

# 2019 MAJOR – Astronomy and Astrophysics

(Qualifying Major for Bachelor of Science)

In this major we develop a quantitative interpretation of the Universe and the underlying physical processes within it. The quantitative interpretation begins with observational astronomy - the process of measuring the Universe with particular emphasis on detecting electromagnetic radiation throughout its spectrum. In order to understand what this radiation means, the Astronomy and Astrophysics major includes the study of radiative transfer: the way in which light propagates through and interacts with matter. From both an observational and theoretical perspective, we study the astrophysical processes that govern the formation and evolution of stars, planets and galaxies, including the structure of our own Galaxy. An essential part of developing this understanding is a solid background in physics and mathematics, including topics such as mechanics, electromagnetic radiation and differential equations. This knowledge development is complemented by hands-on laboratory experiments, collection of astronomical imaging and spectroscopic data, and computer-based analysis.



**The table below is a suggested first session for students beginning in Session 2, 2019.** Please make your selection of units after reviewing the requirements of your award in the 2019 Handbook:

[www.handbook.mq.edu.au/2019/DegreesDiplomas/Degree/Bachelor+of+Science](http://www.handbook.mq.edu.au/2019/DegreesDiplomas/Degree/Bachelor+of+Science)

## Suggested First Session

### Session 2, 2019

Unit Code	Unit Name
MATH130 or MATH135 *	Mathematics 1E Mathematics 1A
ASTR178 or STAT170 or ACSC100	Other Worlds: Planets and Planetary Systems Introductory Statistics Academic Communication in Science
PHYS140 * or Elective	Physics 1A Any COMP, ENGG or GEOS unit at 100 level
Elective	Choose an elective unit

- You must also meet the general requirements for the degree for which you will qualify.
- It may be possible to satisfy the requirements of your degree by taking a different selection of units in your first session from those suggested above.
- \* The prerequisite for MATH135 and PHYS140 is a band 4 (or higher) in HSC Mathematics (or equivalent interstate or overseas secondary school study). All students who do not meet this prerequisite should choose MATH130 followed by MATH135 and PHYS units in 2020.
- Other popular electives for Astronomy and Astrophysics students include computing [COMP115, ISYS114], engineering [ENGG141] and geology [GEOS112, GEOS126]. Outside the Faculty of Science and Engineering,

FIND OUT MORE  
CONTACT: STUDENT CONNECT  
LEVEL 2, MUSE C7A PHONE: 9850 6410  
Macquarie University NSW 2109 Australia  
[Handbook.mq.edu.au](http://Handbook.mq.edu.au)

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ACSC100 is a unit designed to help science students with writing skills.

- Consider what units you will want to study in second and third year. Prerequisite requirements for those units must be completed prior to enrolment in the higher-level unit. In the second year of the Astronomy and Astrophysics major, students must complete PHYS201, PHYS202, MATH235 and ASTR278 and it is this core set of units that forms the prerequisite units for 300-level Astronomy and Astrophysics study. It is important to check the prerequisites for any planned 200- or 300-level elective units carefully, as they may require additional 100-level elective units.
- For a double major complete required units for both majors where possible in the first year. If considering a double major consult the criteria found at [www.handbook.mq.edu.au/2019/Majors](http://www.handbook.mq.edu.au/2019/Majors).
- You can receive specific program advice from the faculty at any stage in your degree by lodging a "Program Advice" enquiry via <http://ask.mq.edu.au>.



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