

## AUSTRALIAN INSTITUTE OF PHYSICS

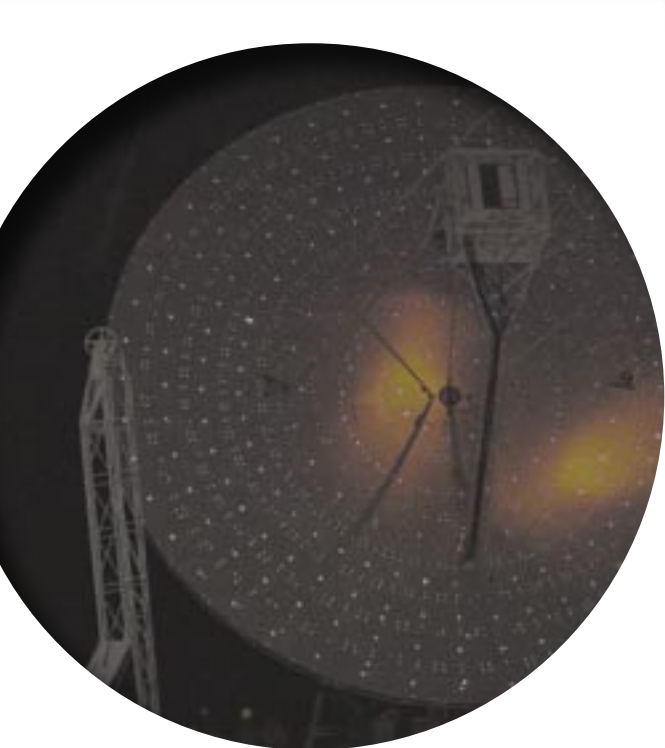
Our courses are fully accredited by the Australian Institute of Physics, which looks after the professional interests of physics, and works in collaboration with government and industry partners.

## SCHOLARSHIPS

The University of Tasmania offers national undergraduate scholarships in physics. To find out more, visit the University's website [www.utas.edu.au](http://www.utas.edu.au), email the Scholarships Office at [Tas.Scholarships@utas.edu.au](mailto:Tas.Scholarships@utas.edu.au) or talk to your careers adviser.

## ENTRY REQUIREMENTS

Minimum university entry requirements apply. Students planning to enrol in physics must have Mathematics - Methods MME5C (or equivalent) and Physics PHY5C. Students may also enrol after successfully completing the physics and mathematics bridging units offered during the summer semester.



Photography credits

## FOR MORE INFORMATION

Full details of courses are published annually in the University of Tasmania *Course and Unit Handbook*. Go to the University's website [www.utas.edu.au/handbook](http://www.utas.edu.au/handbook)

## OR CONTACT

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FACULTY OF SCIENCE,  
ENGINEERING & TECHNOLOGY

School of  
Mathematics & Physics  
CRICOS Provider Code: 00586B

*The Faculty of Science, Engineering and Technology encourages applicants from all equity groups.*

# Physics



FACULTY OF SCIENCE, ENGINEERING & TECHNOLOGY



0707e February 2005

UNIVERSITY OF TASMANIA

**DID YOU KNOW**  
that the University of Tasmania  
possesses two world-class  
radio telescopes?



## PHYSICS

Physics is the fundamental science, the foundation upon which engineering and technology are built. This science is concerned with the farthest reaches of space and the tiny world of atoms and molecules. Physics provides a basis for an understanding of biology, chemistry and geology.

### CAREERS WITH PHYSICS

Many students combine a degree majoring in physics with mathematics, chemistry, computing and earth science. However, the areas of biophysics and medical physics are rapidly expanding and jobs in these fields require physics in combination with life sciences such as zoology, plant science or biochemistry.

With a major in physics, employment opportunities are present in:

**Physical Modelling** – involves understanding or predicting the behaviour of systems through construction of a mathematical model. A few examples of physical modelling include: the Earth's climate; the flow of blood through arteries; or the dynamics of gas near black holes. To become a modeller, you would major in physics and take other units in applied mathematics (particularly differential equations), computing and statistics.

**Meteorology** – involves understanding the physical conditions and interactions of the Earth's atmosphere and using this to predict future weather conditions. The main employer of meteorologists in Australia is the Bureau of Meteorology. To become a meteorologist, you would major in physics and mathematics.

**Astrophysics** – involves studying and understanding the physical processes of objects beyond the Earth, from the Moon and planets, to distant quasars and the origins of the Universe. Australia is internationally stronger in astrophysics than in any other research field and there are many opportunities for employment within the university sector and CSIRO. To become an astrophysicist, you would major in physics as well as studying mathematics and computing subjects.

**Oceanography** – involves understanding the physical conditions of the Earth's oceans and their interaction with atmospheric and other systems. Oceans cover 70% of the

Earth's surface and play a major role in climate, ecological and food-production systems. To become an oceanographer, you would major in physics as well as studying mathematics and chemistry.

**Geophysics** – combines earth sciences (geology) and physics. Geophysicists are highly sought by mining companies undertaking exploration work. They work on interpreting satellite and other information to determine the best locations for exploratory drilling and predicting yields from existing and potential mines. To become a geophysicist you would take a double major in physics and earth sciences.

Or you could work in areas such as:

- Antarctic science
- Education and teaching
- Electronics and computing
- Forensic science
- Industrial research
- Medical and hospital physics

### WHAT MAKES US DISTINCTIVE?

- Undergraduates in our physics program have access to a 26m radio telescope and an optical telescope.
- We offer a physics bridging unit that qualifies students for entry into first-year physics units.
- Smaller classes enable individual attention to you, the student.

### FACILITIES

Physics is taught in the School of Mathematics and Physics on the Hobart campus of the University of Tasmania. The School operates radio, cosmic ray and optical observatories at various sites near Hobart and a radio astronomy observatory at Ceduna in South Australia.

The Mount Pleasant Observatory, on the University Farm at Cambridge, has two parabolic antennas and is a first-class facility for research and postgraduate training in radio astronomy and related fields.

### COURSE STRUCTURE

Here is a general guide for students who want to major in physics.

#### Year 1

Physics 1A (12.5%)  
Calculus & Applications 1A (12.5%)  
Physics 1B (12.5%)  
Calculus & Applications 1B (12.5%)

#### Year 2

Electromagnetism & Kinetic Theory (12.5%)  
Calculus & Applications 2 (12.5%)  
Waves & Thermodynamics (12.5%)

#### Year 3

Wave Mechanics, Statistical Mechanics  
& Advanced Electromagnetism (25%)  
Quantum Mechanics & Solid State Physics (12.5%)  
*Plus one further 12.5% third-year physics unit  
from: Atomic, Nuclear and Semiconductor  
Physics; Astrophysics & Atmospheric Physics;  
Dynamical Systems & Chaos; or Fluid Dynamics*

### ASTROPHYSICS

If you want to take additional physics units, particularly if you are interested in astrophysics, then you might consider the following units:

#### Year 1

Astronomy (12.5%)

#### Year 2

Atmospheric Physics and Stellar Astrophysics (12.5%)

#### Year 3

Atomic, Nuclear & Semiconductor Physics (12.5%)  
Astrophysics & Atmospheric Physics (12.5%)  
Dynamical Systems & Chaos (12.5%)  
Fluid Dynamics (12.5%)