



# GEOS2042

## Life, the Universe and Everything

Session 1, Weekday attendance, North Ryde 2020

*Department of Earth and Environmental Sciences*

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#### Disclaimer

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## General Information

Unit convenor and teaching staff

Professor, convenor

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Room 329, 12 Wally's Walk

Book time by email

Associate Professor, lecturer on unit

Craig O'Neill

[craig.oneill@mq.edu.au](mailto:craig.oneill@mq.edu.au)

Contact via 02 9850 9673

Room 125, 12 Wally's Walk

Book time by email

Credit points

10

Prerequisites

40cp at 1000 level or above

Corequisites

Co-badged status

Unit description

This is a broad-based interdisciplinary science unit which aims to present a non-technical overview of recent ideas in astrobiology, which is about the origin of life on Earth and the possibility of finding life elsewhere in the universe. The presentation is suitable for students without any science background. The unit presents an integrated view of science across a broad range of disciplines (geoscience, biology, astronomy, cosmology and organic chemistry); looks at some of the 'big questions' (such as the origin of the Universe; what is life?; are we alone?; early Earth; and the search for life on Mars and outer solar system moons); and presents science as it is actually done, not just as a set of facts.

## 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:** Apply broad and coherent knowledge about the origin of life on Earth and the possibility of finding life elsewhere in the Universe

**ULO2:** Demonstrate knowledge of scientific methodology

**ULO3:** Display competence in accessing, using and synthesising appropriate information related to astrobiology

**ULO4:** Demonstrate an understanding that scientific knowledge is always advancing and changing

**ULO5:** Apply knowledge to solving problems and evaluating ideas and information

**ULO6:** Accurately communicate ideas clearly with supporting evidence

## 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](#)

## General Assessment Information

### On-line quizzes on lectures and practicals/tutorials

In each week a quiz will open to make sure you have read and understood the lecture material, and have successfully completed any assessed practical/tutorial from that week. The 13 quizzes will be available on-line through the iLearn system (See “Quizzes” section of iLearn) and together are worth 30% of the unit mark. The % unit mark per quiz varies depending on how material is covered (see p. 8, unit handout). You will do these in your own time, open book, and they will be open after the lecture on Wednesday. They should only be done after completing that week’s practical/tutorial, if it is assessed (see p. 8, unit handout). **The quizzes will close at 23:59 on the following Monday.** There will be a time limit of between 30 mins and 90 mins on the quizzes (depending on how much material is covered, see p. 8, unit handout) and this time will also be advertised on the start of the quiz itself. **The question order is forced and random, so you only get one go at each question. Don’t bother flagging questions that you are uncertain about, as you WILL NOT be able to go back!**

### Assignments

There are two assignments (see unit schedule for titles and timing). The assignments will be

released to you electronically (not in hard copy) on iLearn on the date shown in the scheule, and later that week will be discussed before or after one of the lectures or practicals. The assignments are heavily text and research based, so skill at writing are important. Each assignment topic must be fully researched and the assignment written in your own words. Cutting and pasting information from web pages is NOT acceptable. Information you obtain from other sources (brief quotes, images, ideas) must be fully referenced in the text (author, year), with references listed at the end of the essay (year, author, title, journal or link). See later in the handout for sections on **academic honesty** and **referencing**. Students who fail in these fundamental principles and basic skills may score zero for assignments.

Both assignments are to be submitted using **Turnitin**. Macquarie University promotes student awareness of information management and information ethics. As well as training and the provision of general information, the University tackles the issue of plagiarism through use of an online plagiarism detection tool (Turnitin). This software is used in conjunction with a set of procedures to ensure its use is equitable. You will need to submit the text of both assignments for GEOS2042 to Turnitin via the iLearn page.

The two major assignments will be due by **17:00**, by which time the assignment must be uploaded to **Turnitin**.

Turnitin automatically compares your work to the work of your classmates, previous students from Macquarie University and other universities, and with material available on the Internet, both freely available and in subscription-based electronic journals and books. The results will be sent only to your unit convenor and tutors, who will analyse these in reference to the University's standard Policy on Plagiarism.

## Exam

The unit examination will be based on lectures, unit reading material, lab exercises, information you should have absorbed through completing assignments and any other material presented during classes. A printed English dictionary (not electronic) may be brought in for the exam if English is not your first language. The educational rationale for the exam is to check the acquired knowledge by the students at the end of the unit.

The University Examination period in the First Half Year 2020 is from Tuesday 9 June 2020 to Friday 26 June 2020. You are expected to present yourself for examination at the time and place designated in the University Examination Timetable. The timetable will be available in draft form approximately eight weeks before the commencement of the examinations and in Final form approximately four weeks before the commencement of the examinations.

<http://www.timetables.mq.edu.au/>

See unit handout for more details

## 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)

## Set textbook and background reading

**Bennett, J, and Shostak, S (2016). Life in the Universe (4th Edition). Pearson Higher Ed, USA. ISBN-9780134080321.**

- This book can purchased from the Pearson website for \$60 from this link as an online eBook: <https://www.pearson.com.au/9780134080345>
- It is also available for purchase at as a hard copy, but is rather expensive: <https://www.pearson.com.au/9780134089089>

See unit handout for more details

## 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)

## GEOS2042: Life, the Universe and Everything (2020): Schedule

Week	Lecture (Wednesdays)	Who	Lectures  14 Sir Christopher Ondaatje Ave - T4 Theatre	Practicals/tutorials and quizzes  11 Wally's Walk, 220; Wednesdays and Thursdays
1	26 February  14:00-15:00  15:00-16:00	  SCG  SCG	Lec. 1 A Short History of the Universe*  Lec. 2: Early Life on Earth*	26-27 Feb (SCG)  <b>Introduction to the Unit:</b> web page, plagiarism, referencing.  <i>Quiz 1: 1.0%, 30 mins</i>
	4/3/20, 9:00		* Ass. 1 issued: Paper Review – due week 5	
2	4 March  14:00-15:00  15:00-16:00	  CJO  CJO	Lec. 3: How to Form a Habitable Solar System* Lec. 4: The Dawn of Earth*	4-5 March (SCG)  <b>Group Discussion:</b> Define "life"  <i>Quiz 2: 1.0%, 30 mins</i>

3	11 March 14:00-15:00 15:00-16:00	SCG SCG	Lec. 5: The Origin of Life* Lec. 6: What is Life?*	11–12 March (OA) <b>Solar System Computer Exercise*</b> <i>Quiz 3: 3.0%, 60 mins</i>
4	18 March 14:00-15:00 15:00-16:00	SCG SCG	Lec. 7: Rock identification (on Earth and Mars)* Lec. 8: Techniques Used in The Search for Life*	18–19 March (OA) <b>Voyage to the Planets DVD and Signs of Life podcast:</b> The Search For Life on Mars <i>Quiz 4: 1.0%, 30 mins</i>
	24/3/20, 17:00		* Ass. 1 due: Paper Review	
5	25 March 14:00-15:00 15:00-16:00	SCG SCG	Lec. 9: The Search for Life on Mars: Part 1, to Phoenix* Lec. 10: The Search for Life on Mars: Part 2, Curiosity and beyond*	1–2 April (OA) <b>Rock Practical- week 1 (* after week 2)</b> <i>Quiz 5: 1.0%, 30 mins</i>
6	1 April 14:00-15:00 15:00-16:00	CJO CJO	Lec. 11: Meteorites: The extra-terrestrial sample* Lec. 12: Building blocks of the solar system*	1–2 April (OA) <b>Rock Practical- week 2*</b> <i>Quiz 6: 5.0%, 90 mins</i>
	8/4/20, 9:00		Ass. 2 issued: Lander Project – due week 10	
7	8 April 14:00-15:00 15:00-16:00	SCG	Lec. 13: Habitability of Planets and the Co-evolution of Life and its Environment*	8–9 April (CJO) <b>Meteorite Practical*</b> <i>Quiz 7: 3.0%, 60 mins</i>
<b>2 Week Recess</b>				
8	29 April 14:00-15:00 15:00-16:00	CJO SCG	Lec. 14: Environments in the Outer Solar System* Lec. 15: Analogue Sites and the Virtual Fieldtrip*	29–30 April <b>No practical this week</b> <i>Quiz 8: 1.5%, 30 mins</i>
9	6 May 14:00-15:00 15:00-16:00	MG MG	Lec. 16: The universal tree of life* Lec. 17: Reconstructing LUCA*	6–7 May (OA) <b>Virtual Fieldtrip Computer Exercise*</b> <i>Quiz 9: 3.0%, 60 mins</i>
	12/5/20, 17:00		Ass. 2 due: Lander Project	

10	13 May 14:00-15:00 15:00-16:00	SCG - -	Lec. 18: Geochemical Biomarker Evidence for Early Life*  Lec. 19 (online only): A Modern Origin Story?*	13–14 May (OA)  <b>Palaeobiology Practical*</b>  <i>Quiz 10: 3.0%, 60 mins</i>
11	20 May 14:00-15:00 15:00-16:00	SCG SCG SCG	Lec. 20: Extremophiles*  Lec. 21: Organic Molecules in Space... and more on the Origin of Life on Earth*	20–21 May (SCG + OA)  <b>Biomarker Practical- week 1</b>  <b>(* after week 2)</b>  <i>Quiz 11: 1.5%, 30 mins</i>
12	27 May 14:00-15:00 15:00-16:00	SCG SCG SCG	Lec. 22: Extrasolar planets*  Lec. 23: Search for Extra-Terrestrial Intelligence*	27–28 May (SCG + OA)  <b>Biomarker Practical- week 2*</b>  <i>Quiz 12: 5.0%, 90 mins</i>
13	3 June 14:00-15:00 15:00-16:00	SCG SCG SCG	Lec. 24: Unit summary* (2 hours)	3–4 June (SCG)  <b>Fermi Paradox*</b>  Preparation for unit exam: format, what to expect  <i>Quiz 13: 1.0%, 30 mins</i>

Who: SCG = Prof. Simon George (EES, convenor); CJO = A/Prof. Craig O'Neill (EES); MG = Prof. Michael Gillings (Biological Sciences), AO = Dr Olivier Alard. \* = assessed work by iLearn quizzes.

## 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/unit_offerings/123274/unit_guide/print) ([https://students.mq.edu.au/unit\\_offerings/123274/unit\\_guide/print](https://students.mq.edu.au/unit_offerings/123274/unit_guide/print))

[mq.edu.au/support/study/student-policy-gateway](http://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](http://staff.mq.edu.au/work/strategy-planning-and-governance/university-policies-and-procedures/policy-central) (<http://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.

## Changes from Previous Offering

Lectures and practicals/tutorials have been re-ordered.