



# FOSE2005

## Global Challenges and STEM

Session 1, Weekday attendance, North Ryde 2020

*Science and Engineering Faculty level units*

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## General Information

Unit convenor and teaching staff

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Credit points

10

Prerequisites

30cp at 1000 level

Corequisites

20cp at 2000 level

Co-badged status

Unit description

This is a core unit for the bachelor of Science- Global Challenges program and is a prerequisite for the FOSC303- Global Challenges Project. This unit is designed to introduce students to the causes and nature of global challenges and how Science can be used to solve them. The unit will develop critical skills in effective leadership, effective and persuasive communication, and teamwork. In addition, students will also learn to develop skills in reflection and entrepreneurial thought to develop resilience in the face of uncertainty. All this will be carried out with the backdrop of sustainability and ethical practice.

## 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:** Identify and critically evaluate major global challenges using scientific evidence

**ULO2:** Demonstrate teamwork capacity and knowledge of leadership

**ULO3:** Articulate the importance of disruptive, innovative and entrepreneurial thinking to achieve impact through science

**ULO4:** Demonstrate authenticity, personal values and ethical frameworks that have been

identified through leadership development and reflection in form of digital content

**ULO5:** Effectively communicate strategic visions and goals to solve global challenges to a variety of audiences

## Assessment Tasks

### Coronavirus (COVID-19) Update

Assessment details are no longer provided here as a result of changes due to the Coronavirus (COVID-19) pandemic.

Students should consult [iLearn](#) for revised unit information.

[Find out more about the Coronavirus \(COVID-19\) and potential impacts on staff and students](#)

## Delivery and Resources

### Coronavirus (COVID-19) Update

Any references to on-campus delivery below may no longer be relevant due to COVID-19.

Please check here for updated delivery information: [https://ask.mq.edu.au/account/pub/display/unit\\_status](https://ask.mq.edu.au/account/pub/display/unit_status)

### Objective of the unit

This is a core unit for the Bachelor of Science program and is a prerequisite for the FOSC303-Global Challenges Project. This unit is designed to introduce students to the causes and nature of global challenges and how Science can be used to solve them. The unit will develop critical skills in effective leadership, effective and persuasive communication, and teamwork. In addition, students will also learn to develop skills in reflection and entrepreneurial thought to develop resilience in the face of uncertainty. All this will be carried out with the backdrop of sustainability and ethical practice.

This unit requires students to demonstrate a sophisticated understanding of how STEM can address the challenges facing the global community. They need to be able to analyse complex real-world problems and determine the best methods to use to solve them. This builds upon their foundational learning at the 100-level and contributes to the scaffolding required for their extensive 300-level project unit.

**Textbook :** Readings and reading materials to be provided on iLearn

4 Broad themes with a dedicated focus on STEM will be presented

1. Global challenges and STEM
2. Strategic thinking, leadership and project management

3. Ethics and ethical considerations in addressing global challenges
4. Strategic communication

## Classes

**Timetable:** Lectures for this unit will be on at different times and locations as guest lecturers will be addressing the class. Announcements will be made on iLearn and by eMail within the first week of semester.

### Technology Used and Required

You are expected to access the unit iLearn web site on a frequent basis and to download all necessary PDF files. To access the unit web site, if you have off-campus Internet access, simply start your web browser and proceed as above for logging in. On-campus wireless access is also available. If you do not have your own computer you may wish to access the FOSE201 web resources on campus using the computers in the Library.

To view the lecture notes and other PDF files on the website, you will require Adobe Acrobat Reader Version 9 or later to be installed on your computer. Acrobat Reader can be downloaded from the Adobe website <http://get.adobe.com/uk/reader/>. If you are using computers in the library, then Acrobat has already been installed.

We will also be using ECHO Interactive (from iLEARN) and therefore you will be **required** to bring your laptop, tablet, smartphone to the lectures.

Please note information may also be sent by email to your student email account so please look at your student email account on a frequent basis.

### Unit Web Page

The web page for this unit is at Macquarie's new learning management system website: <http://ilearn.mq.edu.au>

Login and follow prompts to FOSE201.

You are expected to access the unit web site frequently (i.e., almost daily). This site contains important information including lecture notes (that you will be expected to access in class), mid-semester exams and/or assignment.

**Logging In:** Type in the URL <http://ilearn.mq.edu.au> and find **FOSE2005**. Your username is your Macquarie Student ID Number (MQID), which is an 8 digit number found on your student card. The password is your myMQ Student Portal password. This will be the original MQID password (2 random characters followed by your date of birth in ddmmyy format) that was sent to you on enrolment, unless you have already changed your password in the myMQ Student Portal. If you experience difficulties in getting your reprint or your password, please contact the StudentIT Desk (ph: 9850 6500).

## Teaching and Learning Strategy

**FOSE2005** is a 10-credit point half-year unit and will require an average of 9 hours of work per week (contact hours plus self-study time).

FOSE2005 consists of:

- **2 hours of lectures** and
- **2 hour tutorial/workshop class** every week.

The lecture material and tutorial complement each other and have been developed to increase your understanding of the topics so you can achieve the learning outcomes.

The purpose of tutorials will be to develop higher-level critical thinking skills.

The unit coordinator's expectation is that you will:

- Attend **all interactive** lectures. If you cannot attend a lecture, you are expected to listen to the iLecture as soon as possible after it is made available.
- Attend **all interactive tutorials** and demonstrate reasonable competence in all exercises and participate in each class/tutorial.
- Perform satisfactorily in all assessments.
- Spend an average of no less than 2 hours per week of private study in addition to direct contact.

If you prepare and attend all components of the unit and work consistently/continuously throughout the semester, you should be able to develop a strong understanding of global challenges to help you achieve greater goals post-study including creating waves of positive impact.

You are expected to use the lecture materials in the lectures (or bring them) so you can spend most of the time listening rather than transcribing. The lectures are interactive and you will be expected to have input in polls and discussions. Do not assume notes or iLectures are in any way a suitable substitute for attending lectures – lecturers from all departments put an effort into making the lectures up to date and relevant.

Learning is an active process, and as such you must engage with the material. This means downloading and reading lecture notes and case studies completing reflection exercises and participating in poll questions online.

- The mid-semester exam will be run in a tutorial class.

## Unit Schedule

### Coronavirus (COVID-19) Update

The unit schedule/topics and any references to on-campus delivery below may no longer be relevant due to COVID-19. Please consult [iLearn](#) for latest details, and check here for updated delivery information: [https://ask.mq.edu.au/account/pub/display/unit\\_status](https://ask.mq.edu.au/account/pub/display/unit_status)

Week	Lec	Topic	Tutorial topics (Fridays - 9-11am)	Assignments due
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1	1	Introduction to global challenges	Brainstorming techniques- Global challenges/ <b>Elevator pitch Part 1</b>	
	2	Global Challenges - A multifaceted perspective		
2	3	STEM and Global Challenges - 1	Research skills- Ethics/philosophy workshop	Week 1 Reflections
	4	Innovation, collaboration and leadership - Global Challenge perspective		
3	5	Essential Skills in STEM Leadership 1	Leadership workshop/presentations	<b>ESSAY 1 DUE</b> Week 2 Reflections
	6	Essential Skills in STEM Leadership 2		
4	7	Courageous Leadership	HBDI- Brain dominance tools <b>Freshwater training room (3-6PM)</b>	Week 3 Reflections
	8	Ethics and Ego in leadership		
5	9	Passion and Vision Maintenance/delivery	Strategic Thinking canvases	Week 4 Reflections
	10	Vision Creation –Seeds of Innovation		
6	11	Art of Negotiation 1	Communication and networking tutorial/ <b>Elevator Pitch part 2</b>	Week 5 Reflections
	12	Art of Negotiation 2		
7	13	Conflict Resolution 1	<b>Mid Semester Examination</b>	Week 6 Reflections
	14	Conflict Resolution 2		
<b>MID SEMESTER BREAK</b>				
8	15	Entrepreneurship in Science	Impact through entrepreneurship workshop- case studies and analysis.	Week 7 Reflections
	16	Solving global challenges through entrepreneurship		
9	17	Relationship building/ networking/collaboration	Business canvas	Week 8 Reflections
	18	Emotional intelligence		
10	19	Influencing Behavior in Science	<b>Group assignment presentations</b> REFLECTION Workshop	Week 9 Reflections
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11	21	Impact in Science	Media training (social networking )	Week 10 Reflections
	22	Science communication and global challenges.		
12	23	Building a team	Tools and techniques workshop (leadership/ entrepreneurship/ management)	Week 11 Reflections
	24	Training/Coaching a team		
13	25	Time management/Work life balance	Project management workshop/ <b>Elevator Pitch Part 3</b>  De brief	<b>Final Essay DUE</b>  Week 12 Reflections

## Policies and Procedures

Macquarie University policies and procedures are accessible from [Policy Central \(https://staff.mq.edu.au/work/strategy-planning-and-governance/university-policies-and-procedures/policy-central\)](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 \(https://students.mq.edu.au/support/study/student-policy-gateway\)](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 \(https://staff.mq.edu.au/work/strategy-planning-and-governance/university-policies-and-procedures/policy-central\)](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/study/getting-started/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](http://ask.mq.edu.au) or if you are a Global MBA student contact [globalmba.support@mq.edu.au](mailto: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](http://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 Services and 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.

## Student Enquiries

For all student enquiries, visit Student Connect at [ask.mq.edu.au](http://ask.mq.edu.au)

If you are a Global MBA student contact [globalmba.support@mq.edu.au](mailto:globalmba.support@mq.edu.au)

## IT Help

For help with University computer systems and technology, visit [http://www.mq.edu.au/about\\_us/offices\\_and\\_units/information\\_technology/help/](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.