FOSE3901
Advanced STEM III
Session 2, In person-scheduled-weekday, North Ryde 2023
Science and Engineering Faculty level units

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General Information

Unit convenor and teaching staff
Larissa Trompf
larissa.trompf@mq.edu.au

Credit points
10

Prerequisites
Admission to BAdvSci 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://www.mq.edu.au/study/calendar-of-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.

General Assessment Information

Late Assessment Submission Penalty

From 1 July 2022, students enrolled in Session based units with written assessments will have the following university standard late penalty applied. Please see https://students.mq.edu.au/study/assessment-exams/assessments for more information.

Unless a Special Consideration request has been submitted and approved, a 5% penalty (of the total possible mark) will be applied each day a written assessment is not submitted, up until the 7th day (including weekends). After the 7th day, a grade of '0' will be awarded even if the assessment is submitted. Submission time for all written assessments is set at 11:55 pm. A 1-hour grace period is provided to students who experience a technical concern.

For any late submission of time-sensitive tasks, such as scheduled tests/exams, performance assessments/presentations, and/or scheduled practical assessments/labs, students need to submit an application for Special Consideration.

Assessments where Late Submissions will be accepted

In this unit, late submissions will accepted for all assessments.

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 semester</td>
</tr>
<tr>
<td>Project Plan</td>
<td>30%</td>
<td>No</td>
<td>Sunday, August 20, 11:55pm</td>
</tr>
<tr>
<td>Project Report</td>
<td>40%</td>
<td>No</td>
<td>Sunday, October 29, 11:55pm</td>
</tr>
<tr>
<td>Pitch</td>
<td>20%</td>
<td>No</td>
<td>Week 13, date/time TBA</td>
</tr>
<tr>
<td>Journal</td>
<td>10%</td>
<td>No</td>
<td>Sunday, November 5, 11:55pm</td>
</tr>
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Participation in Workshops

Assessment Type: Participatory task
Indicative Time on Task: 0 hours
Due: Throughout the semester
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: Project

Indicative Time on Task: 40 hours

Due: **Sunday, August 20, 11:55pm**

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: Project

Indicative Time on Task: 50 hours

Due: **Sunday, October 29, 11:55pm**

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: **Week 13, date/time TBA**  
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: **Sunday, November 5, 11:55pm**  
Weighting: **10%**

Individual journal showing evidence of work, including demonstration of leadership and group
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 Writing Centre 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 - using small group teaching and discussion we will canvass communication and presentation skills; ethics in the workplace; and group project management. Students should attend each workshop prepared to contribute to discussion.
- 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. **Students MUST check their student email regularly (preferably daily).**

**Policies and Procedures**

Macquarie University policies and procedures are accessible from Policy Central (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
- Assessment Procedure
- Complaints Resolution 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). 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) 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

**Academic Integrity**

At Macquarie, we believe academic integrity – honesty, respect, trust, responsibility, fairness and courage – is at the core of learning, teaching and research. We recognise that meeting the
expectations required to complete your assessments can be challenging. So, we offer you a range of resources and services to help you reach your potential, including free online writing and maths support, academic skills development and wellbeing consultations.

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

The Writing Centre
The Writing Centre provides resources to develop your English language proficiency, academic writing, and communication skills.

- Workshops
- Chat with a WriteWISE peer writing leader
- Access StudyWISE
- Upload an assignment to Studiosity
- Complete the 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 Services and Support
Macquarie University offers a range of Student Support Services including:

- IT Support
- Accessibility and disability support with study
- Mental health support
- Safety support to respond to bullying, harassment, sexual harassment and sexual assault
- Social support including information about finances, tenancy and legal issues
- Student Advocacy provides independent advice on MQ policies, procedures, and processes

Student Enquiries
Got a question? Ask us via AskMQ, or contact Service Connect.

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.

### Changes since First Published

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<th>Date</th>
<th>Description</th>
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<tbody>
<tr>
<td>28/09/2023</td>
<td>&quot;tutorials&quot; replaced with &quot;workshops&quot;</td>
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