

# School of Physics and Astronomy

**Undergraduate**  
Degree Programmes 2025



CARDIFF  
UNIVERSITY

PRIFYSGOL  
CAERDYDD

# WELCOME

**94%**  
**of**  
**graduates**

were in  
employment and/  
or further study  
or doing other  
activities such  
as travelling, 15  
months after  
the end of their  
course.\*

\*Based on UK-domiciled, full and part-time graduates at all levels of study Source: Graduate Outcomes 2020/21 survey results published by the Higher Education Statistics Agency (HESA). Copyright Jisc 2023. Jisc cannot accept responsibility for any inferences or conclusions derived by third parties from its data.

**No 1**  
university  
in Wales

Source: The Times Good University Guide 2024

**Top 10**  
in the  
UK for  
Physics

Source: The Guardian University Guide 2024

We're home to one  
of the **largest UK**  
**communities** of  
astrophysicists and  
condensed matter  
physicists.

# 99%

of our research  
rated as  
**“world-  
leading or  
internationally  
excellent”**.

Source: THE (Times Higher Education) analysis of REF (Research Excellence Framework) 2021

**Accredited**  
by the  
Institute of  
Physics, our  
degrees are  
supported by  
cutting-edge  
research.

We  
**champion  
women’s  
careers** in  
science and  
**promote  
gender  
equality** in  
Physics.

Athena SWAN Silver Award and  
IOP Juno Champion Status

I decided to  
study at Cardiff  
University  
because I  
really like the  
city and it’s a  
Russell Group  
university,  
which means it  
has a focus on  
research and  
teaching that’s  
really important  
to me.

**Lille, MPhys Physics**

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**2nd** in the  
Russell Group  
for **‘teaching  
on my course’**  
and **‘learning  
opportunities’**  
in the 2023  
National  
Student Survey  
(NSS).

Front cover image:  
The Southern Ring Nebula as seen in  
the mid-infrared by the MIRI instrument  
on board the James Webb Space  
Telescope.  
Credit: NASA/ESA/CSA/STScI

# Choose Cardiff



**Professor Haley Gomez MBE, is a Cardiff University alumni. She graduated with a MPhys Astrophysics in 2001, became a professor in 2015 and was awarded an MBE for research and public engagement work in 2018.**

Full page image: NASA, ESA, CSA, D. Milisavljevic (Purdue University), T. Temim (Princeton University), I. De Looze (UGent), J. DePasquale (STScI)

# These are exciting times at Cardiff

Not only will you discover exciting science at its cutting-edge, but you will also be part of a friendly, approachable school, where staff will do their very best to help you develop the skills for success in your future career.

Welcome to the School of Physics and Astronomy at Cardiff. Here you will study in a top 10 Physics department, where our high-quality student feedback routinely places us in the top 5 Schools for teaching in the National Student Survey. Our lecturers are leading on many projects at the frontiers of physics research and are committed to providing a supportive and inclusive environment for all students.

We aim to provide you with the skills to equip you for a rewarding and adaptable professional life, as well as giving you a real insight into the workings of the Universe on the largest and smallest scales.

In Cardiff, we work with nanoscale devices at extremely low temperatures; exploiting the magnetic and quantum properties of materials at these tiny scales, we apply the latest techniques in high performance computing, data science and machine learning. We are at the centre of the UK Compound Semiconductor Cluster, providing excellent placement and job opportunities for our students in research to drive the next generation of technology used in smartphones, satellites and more.

We are also fortunate to host the Brain Imaging Group which applies physics and computational techniques to make more accurate measurements of processes in the brain. Students at Cardiff therefore have a unique opportunity to explore the world of digital imaging and medical physics.

We carry out a wide range of research on many aspects of astronomy under the umbrella of the Cardiff Hub for Astrophysical Research and Technology. We build crucial parts for space telescopes for NASA and the European Space Agency to study stars forming in our galaxy and beyond, from the aftermath of the Big Bang to the origin of structure in the Universe.

Our astronomy group continues to hit the headlines with its ground-breaking research. We are part of the international research project which made the first ever detection of gravitational waves – a discovery that confirmed Einstein's theory of relativity. We also made the incredibly exciting breakthrough discovering phosphine (a potential sign of microbial life) in the clouds of Venus and recently revealed clues about how exploding stars develop over time through NASA's James Webb Space Telescope (JWST) images of a nearby supernova.

In your undergraduate research projects, you will have the opportunity to work in these exciting areas of physics and astronomy. You may eventually choose to pursue a career in scientific research or use your valuable and highly sought-after problem-solving skills in other vital areas including data science, IT, finance, business and education. The possibilities for physics graduates really are endless.

You will enjoy living in Cardiff - it is a thriving capital city and a vibrant centre for entertainment, sport and the arts. We hope you will choose to study with us and join us here on our scientific adventure.

**Professor Haley Gomez**  
**FLSW, FRAS, MBE**  
**Head of School**

# Why study physics and astronomy

Physics is the fundamental science which lies at the heart of all technology and engineering.

Physics and Astronomy degrees are for those who would like to discover the science behind the Universe and, at the same time, develop the problem-solving skills so valued by today's employers.

Physicists play a vital role in research and development, pushing forward the frontiers of knowledge and providing the basis for the innovations which revolutionise our world.

The contribution of physics to industry is so important that physics graduates enjoy almost unrivalled job prospects in terms of variety and availability.

## Your career

Our degrees are accredited by the Institute of Physics and are designed to develop the skills to prepare you for an exciting career.

Physics graduates are highly sought after by employers in every sector, from industry through education and commerce to healthcare. Strong, creative analytical, numerical, IT and problem-solving skills are at the top of every employer's list.

A physics or astrophysics degree ensures that your skills in these key areas are developed to exceptional levels. The research project in the third and fourth years also develops your ability to work by yourself, directing your own research and planning your workload to produce an original piece of work.

The final report and presentation of your project also demonstrates that other fundamental skill - communication.

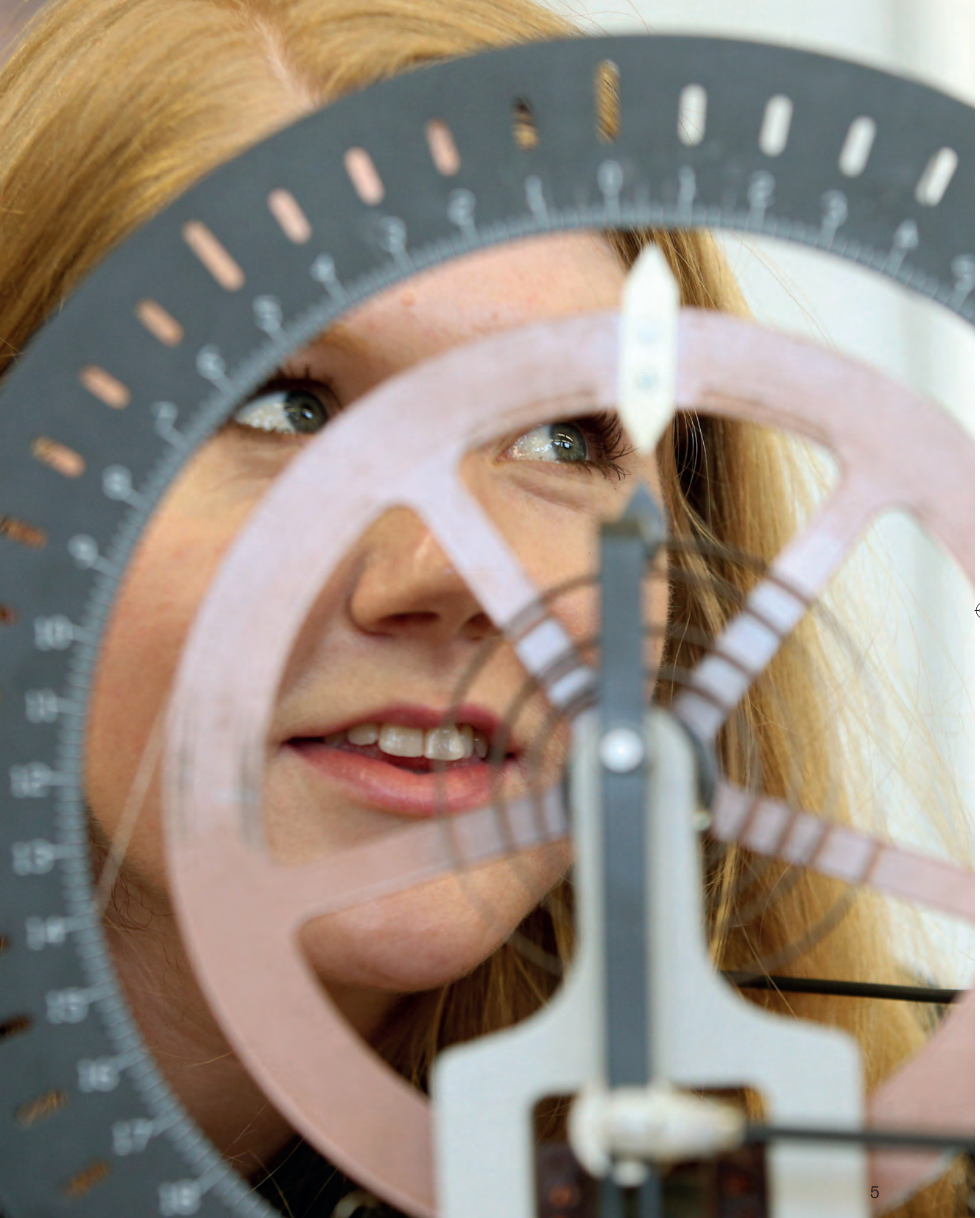
We encourage you to use your time at Cardiff to broaden your horizons and gain valuable employability skills, outside the physics curriculum:

- there are a number of opportunities to work with our outreach and public engagement teams to explain physics and astronomy to wider audiences;
- students can study a foreign language as part of the Languages for All programme;
- students have the opportunity to undertake work experience placements, either over the summer break, or by taking a year out to do a professional placement;
- many other opportunities exist, and we really encourage you to get involved with the vibrant student life in Cardiff, not only to enhance your enjoyment of your time here, but also to help you build team-working, communication and project management skills.



Our dedicated Careers Advisor is available to help support you with career and work experience options, and to help you prepare CVs and job applications. We also provide you with lunchtime sessions from outside companies and hold bespoke STEM careers events for you to talk to prospective employers.

Many of our students use the knowledge and skills gained as part of their degree to obtain scientific, technical and computing jobs and a number of our students go on to postgraduate study. Education and science communication are also areas which value physics graduates. Other students find careers in the commercial, financial and business sectors where analytical and technical skills are highly valued.



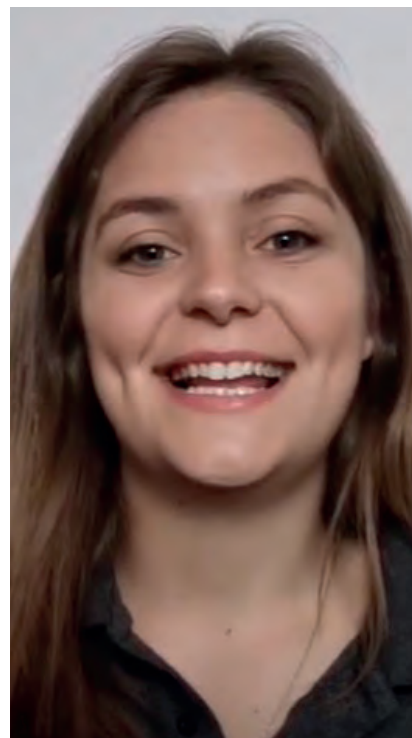
# Student experience

Ensuring our students have the best possible experience is at the heart of what we do.

At the start of your studies, you'll be assigned a personal tutor who'll be your main contact for any academic and pastoral support. You'll meet regularly to review your academic progress and anything else you may need help with, and they can also help with your future plans.

In your first year, you'll be partnered with a student mentor (usually one of our second year students), who will help you to settle into university life, sharing advice on anything from new ways of learning and teaching to living away from home.

We also have an active Student-Staff panel, with two student representatives from each year and subject representing student views, which is integral to shaping best practice and student experience in our school.



“One of the things that has been really beneficial to me during my degree is the staff.”

Your personal tutor and project supervisors are amazing because they just want to see you do as well as you can in your degree and get as much from it as you can.

They help guide you, give you advice and are always there for you if you need to drop in and ask them a question or send them an email. The lecturers are really supportive if you have a problem with homework and you can ask other staff if you have questions about the degree.

I got to go to a competition in Scotland because I told my lecturers about it and they helped make it happen for me so that's all been really great.

**Lille, MPhys Physics**



**Meet Lille**

## National Student Survey (NSS) 2023

We're ranked **2nd** in the Russell Group for '**teaching on my course**' and '**learning opportunities**', continuing our high student satisfaction rating of over **90%** for the past eight years.

Our dynamic student society **Chaos** runs loads of social events including the annual **Chaos Ball**, and has close links with the Institute of Physics.



# Placements

Get a feel for your future career with a professional placement year.

Both of our Physics and Physics with Astronomy degrees come with the option to do a professional placement year, which for the BSc takes place in the third year of your four-year degree.



If you study the five-year MPhys, your placement year is during your fourth year.

Spend a year working as a company employee and you will not only earn a salary but gain valuable skills and experience, helping you to stand out from the crowd. Often, our students go on to work for the same organisation after graduating.

We offer support and advice to help you find a placement you're interested in, and you can decide to add a professional placement year to your degree until the start of your second year.

I wanted to **study physics** because I want to understand how the universe works and learn how you can apply physics to modern medicine. I really liked studying physics at Cardiff because there are lots of resources available, and the **lab projects** were very interesting. The city is cheap and affordable and the people are great.

**Imran, MPhys Physics**



**“ A placement year will show you what you’re working towards is real - you put effort into something you enjoy and then it’s applied to developing greener technologies, or a new engine or reactor.**

I developed an amazing amount of skills: critical thinking, logical thinking, programming and the ability to communicate with other professions using analytical skills, report writing and detailed technical analysis.

A placement is worth every second because you will learn more about yourself – obviously you’ll learn about the industry too - but you’ll learn what you actually enjoy and want to do.

**Callum, Physics with Professional Placement at EDF Energy UK**



**Meet Callum**

## Placements continued

### Expand your horizons with a summer placement.

If you don't have the opportunity to do a professional placement year as part of your degree, a summer placement is an ideal way of gaining relevant experience. We offer competitive internships within the school, and have links with numerous organisations all over the world to support you in securing a placement you're interested in.

At Cardiff University, we run CUROP (Cardiff University Summer Research Opportunities Programme), one of the largest undergraduate research schemes in the UK, where students

receive a stipend and spend up to eight weeks working with our staff on research projects.

In addition, the Global Opportunities team can help you choose from a range of short-term placements to study, work or volunteer abroad, typically during the summer holidays. Find out more: [www.cardiff.ac.uk/globalopportunities](http://www.cardiff.ac.uk/globalopportunities)

In 2023, physics and astronomy students went on placements in Europe, North America, Australia and Vietnam.



**“ I spent ten weeks on a project to improve gravitational waves detectors at the Laser Interferometer Gravitational-Wave Observatory (LIGO).**

This was a really exciting project that taught me so many new physics skills. I helped the LIGO detector characterization team to locate a type of glitch known as koi fish glitch sources. I ran a tool called Hierarchical Veto on data from LIGO's third observing run to try to locate which of the hundreds of auxiliary channels at LIGO Livingston were related to the glitches. The results of my work highlighted the detector's isolated seismic isolation system as a potential source of these glitches due to high significances reported by Hveto.

Louisiana State University is a great place and it felt great to finally see the Mississippi River with my own eyes. It was also my first time in the US, so learning about the culture was really fun - I met so many different types of people.

I would highly recommend a summer placement to anyone as the experience and knowledge gained is invaluable to anyone wanting to pursue a career in STEM, and it's a great opportunity to network and make lifelong friends in the field

**Em.J Jones, MPhys Astrophysics with a summer placement at Louisiana State University (LSU)**



Both our Physics and Physics with Astronomy courses (BSc and MPhys) have the option of a **professional placement year**, while you can do a **summer placement** on any degree scheme.

# Our degree programmes

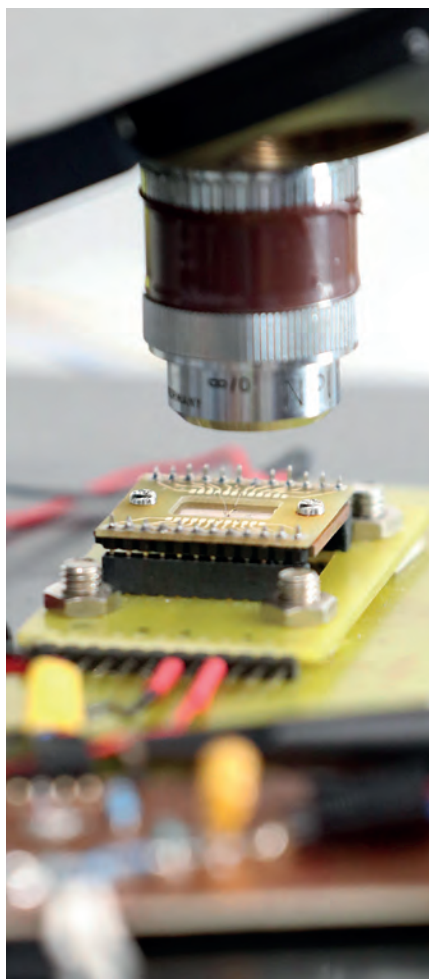
All of our undergraduate degree programmes are accredited by the Institute of Physics.

## MPhys or BSc?

Whether you decide to study a three-year BSc or a four-year MPhys depends on the extent to which you wish to study the subject, and your career aspirations. As well as studying highly specialised modules in greater depth than our BSc students, the final year of the MPhys includes a major project with one of our research groups, meaning you will contribute to real-life research. Our MPhys graduates go on to a wide range of careers, but if you are interested in becoming a research scientist, an MPhys degree is a great route to this role.

## Alternative routes to entry

If you want to study physics and astronomy with us, but don't have the required qualifications or subjects at A-level, you can apply for the Engineering with a Foundation Year programme (H101). Upon successfully completing the first year of this programme, you'll be accepted on to the physics and astronomy course of your choice.



### We offer a wide range of degree programmes:

BSc Hons Physics (3 years) F300

BSc Hons Physics with Astronomy (3 years) F3F5

BSc Hons Astrophysics (3 years) F511

BSc Hons Physics with Medical Physics (3 years) F350

BSc Hons Physics with Professional Placement (4 years) F302

BSc Hons Physics with Astronomy with Professional Placement (4 years) F3FN

MPhys Hons Physics (4 years) F303

MPhys Hons Physics with Astronomy (4 years) F3FM

MPhys Hons Astrophysics (4 years) F510

MPhys Hons Physics with a Professional Placement (5 years) F304

MPhys Hons Physics with Astronomy with a Professional Placement (5 years) F5F3

## Develop your knowledge, then choose your path with our flexible degree programmes

The common framework of our BSc degrees means that you can decide to switch to the four-year MPhys integrated master's degree up until the end of your second year for the following courses, subject to academic achievement:

- BSc Physics
- BSc Physics with Astronomy
- BSc Astrophysics

You can also choose to add a professional placement year for our Physics or Physics with Astronomy degrees (BSc and MPhys) up until the start of your second year.

Visit our course webpages to find out more about our programmes including module information.



# Physics

Physics BSc, UCAS code: **F300**

Physics MPhys, UCAS code: **F303**

Physics with Professional Placement BSc, UCAS code: **F302**

Physics with Professional Placement MPhys, UCAS code: **F304**

Physics explores the fundamental laws underpinning the Universe, from the subatomic level to entire galaxies. Study physics and you'll investigate some of the most exciting developments of our time.

During this course, you'll develop a broad understanding of how theoretical and experimental physics can be used to describe the Universe and gain an insight into how physics shapes modern technologies – from the tiniest semiconductor chip to the most powerful laser.

At Cardiff University, we have been part of many new discoveries, from the detection of gravitational waves to the development of technologies around quantum dots, which will help scientists and engineers of the future optimise device efficiency fields from power generation to medical imaging.

You'll be taught by staff whose research is leading to these discoveries, gaining the fundamental skills for a wide range of careers which require a practical and analytical approach to problem-solving.

In year one, you'll take core modules from mechanics and matter to electromagnetism and waves, giving you a solid foundation in physics, mathematics and computing, while gaining the confidence to design and conduct experiments in the laboratory.

In your second and final years, you'll study a range of topics from quantum mechanics and optics to atomic and nuclear physics, with the option to specialise in what interests you most through a broad spectrum of optional modules. Key computing skills are taught throughout the course including programming using python.

In the final year of your BSc, you'll also undertake a physics project with one of our top researchers, choosing from the wide range of research activities in the department.

## The MPhys degree course

The four-year MPhys degree course is a great choice if you want to study physics in more depth, and at a more advanced level.

Your first three years will be identical to the BSc course, but as this is an advanced degree, in your final year you will be able to specialise according to your interests and study selected topics in greater depth.

Year four involves a significant research project where you can work alongside our researchers in one of the research areas which interests you. You'll develop the analytical, problem-solving and research skills which are needed by professional physicists. You'll also be part of the school's research team, learning how to become a real research scientist and working on real challenges.

Topics range from computer modelling complex protein interactions to the characterisation of quantum dot lasers for ultra-high speed internet systems. And, if you can't find a project to fire your imagination, you can always develop your own in consultation with the academic staff.

The final decision as to which degree type you follow can be taken up to the end of your second year, subject to academic performance.



**“When I was finishing my A levels I liked both semiconductor and solid state physics, and also astrophysics! I wasn't really sure which I wanted to do long-term and I chose Cardiff University as it has a good reputation in all of them.**

Cardiff's involved with LIGO and was part of the discovery of gravitational waves in 2015, and there's a really active condensed matter and photonics department, based in the new Translational Research Hub.

### Lille, MPhys Physics

Our Physics degree courses are fully accredited by the Institute of Physics.

# Physics with Astronomy

Physics with Astronomy BSc, UCAS code: **F3F5**

Physics with Astronomy MPhys, UCAS code: **F3FM**

Physics with Astronomy with Professional Placement BSc, UCAS code: **F3FN**

Physics with Astronomy with Professional Placement MPhys, UCAS code: **F5F3**

Study a Physics with Astronomy degree and you will investigate the science behind the development of the Universe – from how it began to astronomical events that we are now discovering for the first time.

At Cardiff University, we are home to one of the largest astronomy groups in the UK and have led many new discoveries, from the detection of gravitational waves to the first images of black holes.

You'll be taught by staff whose research is leading to these discoveries, gaining both the fundamental skills in physics for a wide range of careers, and the more specific knowledge needed to become a professional astronomer or astrophysicist.

In year one, you'll take core modules to lay the foundations of your physics, mathematics and computing knowledge, while gaining the confidence to design and conduct experiments in the laboratory.

As you progress through the degree, you can choose optional modules along with your core modules to further your understanding and knowledge of both physics and astronomy in fascinating areas such as:

- the physical properties of the Earth and the observation and exploration of the planets and moons in other solar systems;
- observational techniques in astronomy;
- an understanding of quantum mechanics and nuclear physics;
- the formation and evolution of stars;
- solving unseen problems in astrophysics;

- the Big Bang and contemporary cosmology;
- the formation and evolution of galaxies.

As part of the observational techniques module, you'll carry out a project using real data from the Las Cumbres Observatory, which uses a range of robotic telescopes around the world working as a single network.

In the final year of your BSc, you'll also undertake an astrophysics research project with one of our top researchers.

If you're interested in learning about astronomy but not sure if you want to commit to a degree in astrophysics, this course is for you.

## The MPhys degree course

The four-year MPhys degree course is a great choice if you want to study Physics with Astronomy in more depth, and at a more advanced level.

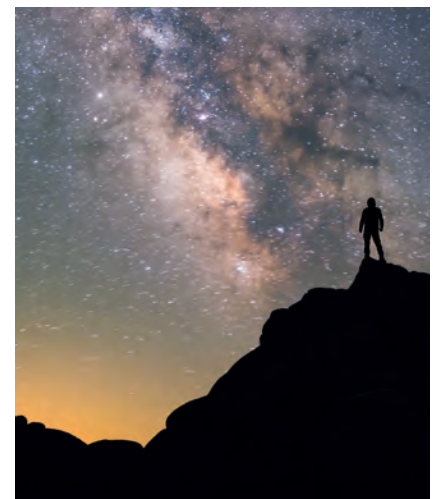
Your first three years will be identical to the BSc course, but as this is an advanced degree, in your final year you will be able to specialise according to your interests and study selected topics in greater depth.

Year four involves a significant research project where you can work alongside our researchers in one of the research areas which interests you. You'll develop the analytical, problem-solving and research skills which are needed by

professional astronomers or astrophysicists. You'll also be part of the school's research team, learning how to become a real research scientist and working on real challenges.

Topics range from simulating black holes to analysing data from the world's leading ground-based and space-based telescopes. And, if you can't find a project to fire your imagination, you can always develop your own in consultation with the academic staff.

The final decision as to which degree type you follow can be taken up to the end of your second year, subject to academic performance.



**Our Physics with Astronomy degree courses are fully accredited by the Institute of Physics.**

# Astrophysics

Astrophysics BSc, UCAS code: F511

Astrophysics MPhys, UCAS code: F510

Astrophysics applies the principles of physics to astrological phenomena, helping us to explore the Universe and investigate how it works.

At Cardiff University, we are home to one of the largest astronomy groups in the UK and have led many new discoveries, from the detection of gravitational waves to the first images of black holes.

During this course, you'll be taught by staff whose research is leading to these discoveries – learning about the theoretical physics and mathematical concepts describing space, time, energy and matter, and how to apply these to the cosmos.

A more specialised course than our Physics with Astronomy degrees, our Astrophysics courses provide you with the core skills and knowledge you need in physics and mathematics, combined with an understanding of observational astronomy and the theoretical aspects of astrophysics.

In year one, you'll take core modules to lay the foundations of your physics, mathematics and computing knowledge, as well as an introduction to astrophysics. You'll gain confidence in practical work through designing and conducting experiments in the laboratory.

Combined with your core physics modules in years two and three, you'll also learn about:

- observational techniques in astronomy;
- the stars and their planets;
- galaxies and galaxy evolution;
- high energy astrophysics;
- cosmology and the Big Bang theory of the Universe.

As part of the observational techniques module, you'll carry out a project using real data from the Las Cumbres Observatory, which uses a range of robotic telescopes around the world working as a single network.

In the final year of your BSc, you'll also undertake an astrophysics research project with one of our top researchers. This may involve analysing data from our international or space-based telescopes, trying to understand the physics of the Universe using computer modelling, or even attempting to detect extrasolar planets.

## The MPhys degree course

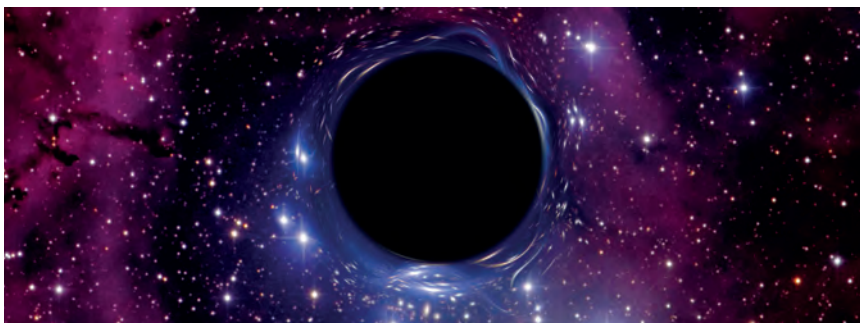
The four-year MPhys degree course is a great choice if you want to study Astrophysics in more depth, and at a more advanced level.

Your first three years will be identical to the BSc course, but as this is an advanced degree, in your final year you will be able to specialise according to your interests and study selected topics in greater depth.

Year four involves a significant research project where you can work alongside our researchers in one of the research areas which interests you. You'll develop the analytical, problem-solving and research skills which are needed by professional astrophysicists. You'll also be part of the school's research team, learning how to become a real research scientist and working on real challenges.

Topics range from simulating black holes to analysing data from the world's leading ground-based and space-based telescopes. And, if you can't find a project to fire your imagination, you can always develop your own in consultation with the academic staff.

The final decision as to which degree type you follow can be taken up to the end of your second year, subject to academic performance.



**Our Astrophysics degree courses are fully accredited by the Institute of Physics.**

# Physics with Medical Physics

Physics with Medical Physics BSc, UCAS code: F350



In the 2023 National Student Survey (NSS) **100%** of our students said they were **100% satisfied** with the BSc Physics with Medical Physics.

Applying physics to the treatment and diagnosis of medical conditions is a rapidly expanding and exciting field, vitally important to the detection and treatment of many medical conditions and diseases.

This often results in developments in technology, which includes both instruments and techniques, e.g. the stethoscope, the sphygmomanometer for measuring blood pressure, magnetic resonance imagers (MRIs) and linear accelerators for treating cancer.

The contribution to modern medicine by physics is considerable and is just as important as that of biology and chemistry.

Medical physics techniques vary widely and utilise a range of physical phenomena including electricity, magnetism, ultrasound, radioactivity and the whole spectrum of electromagnetic radiation. In all these applications, precise and accurate measurement is of great importance and developments have, in large part, been enabled by the startling growth in computing power over the past few decades.

Our Physics with Medical Physics degree is provided in conjunction with the Cardiff & Vale and Velindre NHS Trusts, with specialised modules taught by professional medical physicists from Cardiff University's School of Medicine. It is designed to give you a thorough grounding in physics, and a broad introduction to the major topics in medical physics including optics, radiation in medical diagnosis and medical ultrasound.

You will gain core skills in physics, mathematics and computing while studying more specialised medical physics topics such as:

- digital medical imaging;
- medical ultrasound;
- radiation in medical diagnosis;
- how the human body works.

In your final year, you will undertake an extended project which will usually be hospital based or at Cardiff University Brain Research Imaging Centre

(CUBRIC), and there are a range of areas in which you can choose to specialise.

The course provides an excellent basis for a range of careers. Many of our graduates are successful in obtaining places on the UK-wide training scheme for clinical medical physicists run by the Institute of Physics and Engineering in Medicine, while others undertake medical physics research or find employment with international medical equipment companies.



## What's it like to work as a Medical Physicist?

A day in the life of clinical scientist Amie Roberts who works at University Hospital of Wales

Our Medical Physics degree courses are fully accredited by the Institute of Physics.

# Studying with us

Cardiff University has a large and successful School of Physics and Astronomy.



Our academic staff are highly committed to their teaching and research, and are able to provide for a wide spectrum of interests and specialist subjects.

## Teaching methods

You'll be taught through a series of lectures, small group tutorials, and practical classes in the laboratory, complemented by computer and project-based modules.

The small group tutorials and one-to-one meetings with staff give you the chance to discuss lecture material, coursework, receive feedback on your work, talk through various career options, and learn more about physics and astronomy in everyday life. You'll be assigned an academic tutor and a personal tutor (also a member of the academic staff) to support you with any academic or personal matters in a confidential and informal way.

In your first year practical work, you'll conduct some classic physics experiments and get to grips with basic techniques and accurate recordings of observations, before progressing to substantial experiments and reporting to a professional standard in later years.

You'll learn how to use the latest software, analyse data and develop computational models. Programming using python begins in your first year and is embedded throughout the course.

## Assessment

Assessment may be by exam or based on coursework, presentations, teamwork exercises, written reports, or a combination of all of these. We always take into account different learning styles and needs and our external examiner reports regularly confirm our assessment procedures as evidence of the overall quality of our degrees.

**We're committed to supporting gender equality and championing women's careers**

In 2022, our school was the first physics department in Wales to achieve an **Athena Swan Silver Award**, building on our **Junio Champion** status awarded by the Institute of Physics in 2020.



## Research project

In the final year of both the BSc and MPhys courses you will undertake a major research project within one of our research groups.

Your project helps you to develop your investigative skills and gain first-hand experience of the excitement of real-life scientific research.

You'll choose your project from the wide range of cutting-edge research our academics carry out. Recent projects include:

- Extracting gravitational wave signals from noisy data;
- Measurement of radioactivity in small volume samples;
- Herschel Space Observatory and JWST (James Webb Space Telescope) observations of exploding stars;
- Electron states in a semiconductor super lattice (Kronig-Penny model).



# Facilities and location



The School of Physics and Astronomy is part of the multi-million pound Queen's Buildings complex which also houses the School of Engineering.

## Location and transport

We're located in the heart of Cardiff, just a few minutes' walk from the city centre, with shopping, entertainment and national transport links on our doorstep. Our school is also within easy reach of the new Centre for Student Life hub for student support and careers services, as well as the Students' Union\*. We are a short walk from several of the university's student residences and the 130 acres of Bute Park, where many of our students chose to spend their free time.

\*Cardiff University Students' Union was rated 2nd in the UK by 2024 WhatUni Student Choice Awards for Best Students' Union.

## Facilities

As well as the lecture theatres, seminar rooms, conference rooms and dedicated undergraduate computing suite you'd expect from a top physics and astronomy department, the Queen's Buildings also house a cafeteria, snack bar and common room. The award-winning Trevithick library is also on site, and our students are also welcome to use any of the other university libraries.

## Lab and research facilities

We have dedicated first, second and third year undergraduate physics laboratories to help you gain experience with a variety of experimental methods and equipment.

Our research facilities include the Institute for Compound Semiconductors (ICS) in the state-of-the-art Translational Research Hub (TRH), the UK's newest centre for NetZero industry solutions. Designed to bring our academic and research scientists together with industry, the UK Science Minister visited the TRH in June 2023 as part of the launch of the UK Government's semiconductor strategy.

We are also partners with CUBRIC (Cardiff University Brain Imaging Centre) for medical physics research, and have access to Microwave Plasma Chemical Vapour Deposition (CVD) facilities in our Cardiff Diamond Foundry.

Our world-leading astronomy instrumentation supports the one of the largest teams of astronomers in the

UK - the Cardiff Hub for Astrophysics Research and Technology – who work with some of the world's most powerful ground-based and space-based telescopes.

The Gravity Exploration Institute is one of the world's strongest gravitational waves research groups covering theoretical simulations, analysis of gravitational wave data, and development of new experimental techniques for future detectors.

## Cleanrooms

We have two cleanrooms for semiconductor fabrication, one of which is a purpose built 1500m<sup>2</sup> industry-standard facility in the Institute for Compound Semiconductors, while the other is a training space. In addition, we have extensive laboratory spaces for characterisation, including low-energy electron microscopy for high-resolution imaging, ultrafast optical microspectroscopy, and full testing electrical and optical testing of semiconductor devices.

# Applications

To be considered for entry onto any of the undergraduate courses offered in the School of Physics and Astronomy, you should apply through UCAS:

UCAS, Rosehill, New Barn Lane,  
Cheltenham, Glos, GL52 3LZ, UK

[www.ucas.com](http://www.ucas.com)

## Entry requirements

If you are taking or currently studying for A-levels, we normally require good grades in three subjects that should include Maths and Physics (but exclude General Studies and Critical Thinking). Students will need to demonstrate proficiency in science practicals where applicable. Applicants must have full A-levels as AS-levels are not sufficient for entry onto BSc or MPhys programmes. A typical offer is in the range of A\*AA-ABB at A-level.

We normally require a pass at GCSE English language at grade C or above, or IELTS 6.5 (with 5.5 in each skill area).

For those students sitting the International Baccalaureate, we require 34-37 points with 6 in Physics and Maths at Higher Level.

## Other qualifications

We welcome applications from those with other qualifications including Open University, International Baccalaureate and Welsh Baccalaureate; each application is assessed individually. We will consider applications from those who were unable to study A-level Physics (or equivalent) but who have very good grades in Mathematics. If you would like to discuss your application before applying, please contact the admissions tutor or visit our Coursefinder web pages at: [www.cardiff.ac.uk/courses](http://www.cardiff.ac.uk/courses) for further information.

## International applicants

We welcome applications from international students. Your qualifications must be comparable to UK qualifications. Please contact the admissions tutor for details. More information is also available on our website at: [www.cardiff.ac.uk/international](http://www.cardiff.ac.uk/international)

## Employment

The School and University are able to offer term-time and vacation employment to some undergraduate students.

This is operated by the University's own student employment agency. The School's Careers and Industry Liaison Officer is also available to offer employment guidance to students.

## Equality and diversity

We are committed to supporting, developing and promoting equality and diversity in all our practices and activities.

We aim to establish an inclusive culture free from discrimination and based upon the values of dignity, courtesy and respect. We recognise the right of every person to be treated in accordance with these values.

We are committed to advancing equality on the grounds of age, disability, gender reassignment, marriage and civil partnership, pregnancy and maternity, race, religion and belief (including lack of belief), sex and sexual orientation and to fostering good relations between different groups.

For further information, please visit: [www.cardiff.ac.uk/public-information/equality-and-diversity](http://www.cardiff.ac.uk/public-information/equality-and-diversity)

## Open Days

You will meet students and staff, providing us with the opportunity of getting to know more about you and enabling you to find out what life is like as a physics student at Cardiff. These visits include tours of the University and School, allowing you to see such facilities as the library, Students' Union, PC laboratory, experimental laboratories and research facilities. There are illustrated talks describing the courses and demonstrations of the research work carried out in the School. You will have an opportunity to talk to current students as well as have a one-to-one chat with the teaching staff, sample our refectory food, browse the library, visit our teaching and research facilities, so that you can see for yourself what it's like to be a student at Cardiff.

There are also University-wide Open Days held each year. Details are available on the University website in advance at: [www.cardiff.ac.uk/openday](http://www.cardiff.ac.uk/openday)

## Student support

Whether or not you use student support services it's reassuring to know that they are available to you should you need them. Every student is assigned a personal tutor but should you need extra support we have a range of services available to you.

Such as;

- Disability and Dyslexia support
- Counselling and Wellbeing Guidance
- International Student Support
- Student Mentor Scheme

Email: [studentconnect@cardiff.ac.uk](mailto:studentconnect@cardiff.ac.uk)

Tel: +44 (0)29 2251 8888

## Tuition fees and financial assistance

The University charges an annual fee which covers all tuition fees, registration and examinations other than the re-taking of examinations by applicants not currently registered. Please note charges for accommodation in University Residences are additional.

### Tuition fees

Please see the following website for more information: [www.cardiff.ac.uk/fees](http://www.cardiff.ac.uk/fees)

### Scholarships and bursaries

For more information please visit the following website: [www.cardiff.ac.uk/scholarships](http://www.cardiff.ac.uk/scholarships)

## For further information contact:

Dr Chris North

Director of Admissions and Recruitment  
School of Physics and Astronomy

Queen's Buildings

The Parade Cardiff CF24 3AA

Tel: 029 2087 6457

Email: [physics-admissions@cardiff.ac.uk](mailto:physics-admissions@cardiff.ac.uk)



## How to find the School

The School of Physics and Astronomy is located in Queen's Buildings, just a short walk from Cathays Campus.

## Key

-  School of Physics and Astronomy
-  University and NHS buildings
-  Student residences

## Important Legal Information

The contents of this brochure relate to the Entry 2025 admissions cycle and are correct at the time of going to press in June 2024. However, there is a lengthy period of time between printing this brochure and applications being made to, and processed by us, so please check our website at: [www.cardiff.ac.uk](http://www.cardiff.ac.uk) before making an application in case there are any changes to the course you are interested in or to other facilities and services described here. Where there is a difference between the contents of this brochure and our website, the contents of the website take precedence and represent the basis on which we intend to deliver our services to you.

**Your degree:** Students admitted to Cardiff University study for a Cardiff University degree.

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Mae'r ddogfen hon hefyd ar gael yn Gymraeg. This document is also available in Welsh.

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This prospectus can be made available in alternative formats, including large print (text), Braille and on audio tape/CD.

To request an alternative format please contact Laura Roberts:

Tel: **029 2087 4455**

Email: [RobertsL9@cardiff.ac.uk](mailto:RobertsL9@cardiff.ac.uk)

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