

Department of Physics and Astronomy

BACHELOR OF SCIENCE MAJOR IN ASTRONOMY AND ASTROPHYSICS

The Bachelor of Science major in Astronomy and Astrophysics is about the science and technology of astronomy, and provides a strong grounding in physics and mathematics. This degree is suitable for students who are interested in Astronomy as well as for those who seek employment in any field where enhanced analytical, computational and technical skills are highly regarded. Macquarie University has an observatory with a number of optical and radio telescopes which are used by students at all levels of the program. We enjoy close links with the National Observatories whose headquarters are located nearby. Astronomy and astrophysics graduates will have achieved proficiency in physics, mathematics and computing to a level which provides strong employment prospects. This degree provides suitable preparation for students wishing to continue in postgraduate studies in astronomy, astrophysics or astronomical instrumentation.

Program of study

The first year of the program concentrates on giving students a strong foundation in essential disciplines of physics, mathematics and computing and may include up to two astronomy units. The second year continues with astronomy, physics and mathematics, with optional computing or electronics units. The third year includes specialist astrophysics, general relativity and cosmology units in addition to physics and mathematics. Optional units include mathematics, physics and optics.

Entry requirements

For completion in three years, the program requires Higher School Certificate (HSC) Mathematics Band 4, or equivalent. A lesser mathematics background may add an extra year to the program. However, this may be avoided with the summer offering of MATH136 between the first and second years. Higher levels of Physics are recommended

Scholarships

Scholarships available include: general support, equity, Indigenous students, accommodation, sport or international travel. For more information go to www.futurestudent.mq.edu.au/undergraduate

In conjunction with the Anglo Australian Observatory, Macquarie University offers one year honours scholarships in astronomical instrumentation or research. Each year vacation scholarships are offered. Students are encouraged to obtain work experience through the prestigious scholarships offered by the National Observatories. Go to: www.physics.mq.edu.au/future/vacation/

Have you got your bonus points?

Macquarie University's Academic Advantage bonus point scheme recognises an Higher School Certificate (HSC) student's academic achievements in subjects that relate specifically to their degree program. Up to five bonus points will automatically be rewarded for high achievement in HSC physics, mathematics and chemistry. For more information go to www.mq.edu.au/academicadvantage

Research degrees in Astronomy

Employers value graduates with honours and postgraduate degrees. Students with suitable academic performance are invited to enrol in the one year honours program after completing the Bachelor of Science. The honours course is assessed by 50% coursework and 50% research thesis. The research thesis involves a substantial research project in astrophysics or astronomical instrumentation.

Some of our best graduates go on to higher research degrees with projects in astrophysics at Macquarie University, which has a diverse and rapidly expanding program. For more information go to: www.astronomy.mq.edu.au

Students are often jointly supervised by astronomers at the National Observatories. Exciting MSc and PhD research programs are available with members of the Astronomy staff as well as research degrees involving development of astronomical instrumentation.

Astronomy postgraduates could proceed to a professional astronomy career in a University/Observatory (in Australia or overseas) or enter industry in roles that require strong analytical skills and independent thinking. The research projects vary from year to year and those currently on offer can be found on the website by following the links at www.physics.mq.edu.au/research





SUGGESTED PROGRAM OF STUDY

BACHELOR OF SCIENCE MAJOR IN ASTRONOMY AND ASTROPHYSICS

Required and recommended units of study: Completion of a minimum of 68 credit points including the following **prescribed** and optional units. This major must be completed as part of a degree. The general requirements for the degree must be satisfied in order to graduate.

100 LEVEL

200 LEVEL

300 LEVEL

LEVEL		CODE	NAME	CREDIT POINTS SEMESTER 1	CREDIT POINTS SEMESTER 2
Required		PHYS140	Physics IA	3	
Required		PHYS143	Physics IB		3
Required	<i>either</i>	MATH135	Mathematics IA	3	
	<i>or</i>	MATH132	Mathematics IA (Advanced)	3	
Required	<i>either</i>	MATH136	Mathematics IB		3
	<i>or</i>	MATH133	Mathematics IB (Advanced)		3
<i>Recommended Additional Units: 3 of the following optional units</i>					
Optional		ASTR170	Introductory Astronomy	3	
Optional		ASTR178	Other Worlds: Planets and Planetary Systems		3
Optional		COMP115	Introduction to Computer Science	3	
Optional		COMP125	Fundamentals of Computer Science		3
Optional		ELEC141	Digital Fundamentals	3	
Optional		STAT170	Introductory Statistics	3	
Required		PHYS201	Physics IIA	3	
Required		PHYS202	Physics IIB		3
Required		MATH235	Mathematics IIA	3	
Required		ASTR278	Advanced Astronomy		3
<i>Recommended Additional Units: 3 of the following optional units</i>					
Optional		PHYS220	Scientific Modelling	3	
Optional		PHYS246	Advanced Physics II		3
Optional		MATH236	Mathematics IIB		3
Optional		COMP225	Algorithms and Data Structures	3	3
Optional		PHTN221	Introduction to Optical Science and Technology	3	
Optional		COMP226	Computer Architecture		3
Required		ASTR310	Astronomy in Action		3
Required		ASTR377	Astrophysics I	3	
Required		ASTR378	General Relativity and Cosmology		3
Required		PHYS301	Electromagnetism and Quantum Physics	3	
<i>Recommended Additional Units: 3 of the following optional units</i>					
Optional		PHYS303	Atomic and Solid State Physics	3	
Optional		PHYS304	Quantum Physics II		3
Optional		PHYS306	Optical Physics		3
Optional		MATH335	Mathematical Methods	3	
Required		PLANET UNIT			3
Required		PEOPLE UNIT			3
TOTAL CREDIT POINTS REQUIRED FOR THIS DEGREE				68	

Academic and administrative enquiries

Telephone: (02) 9850 6000

Facsimile: (02) 9850 6565

Email: scienceenquiries@mq.edu.au

Web: www.physics.mq.edu.au

CRICOS Provider Number 00002J

Disclaimer: This publication is correct at time of printing, August 2011. Macquarie University reserves the right to change program details at any time and change its fees without notice.

Please note: This information is intended as a guide only and does not replace the Macquarie University Handbook of Undergraduate Studies. For full degree requirements you should refer to the Macquarie University Handbook of Undergraduate Studies at www.handbook.mq.edu.au
Offerings of units may change from year to year.