

MONASH
MASTER OF
SCIENCE IN
ASTROPHYSICS

monash.edu/physics





MASTER OF SCIENCE IN ASTROPHYSICS

Follow your passion for understanding the Universe with our new, specialised Master of Science in Astrophysics degree.

Future proof your career - graduates with a Master's degree in astrophysics have advanced knowledge of AI/machine learning, scientific visualisation and big data analytics. These skills are highly sought by employers in a broad

range of areas - from fundamental research to the industry sector, and even as far afield as banking, finance and patent law.

COURSE DESCRIPTION

This two-year program comprises advanced coursework and a research project leading to a major thesis in:

- observational astronomy
- computational astrophysics
- experimental physics
- computational or theoretical physics

Many of our Master's graduates proceed to further study, enrolling in a research Doctorate.

CAREER OPPORTUNITIES

Astrophysicists use their knowledge and training in diverse careers including:

- medical imaging
- synchrotron science
- design of advanced photonic devices
- managing astronomical observatories
- climate modelling and meteorology
- medical and scientific instrumentation
- the energy industry
- solar power
- industrial product development
- science teaching, and
- science communication.

Our graduates find employment in industry, hospitals and scientific organisations; recent examples include: **Agilent, Optiscan, the Alfred Hospital, the Australian Synchrotron, the Australian Antarctic Division, CSIRO, the Australian Nuclear Science and Technology Organisation, managing astronomical observatories, the EPA, and many other organisations.**

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FURTHER STUDY – RESEARCH PROJECTS

An important feature of the Master's degree is the research project, which extends over two years and is devoted to exploring in-depth a contemporary topic in **observational astronomy, computational astrophysics, experimental physics or computational/theoretical physics.**

For a full list of research projects visit:

monash.edu/science/schools/physics/masters/masters-project



New Horizons Research Centre

COURSE STRUCTURE

The degree offers a wide choice of advanced coursework units and a research project.

Coursework units can be chosen from:

- Computational astrophysics (compulsory)
- Exoplanets, stars and stellar processes, high energy astrophysics
- General relativity and cosmology, advanced observational astronomy
- Magneto-hydrodynamics I and II
- Digital image processing, data science
- Quantum mechanics, Advanced quantum mechanics
- Quantum fluids and many body theory
- Quantum field theory I and II, particle physics, classical electrodynamics
- Quantum information and quantum computing
- Condensed matter physics I and II, statistical mechanics
- Advanced statistical mechanics and critical phenomena
- X-ray optics, atom and quantum optics

For more information:
monash.edu/master-science

SCHOLARSHIPS

You may be able to apply for generous scholarship opportunities to support you with your studies.

For more information:
monash.edu/study/fees-scholarships

COURSE STRUCTURE

YEAR 1
Semester 1

=

ASP4020
Astrophysics coursework A
(12 points)

+

ASP4021
Astrophysics coursework B
(12 points)

YEAR 1
Semester 2

=

ASP4000
Astrophysics research project
(24 points)

YEAR 2
Semester 1

=

ASP5020
Advanced astrophysics coursework A
(12 points)

+

ASP5021
Advanced astrophysics coursework B
(12 points)

YEAR 2
Semester 2

=

ASP5000
Advanced astrophysics research project
(24 points)

Part A: Advanced studies Consolidates the student's theoretical and/or technical knowledge in an area of specialisation.	Part B: Research project To develop the student's ability to establish, plan and execute a research project under the guidance of an academic supervisor.
Part C: Extended technical studies To deepen the student's understanding of specific topics within their chosen discipline.	Part D: Advanced research project Students will establish, plan, execute and report on an advanced research project. Students will work with a supervisor on a chosen topic.



ENTRY REQUIREMENTS

Entry level 1

96 points to complete

Duration

2 years full-time

Intakes

February and July

An undergraduate degree (equivalent to an Australian undergraduate degree) with a major in astronomy, astrophysics or a related discipline with at least a 65% average or qualification/experience that the faculty considers to be equivalent.

Entry Level 2

48 points to complete

Duration

1 year full-time

Intakes

February and July

A four-year Australian honours degree (or equivalent) with a major in astronomy, astrophysics or a related discipline with at least 65% average or qualification/experience or a satisfactory substitute that the faculty considers to be equivalent.

English entry requirements

IELTS
(Academic English Only)

6.5 Overall
(no band lower than 6.0)

TOEFL
(Internet-based)

79 Overall
Writing: 21
Speaking: 18
Reading: 13
Listening: 12

Pearsons Test
of English (PTE)

58 Overall
(no band lower than 50)

Cambridge Certificate
of Proficiency in English (CPE)
& Cambridge Certificate
in Advanced English (CAE)*

176 Overall
(no band lower than 169)

*Test taken from January 2015 and onwards

Tuition fees

International students
A\$44,500 per year.

Further information

monash.edu/physics

International students

Australia freecall tel: 1800 181 838

Tel: +61 3 9903 4788 (outside Australia)

Email: study@monash.edu

facebook.com/MonashUniScience

youtube.com/user/ScienceMonashUni

wechat: MonashUniAus

Youku: Monash 蒙纳士大学

weibo.com/monashuniversityaust

