successfully managing a research project; 3. Report writing for clients and ethical behaviour in the workplace);
- 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;
- 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. 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 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 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**

<table>
<thead>
<tr>
<th>Week</th>
<th>Class (Friday 1-3pm)</th>
<th>Task</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Workshop 1 - Introduction and overview of the unit</td>
<td>Review and select project</td>
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<tr>
<td></td>
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<td>---</td>
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</tbody>
</table>
| 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://staff.mq.edu.au/work.strategy-planning-and-governance/university-policies-and-procedures/policy-central). 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 (Note: The Special Consideration Policy is effective from 4 December 2017 and replaces the Disruption to Studies Policy.)

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

If you would like to see all the policies relevant to Learning and Teaching visit Policy Central (https://staff.mq.edu.au/work/strategy-planning-and-governance/university-policies-and-procedures/policy-central).

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.
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.