CARDIFF UNIVERSITY
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Cardiff School of Physics and Astronomy

Undergraduate Degree Programmes

Entry 2016

www.astro.cardiff.ac.uk

Cardiff School of Physics and Astronomy

Supportive environment

Friendly

On site facilities

Transferable skills

"Cardiff University is one of Britain's leading teaching and research universities."

Telegraph Guide to UK Universities

Tutorials

High employability

World leading research

Modern teaching laboratories

INSIDERS
meet our students

Insider Information - Find out more…

Want to know what life at Cardiff is really like? Our Insiders are real students studying a range of subjects. You can read their blogs, post comments and message them on Facebook and Twitter.

To find out more go to: **www.cardiff.ac.uk/insiders**

Discover the Cardiff Experience

A leading university . . .

- You'll be part of a Russell Group university – one of the UK's world-class universities.
- You can choose from more than 300 degree programmes. The Cardiff University degree is known and respected worldwide with a substantial number accredited by the professions and other external bodies.
- You'll benefit from outstanding teaching in a research-led environment – Cardiff is ranked in the UK's top 5 universities for research quality.
- Staff include a Nobel Laureate and numerous Fellows of the Royal Society and other prestigious institutions.

in an outstanding city . . .

- You'll live in a friendly, compact and safe city with all your study, living and leisure needs within walking distance.
- Your money will go further at Cardiff with capital city attractions at provincial prices – including one of the lowest average costs of living for university cities.[1]

with able and motivated students . . .

- You'll be at a first choice university where demand for places is strong.
- You'll be studying in an environment with able and motivated students who have high grades at A-level or equivalent.
- You'll be at an international university with students from more than 100 countries.

who have excellent career prospects.

- You can be confident of your future prospects – typically, 95% of our students were employed or had entered further study within six months of completing their studies.[2]
- You'll be in demand – Cardiff is among the top 25 universities targeted by employers seeking high calibre graduates.[3]

Notes

1. Moneysupermarket.com
   Quality of Living Index 2014
2. HESA Destination of Leavers Survey 2013
3. High Fliers Research
   The Graduate Market 2015

Welcome

These are exciting times in Cardiff.

The Cardiff University School of Physics and Astronomy and its strong teaching and research programmes are growing rapidly.

Not only can we show you science at its cutting-edge, but we also pride ourselves on being a friendly, approachable group of physicists, and we'll do our very best to help you develop the many skills and abilities which will make all the difference in your subsequent professional life.

We are proud to be involved in many projects representing the frontiers of physics research, with the recent UK-wide Research Excellence Framework ranking the School as 6th in the UK. We build and operate both small and large lasers and investigate the interface between physics and living systems. We work with nano-scale devices, often at extremely low temperatures, exploiting the thermal, magnetic and quantum properties of materials on these tiny scales. Our Astronomy group is continuing to hit the headlines with its achievements. We search for gravitational waves, applying the latest techniques in high-performance computing, and observe with many telescopes around the globe and in space. The group continues to exploit the exciting results being produced by the Herschel Space Observatory and Planck satellite, and is working to design and build the next generation of observatories on the ground and in space. We carry out a wide range of research on many aspects of astronomy, from detailed analyses of stars forming in our galaxy and beyond, to the origin of structure in the Universe.

Our 3rd and 4th year research projects allow you to get to grips with the research-level work in these exciting areas of physics and astronomy. The combination of exciting research activity and a caring teaching

environment means that we can offer undergraduate courses that we believe are rather special in their breadth and depth and their connection with current scientific developments. You may eventually choose to pursue a career in scientific research, or use your valuable and highly sought-after skills in other vital areas of industry, education or any one of a huge number of professions.

The educational experience we offer will equip you for a rewarding and adaptable professional life in the twenty-first century, as well as giving you a real insight into the workings of the Universe on the largest and smallest scales.

Cardiff is a thriving capital city and a vibrant centre for entertainment, sport and the arts. It is a great place, and we hope you will join us to share our scientific adventure.

Professor Matt Griffin
Head of Cardiff University School of Physics and Astronomy

Contents

This brochure will provide you with more details of our programmes. We hope that they will give you more than just a flavour of what we have to offer you. However, we are always ready to answer any questions you may have, by telephone or email, or when you come to Cardiff to visit. You will find appropriate contacts at the end of this brochure.

Important information. Please read carefully.

The University offers the information contained in this brochure as a guide only. It does not constitute a contract and is not binding on prospective students, current students or the University. While the University makes every effort to check the accuracy of the factual content at the time of publication, some changes will inevitably occur in the interval between publication and the academic year to which the brochure relates (Entry 2015). For example, degree programmes may have changed in line with market and student demand, and research development. Applicants should not, therefore, rely solely on this brochure and should visit the website for up-to-date information concerning course content, accreditation, and entry requirements for the relevant academic year when considering applying to the University.

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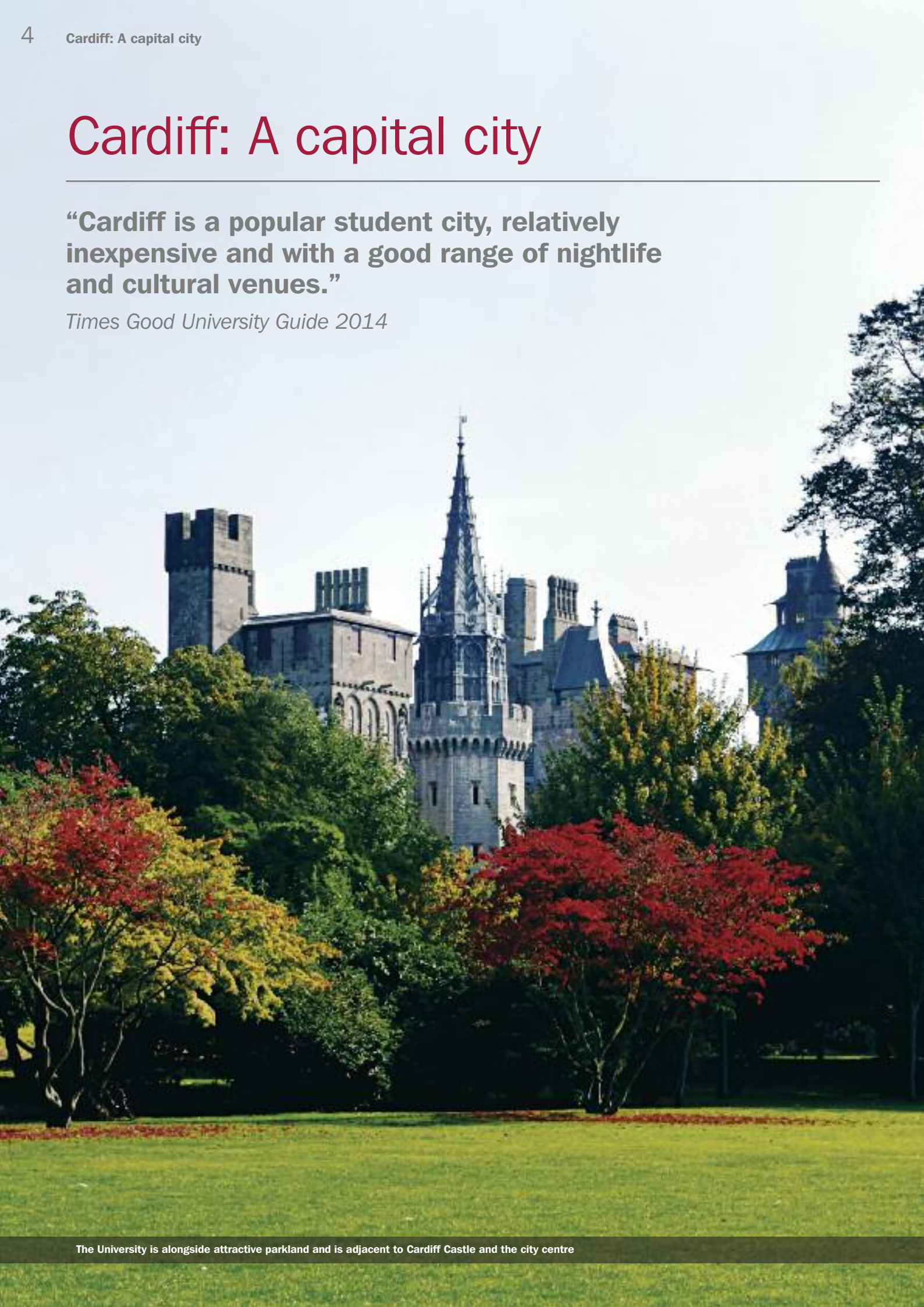
Cardiff: A capital city

"Cardiff is a popular student city, relatively inexpensive and with a good range of nightlife and cultural venues."

Times Good University Guide 2014



The University is alongside attractive parkland and is adjacent to Cardiff Castle and the city centre

More online at:
www.visitcardiff.com
www.cardiff.ac.uk
www.cardiff.gov.uk

Cardiff is a thriving and attractive city which is widely recognised as an outstanding place in which to live and study. It combines all the advantages of a compact, friendly and inexpensive location with the cultural and recreational facilities of a modern capital city.

Cardiff offers everything from the excitement of the city to the peace and tranquillity of the nearby coast and countryside. With its distinctive character, good quality of life, and growing national and international reputation, it hosts many high-profile cultural and sporting events, including international rugby, soccer, cricket and motor sport.

When it comes to entertainment, Cardiff is well-equipped to satisfy student needs. There is a multitude of cafes, pubs and nightclubs. The City is home to the world-renowned Welsh National Opera, it boasts prestigious concert venues such as the Wales Millennium Centre, St David's Hall and the Motorpoint Arena, as well as the iconic Millennium Stadium, the National Museum and Gallery of Wales, several theatres and the historic Cardiff Castle.

Cardiff is the location for award-winning television productions, including Dr Who, Sherlock, Torchwood and Casualty, and the Dr Who Experience in Cardiff Bay is a popular new attraction.

The city is one of the UK's best shopping destinations, a status enhanced by the opening of the £750 million St David's Dewi Sant retail centre standing alongside pedestrianised shopping streets, indoor and outdoor markets, and a fascinating network of glass-canopied Victorian and Edwardian arcades.

Cardiff also has more urban green space than any other UK city, and offers easy access to the countryside, coast and mountains.

Lively, elegant, confident, cosmopolitan and ambitious are all words readily used to describe modern-day Cardiff. Together, the city and the University provide students with the 'Cardiff Experience', a lifestyle our students remember long after graduation.

The Millennium Stadium nestles in the heart of the city, and is home to numerous sporting events and concerts throughout the year

Cardiff is one of the UK's most successful retail centres

Don't just take our word for it…

"Modern Cardiff combines the best of the old and the new… it has a relatively small population and is fairly inexpensive to live in. Close to the campus, the city centre has an array of shops and entertainment options to cater to all tastes and budgets."

The Telegraph Guide to UK Universities

Come and see for yourself…

Cardiff benefits from excellent road and rail links with Britain's other major towns and cities. London, for example, is two hours by train, and the M4 links both the west and south of England, as well as west Wales. Travel to the Midlands and to the North is equally convenient. The journey by road from Birmingham, for example, takes only two hours. The main coach and railway stations are both centrally placed, and Cardiff also benefits from an international airport.

Cardiff Bay, the city's waterfront

Cardiff: A leading university

“Cardiff University is one of Britain’s leading teaching and research universities.”

Telegraph Guide to UK Universities 2014

More online at:
www.cardiff.ac.uk

Cardiff University has an international reputation for excellence in teaching and research, built on a history of service and achievement since 1883, and recognised by our membership of the Russell Group of leading research-led universities.

With attractive and compact campuses, excellent student accommodation, and a hugely popular Students' Union, all within easy walking distance of each other in a thriving city, it is not surprising that Cardiff is a university of first choice among well-prepared applicants.

We admit approximately 5,000 undergraduate entrants each year, the majority of whom are school and college leavers, and have high grades at A-level or equivalent. While competition for entry is strong, Cardiff is an inclusive university with a good record on widening participation and fair access, and we welcome applications, irrespective of background, from everyone with the potential to succeed at Cardiff University.

The University's Cathays Park campus is located in and around the impressive Portland stone buildings, parks and wide tree-lined avenues that form Cardiff's attractive civic centre. The majority of academic schools are located here - just a few minutes' walk from the city centre. The three academic schools offering healthcare courses (excluding Optometry and Pharmacy) are based at the Heath Park campus, approximately one mile away, which is also home to the University Hospital of Wales.

Although dating from 1883, Cardiff is focused on the 21st century, and has modern state-of-the-art buildings and facilities. The University has invested substantially in its estate in recent years and most academic schools have benefited from major refurbishment, including new and well-equipped laboratories, lecture theatres, libraries and computing facilities.

International opportunities are available via our Global Opportunity Centre. These include study, work and volunteering placements in 27 EU countries as well as international exchange opportunities. All students also have the opportunity to study a language in addition to their degree through the University's Languages For All programme.

The University takes its environmental, safety and security responsibilities very seriously. It has comprehensive policies in place which are making great savings in energy consumption and, to support the safety and security of all members of the University community and their property, there is 24- hour security cover throughout the campus.

What the Guides say

"[Cardiff] University is the acknowledged leader of higher education in Wales. It is the Principality's only member of the Russell Group of research-led universities and has two Nobel Laureates on its staff. It is our 2014 Best Welsh University."

Times Good University Guide 2014

"The University is as confident and forward-looking as the city it's located in, and has an excellent reputation for the quality of its teaching and research. Almost 60% of its research is ranked as world leading and it is a member of the Russell Group of leading universities."

Guardian University Guide 2013

Living in Cardiff

As a fast developing capital city, Cardiff is a great place to be a student. It's large enough to offer you an exciting variety of activities and entertainment, but small enough for you to feel comfortable in.

Accommodation

Cardiff offers guaranteed University accommodation, good quality and value, and a range of residences to suit individual preferences and budgets.

All first year undergraduates who apply during the normal UCAS admissions cycle (ie come to Cardiff as a firm or insurance applicant) are guaranteed a single occupancy place in University residences during the first year of study. Please see our website for full details: **www.cardiff.ac.uk/residences**

The University is continually investing in its student residences, and the views of students are taken into account at the design stage. Unusually for a civic university, most of our residences are within easy walking distance of lecture theatres, libraries, laboratories, the Students' Union and city centre.

There are 15 different residences, providing more than 5,500 study bedrooms and students can apply for the residences which best suit their preferences, interests and budgets. Some 70% have en-suite shower and toilet facilities and all halls of residence have computer network connection points and access to Wi-Fi.

Fees depend on the facilities included and whether catered, part-catered or self-catered, but prices compare very favourably with those of other UK universities. Besides managing University property, the Residences Office maintains close links with the private sector and provides assistance to students seeking to rent or share houses or flats.

Student Life

The Students' Union

Cardiff Students' Union is one of the biggest, best and most active in Britain. The Union recently opened a new venue called Y Plas which at night becomes a nightclub. Hosting live music, club nights, stand-up comedy, fashion shows and awards ceremonies, there's lots to keep you entertained from your first day to your last.

Other facilities include a new food court, a bank, a print shop, a hair salon and a bookshop. The Lounge offers IT and Skyping facilities, meeting rooms and a "chillout" area, as well as snooker tables and multi-faith prayer room. The Union also has its own letting agency and an Advice and Representation centre. In addition, it is home to CU TV and Xpress Radio (the students' own TV and radio stations) and more than 200 cultural, political, religious, social, sporting societies and clubs.

Jobshop

Jobshop is the Union's own student employment service and provides casual, clerical and catering jobs around the University to hundreds of students.

All study bedrooms in the halls of residence have computer network connection points and access to WiFi

The Fitness and Squash Centre is located at the heart of the main campus

Solus is the Students' Union high quality nightclub

More online at:
www.cardiff.ac.uk
www.cardiff.ac.uk/residences
www.cardiffstudents.com
www.cardiff.ac.uk/thrive

Students have access to a wide range of modern facilities, including Skype booths

What the Guides say

"A place in one of the University's 5,300 single study bedrooms is guaranteed to all first year undergraduates applying through the normal UCAS admissions cycle."

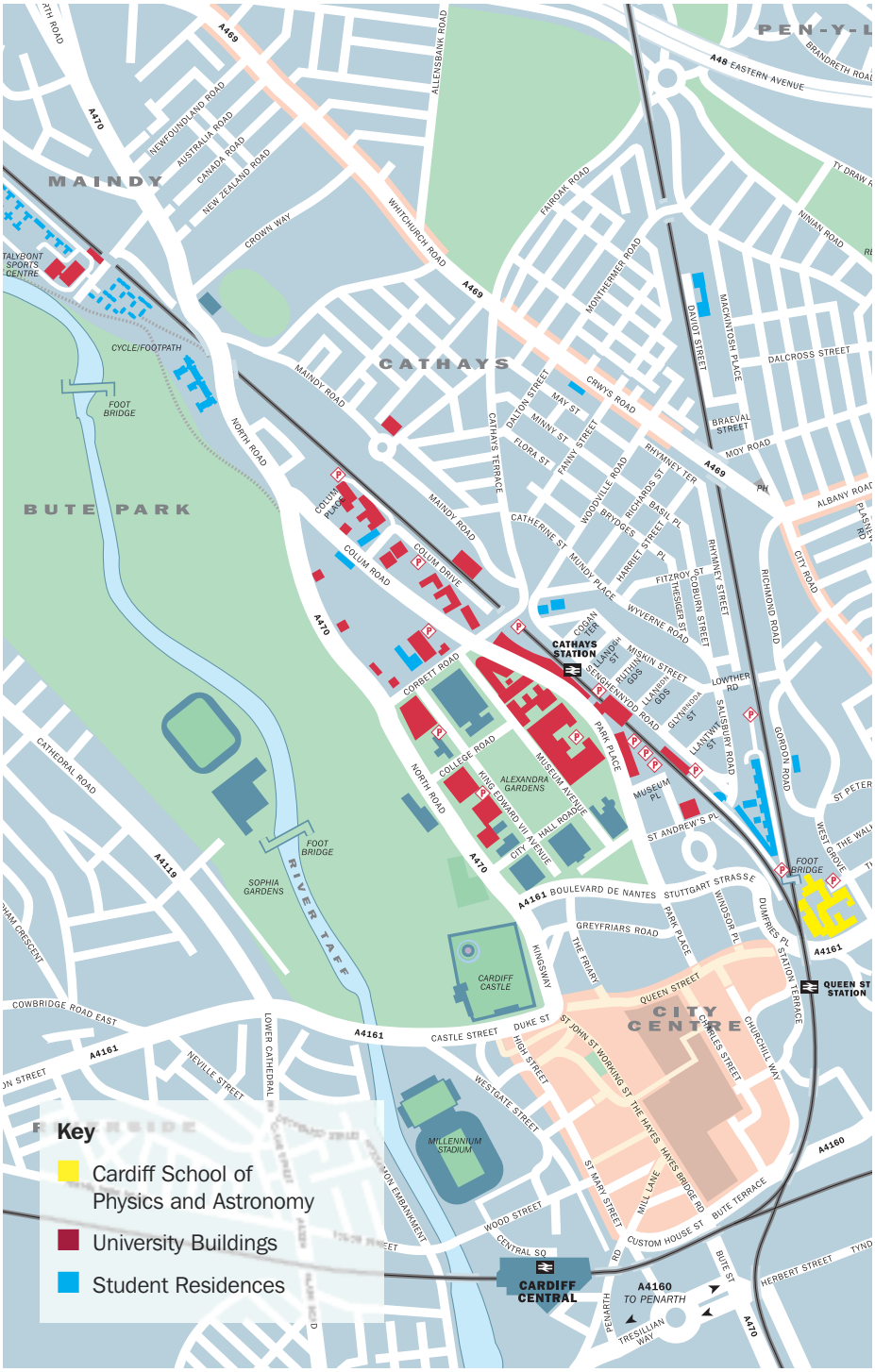
Guardian University Guide 2014

"The cost of living for a student in Cardiff is generally lower than elsewhere in the UK."

The Independent A-Z University Guide 2014

"The Union offers an exciting entertainment programme, a comprehensive range of student support services and 150 clubs and societies."

The Complete University Guide 2014



How to find the School

We are located in the multi-million pound Queen's Buildings complex which also houses the Cardiff School of Engineering and the Cardiff School of Computer Science & Informatics.

The site is very close to the city centre and is easily accessible from University halls of residence.

Studying Physics and Astronomy at Cardiff

Physics is for people who take a real interest in the world around them, those who have enquiring minds and want to understand why things are the way they are. Physics is the basic science and lies at the very heart of all high technology and engineering.

Physicists play a vital role in research and development, forever 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 fundamental that Physics graduates enjoy almost unrivalled job prospects in terms of variety and availability.

Cardiff has a large and successful School of Physics and Astronomy. There are 41 members of academic staff who are able to provide for a wide spectrum of interests and specialist subjects. The School recently ranked 6th in the UK for quality in the 2014 Research Excellence Framework (REF). Current research projects attract multi-million pound funding from numerous sources, the most important of which are from government and international physical science space agencies.

The School is part of the multi-million pound Queen's Buildings complex which also houses Engineering and Computing. It has modern well-equipped laboratories, lecture theatres, computing facilities, conference suites, and a project resource centre. Trevithick Library has been completely redesigned to offer a variety of functional yet innovative learning spaces.

There are independent first, second and third year undergraduate Physics laboratories which allow students to gain experience with a variety of experimental methods and equipment. In their final year, when undertaking an independent research project, students are encouraged to work with one of our research groups on a project of their choosing.

The School currently has a total of 365 undergraduate students, recruiting around 100-120 each year. Students are engaged within the learning environment of the School from the outset, and the student-staff panel, weekly tutorials and student questionnaires are ways in which undergraduates feed back their suggestions and experiences to staff. There is a dynamic Physics and Astronomy Society (known as 'Chaos'!) whose activities and social events contribute to the friendly atmosphere and good staff-student relations.

Flexible degree programmes reflect the breadth and depth of staff members' research activities. Students can study for a BSc or MPhys degree, choosing from several Single and Joint honours programmes of three, four or five years' duration. Preliminary year studies are available as well as professional placements and unique combinations, such as Physics with Music. The core modules of the first and second years give way to a range of options in the later years.

The courses are designed to provide access to applicants with varied educational backgrounds and to be relevant to the wide range of careers pursued by our students following graduation. All of our courses have been accredited by the Institute of Physics. Should you wish to understand the choice of degree programmes further, please read the following pages or contact us directly.

Teaching, Learning and Assessment

Teaching and learning techniques reflect the most up-to-date research about effective methods. Traditional lectures, tutorials and laboratory work are complemented by computer, project and skills-based modules. Learning opportunities also extend beyond the campus with opportunities to attend residential courses in mid-Wales. In addition, you may opt to spend time abroad at other European Universities or in a professional placement.

Assessment is thorough and varied, taking into account different learning styles and needs. Assessment may be by exam or based on coursework, presentations, teamwork exercises, written reports or a combination of the above.

Our external examiner reports regularly confirm the robustness of our assessment procedures as evidence of the programmes' overall quality.

"I have been involved with Chaos for the last two years. I chose to stand in the election for President as the events that ran in my first year really helped me get to know the others on my course and experience the social side of university life, and so taking a role helping to organise these events was an opportunity I couldn't miss. It has been great fun, with fantastic events such as our 2014 trip to the CERN institute in Geneva, our annual end of year ball and the 2015 trip to Amsterdam. I strongly encourage everyone to join in."

Nicholas Jones, Chaos President

More online at:
www.astro.cardiff.ac.uk

Lectures

A significant part of the teaching is provided by the staff through lectures, typically 8-10 hours weekly. The subject matter is supported by course handouts, summaries and worked examples. Course material is also made available electronically through Cardiff's Virtual Learning Environment, 'Learning Central.'

Laboratory Work

Practical classes of four-hours per week form a key part of all our Physics and Astronomy courses. In the first year, the emphasis is on basic techniques, simple but accurate recording of observations and re-enacting some classic physics experiments. In later years, students progress to substantial experiments requiring planning, analysis and interpretation of results, and reporting to a professional standard. In the final year of both BSc and MPhys courses, you will undertake a major research project within one of our research groups. Particular emphasis is placed on these projects as they enable students to develop their investigative skills and to experience the excitement of 'real-life' science research at first hand. Students are able to choose the project that suits them from the wide range of leading edge work within the school. Recent projects have included 'Extracting gravitational wave signals from noisy data,' 'Measurement of radioactivity in small volume samples,' 'Herschel observations of exploding stars' and 'Electron states in a semiconductor super lattice (Kronig-Penny model),' to name just a few.

Information Technology

Information technology is an integral part of the Physics and Astronomy degree programmes. Undergraduates are taught how to use the latest software, develop computational models and to analyse data. All of this is taught on-site within our dedicated undergraduate computing suite.

Small-Group Teaching and Tutorials

Tuition on a one-to-one basis and academic tutorials in groups of four are normal practice at Cardiff. In this setting, informal discussions on coursework open the door to deeper learning about wider issues such as the role of Physics in society and future career options. You will also receive feedback on your coursework during your tutorial. In addition to your academic tutor, you will be assigned a personal tutor, who is a member of the academic staff. Personal tutors are there to advise you on academic, non-academic and personal matters in a confidential and informal manner. We aim to overcome any problems, however big or small, as quickly as possible. Your tutors will become key figures in your development.

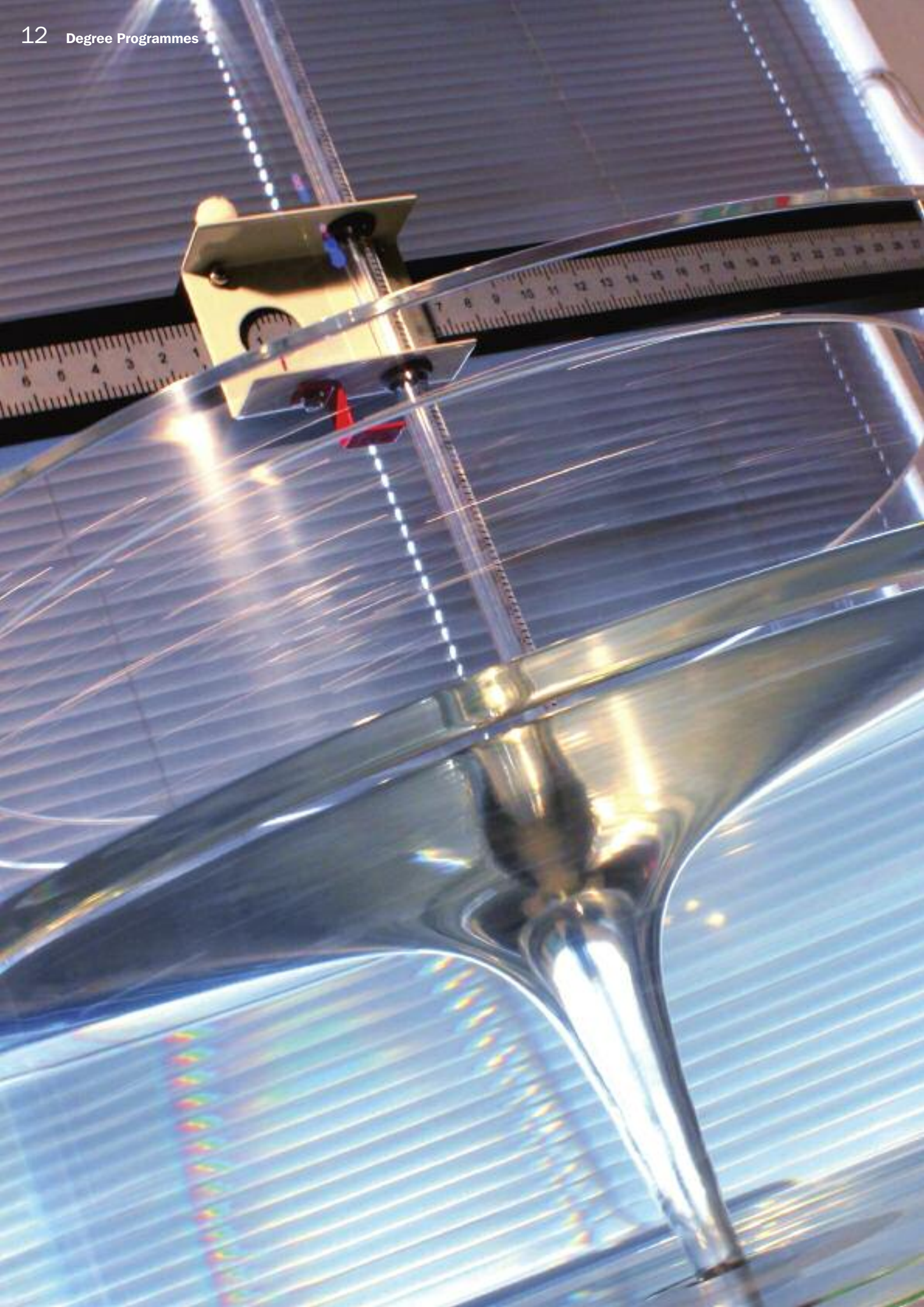
Student-Staff Panels

The Student-Staff Panel is the liaison between the School of Physics and Astronomy teaching staff and the undergraduate students. It meets twice a year. Two undergraduate student representatives are appointed from each year group and each subject area to represent the views of the student cohort. Staff representatives include the Teaching and Quality Co-ordinator, the Director of Undergraduate Studies, the Year Tutors and a rep from the Library. It is chaired by a postgraduate research student. The aim of the meeting is to allow all students, via their rep, a forum in which to raise any problems they might be experiencing on their course or to bring to the meeting anything positive that the School can incorporate into "best practice" policy.

Your First Year at Cardiff

Your first year at university is an important period - it is a year in which you discover a new way of life and a different and exciting way of learning. We recognise that it is not always easy to decide exactly what degree option best suits your interests. Therefore, we have adopted a flexible first year structure with an essential set of core modules that are common to most courses. This allows a lot of freedom in swapping between most degree programmes by the end of the first year.

The range of modules offered in the first year is designed to stimulate your interest in Physics whilst giving you a sound foundation to build upon in subsequent years. You will develop scientific, mathematical and computing skills that are at the heart of Physics as well as acquiring more general attributes such as communication and presentational abilities that are essential in all professional careers.



Degree Programmes

You can study Physics in depth through one of our Single Honours degrees or take advantage of the link with Mathematics via the Joint Honours programme. All of the Single Honours courses have a common framework in the first year of study allowing you to change your choice of degree should you wish. In the first year you have the opportunity to study a "free-standing" module. Modules may be chosen to suit individual requirements from a wide selection offered by other schools within the university. For example you could choose to study a foreign language, business studies, a complementary science module or follow your interest in art, music or literature.

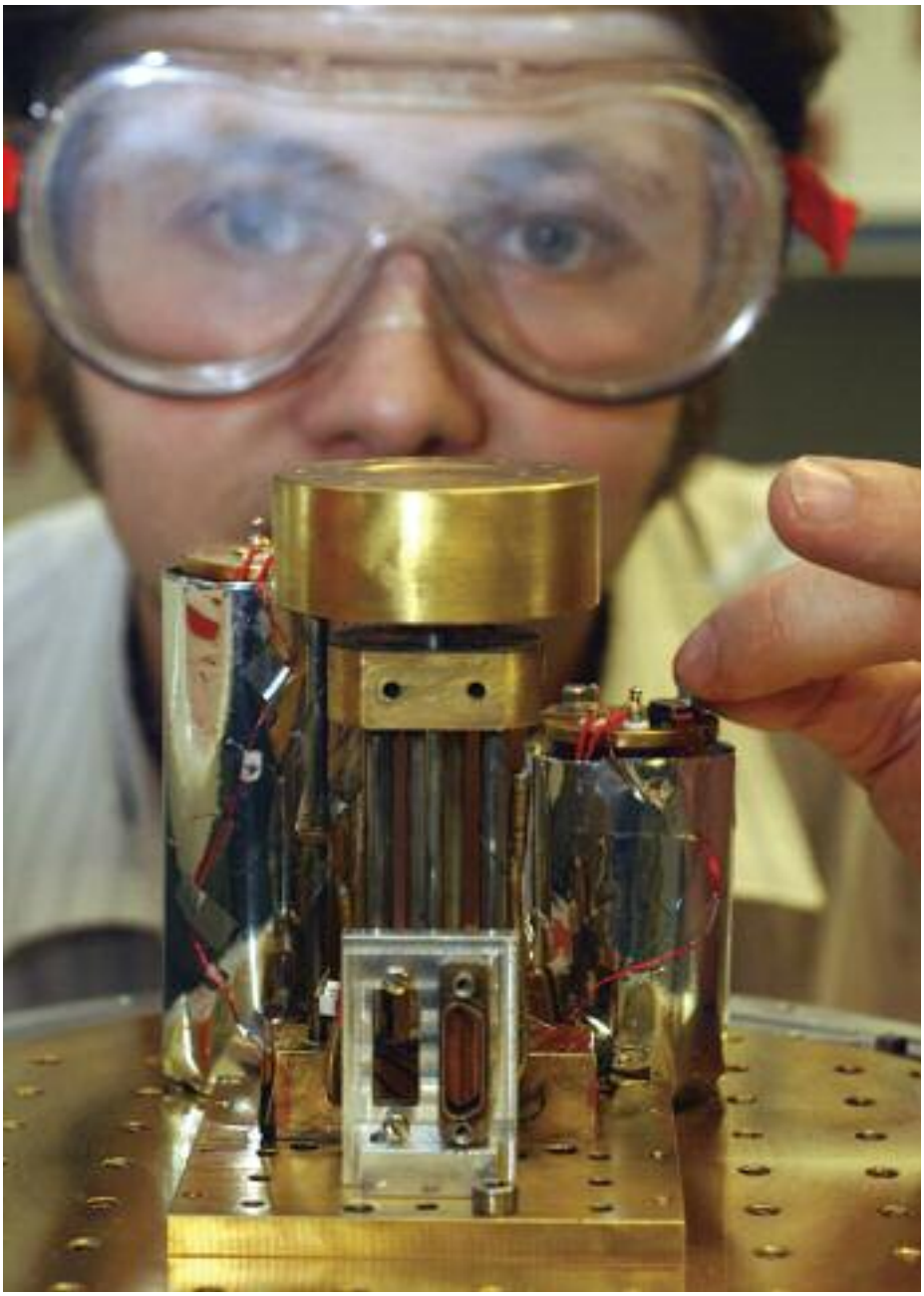
MPhys or BSc?

Whether you decide to study for the three-year BSc or the four-year MPhys will depend on the depth to which you wish to study your chosen field and the career that you wish to pursue upon graduation. The final decision as to which degree type you follow can be taken up to the end of your second year, and it is based on your personal aspirations as well as academic performance. Both degree options give you a chance to undertake a research-style project in your third year. This can be chosen from a wide variety of possibilities offered by the staff or you might like to develop your own.

The MPhys course gives you the opportunity of studying six modules in greater depth than the BSc course and also to undertake a major research project in your final year that will be based in one of the school's research groups. This is an exciting way of contributing to real research and developing the skills that will enable you to become an effective research scientist in your own right. It is particularly valuable for those wishing to study for a higher degree or to go directly into industrial research.

The Cardiff School of Physics and Astronomy offers a wide range of degree programmes:

MPhys Hons Physics (4 years)	F303
MPhys Hons Physics with Astronomy (4 years)	F3FM
MPhys Hons Astrophysics (4 years)	F510
BSc Hons Physics (3 years)	F300
BSc Hons Physics with Astronomy (3 years)	F3F5
BSc Hons Astrophysics (3 years)	F511
BSc Hons Theoretical and Computational Physics (3 years)	F340
BSc Hons Physics with Medical Physics (3 years)	F350
BSc Hons Physics with Music (3 years)	FW33
BSc Hons Physics with Professional Placement (4 years)	F302
BSc Hons Physics with Astronomy with Professional Placement (4 years)	F3FN
BSc Hons Physics with a Preliminary Year (4 years)	F301
BSc Joint Hons Mathematics and Physics (3 years)	FG31
MPhys Hons Physics with a Professional Placement (5 years)	F304
MPhys Hons Physics with Astronomy with a Professional Placement (5 years)	F5F3



Physics Degree Programmes

- Physics MPhys (UCAS code: F303)
- Physics BSc (UCAS code: F300)
- Physics with Professional Placement BSc (UCAS code: F302)
- Physics with Professional Placement MPhys (UCAS code: F304)

The Physics degree programme starts with the common core of physics modules in the first year and then leads into a selection of modules. The course is designed to give you a broad physics education and in addition supply you with a wide range of mathematical and computational skills. The MPhys course is designed for those students who have a clear intention of studying Physics to a greater depth than the three year course will allow. During the first two years, you will study the same selection of core modules as for the BSc then in the third and fourth years you will study a range of core and optional modules. In your fourth year half of your time is spent on a project, which gives you a chance to undertake an extended piece of research work in conjunction with one of the research groups within the school.

This is an exciting and challenging way to build upon the experience of project work gained in your third year, to strengthen your confidence to tackle independent research and to develop the skills necessary to explain your work to others both by giving talks and in writing scientific reports.

The large range of project topics available reflects the research interests of the school and run the gamut from computer modelling of complex protein interactions to the characterisation of quantum dot lasers for ultrahigh 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.

Physics with Music BSc
(UCAS code: FW33)

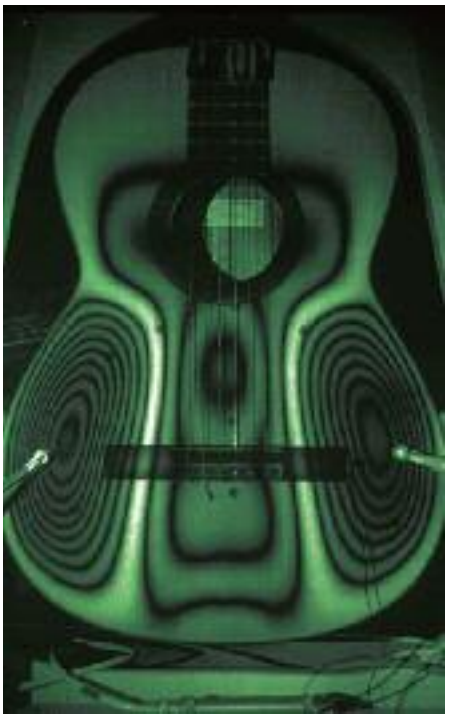
This degree programme provides an ideal background for students contemplating a career in radio, TV or the recording industry, although graduates can also look for career opportunities in the areas open to mainstream physicists. It consists of a comprehensive foundation in Physics (with Computing and Electronics), combined with a significant Music course and its associated practical training.

For entry you will need A-levels in Physics, Music and Mathematics. The mix of two parts science to one part Music continues throughout the three years. Years two and three include special courses on Acoustics, Studio Techniques, and Electronic and Computer Music Synthesis. The School's electronic music studios are open to all Physics with Music students for their formal and informal work.

Final-year project work can be selected either from areas of conventional physics or can be based in the studios or in our musical acoustics research laboratories.

A detailed leaflet on the Physics and Music course is available on request.

Cardiff is one of the few universities in the UK which has specialised research in Physics and Music. Research activities include the study of stringed-instrument acoustics, by means of holographic interferometry, and the numerical modelling of radiation fields and vibrations using finite element analysis. You will have a chance to get more involved in this research during your final-year project.



Physics with Medical Physics BSc
(UCAS code: F350)

Advances in modern medicine flow from developments in the underpinning scientific disciplines. In this respect, the contributions of Physics are just as important as those of Biology and Chemistry. Medical Physics is concerned with the application of physical principles to the diagnosis and treatment of human injury, illness and disease. This often finds expression as developments in technology, which includes both instruments and techniques. Examples of the former range from the humble stethoscope (for listening to internal body sounds) and sphygmomanometer (for measuring blood pressure), to sophisticated magnetic resonance scanners (for producing cross-sectional body images) and linear accelerators (for treating cancer with ionising radiation).

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 often of great importance and developments have, in large part, been enabled by the startling growth in computing power over the past few decades.

Our course is provided in conjunction with the Cardiff & Vale and Velindre NHS Trusts with the specialised modules being taught by professional medical physicists. It is designed to give you a thorough grounding in Physics and a broad introduction to the major topics in medical physics.

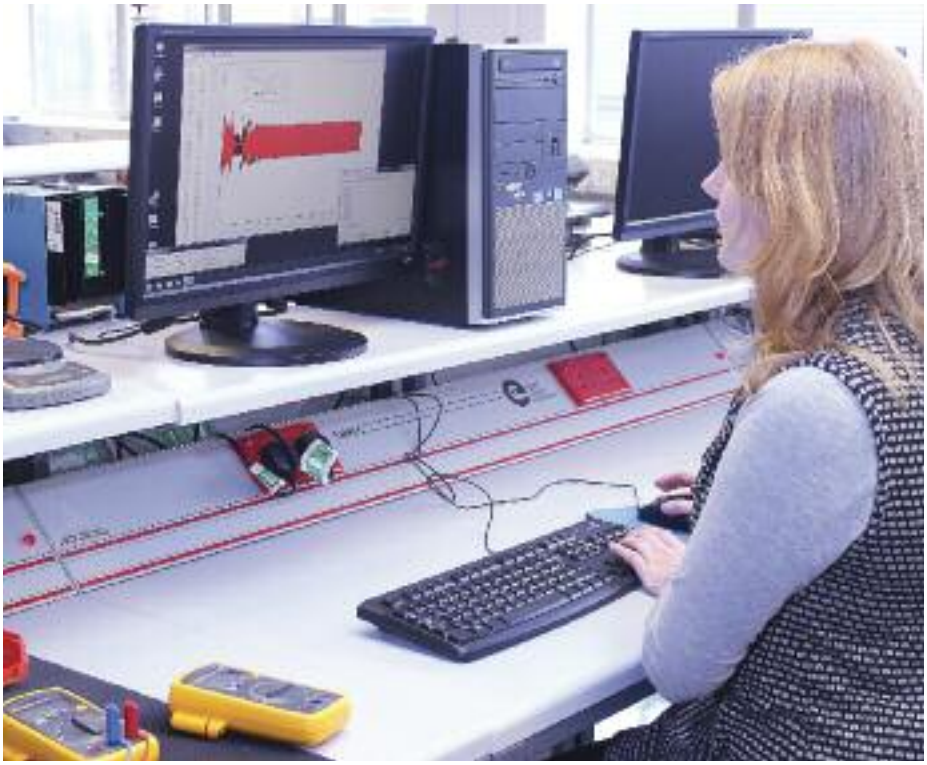
The final year projects are hospital based (mostly at the University Hospital of Wales), and the course provides an excellent basis for a range of careers. Many of our graduates are successful in obtaining places on the UK-wide training scheme for clinical medical physicists run by the Institute of Physics and Engineering in Medicine, while others have undertaken medical physics research or found employment with international medical equipment companies.

Theoretical and Computational Physics BSc
(UCAS code: F340)

This course is aimed at those who want to study Physics but with rather more emphasis on computational physics. The course combines core Physics material with specialist theoretical/computational modules. Career opportunities in theoretical and computational physics are numerous and exciting. Theoretical physicists often work in close collaboration with experimental physicists.

They may spend much of their time developing and experimenting with computer models of systems that are too complicated to model in any other way. Good examples are the Earth's atmosphere and the modelling of weather systems, areas in which interest has grown rapidly over the last few years. The School has a large and varied group of physicists undertaking theoretical and computational research.

This ranges from the modelling of light-matter interactions in quantum structures to the numerical simulation of star and galaxy formation. Researchers regularly use super-computers or the School's state-of-the-art parallel processor.



Astrophysics Degree Programmes

- Physics with Astronomy MPhys (UCAS code: F3FM)
- Astrophysics MPhys (UCAS code: F510)
- Physics with Astronomy BSc (UCAS code: F3F5)
- Astrophysics BSc (UCAS code: F511)
- Physics with Astronomy with Professional Placement BSc (UCAS code: F3FN)
- Physics with Astronomy with Professional Placement MPhys (UCAS code: F5F3)

An astronomy-based course is the ideal degree programme if you are interested in fundamental questions about our Universe and also want to attain a good grounding in Mathematics and Physics, two subjects that should continue to be valuable passports into good graduate careers. At Cardiff, you will be studying in one of the UK's largest Astronomy groups, putting you in touch with the latest astronomical discoveries. At the same time you will be learning fundamental scientific skills and all the core physics required by the Institute of Physics.

As well as being fascinating, Astronomy / Astrophysics is practical because you will learn to use your mathematics and physics skills in situations very different from the ones in which they were originally presented in the lecture theatre – very useful in our rapidly changing world. On graduating you will be fully equipped either to proceed to astronomical research or to enter any of the fields open to mainstream Physics students.

Our Physics with Astronomy courses are aimed at physicists who have a strong interest in astronomy. They allow you to follow a core programme of physics together with specialist modules in a range of astronomy subjects.

The Astrophysics degrees are intended for those who want to concentrate on astronomy and provide the opportunity to study the subject in detail and gain a deeper insight through theoretical as well as observational and instrumentation work.

During your first year you will study the core modules listed in this brochure, and in later years you will choose from a selection of modules reflecting our specialised research areas. The MPhys is a four-year degree designed for those students who already know they want to study Astrophysics in more depth than is possible in the three years. In the first three years you will study most of the same modules as the students involved in the BSc courses. In the final year you will specialise in Astrophysics, spending half of your time completing taught modules and half working on a research project.

Your project may involve the design and build of an instrument for one of the School's telescopes, analysing data from our internationally- or space- based telescopes, trying to understand the physics of the Universe using computer modelling, or maybe detecting Extra Solar Planets.

The Physics with Astronomy courses are designed for those students who want to obtain a solid grounding in physics, in particular in the techniques of experimental physics, but who are also interested in astronomy. You will take many of the same modules as the Astrophysics students (a mixture of physics, astrophysics and mathematics), but there is a greater emphasis on work in the laboratory and on practical project work. For those choosing the four year MPhys course, a combination of modules can be selected from those available to Physics and Astrophysics MPhys students. The same types of final-year projects are available to Physics with Astronomy as to Astrophysics students. As with the Physics degree programme there is also the possibility of extending the BSc Physics with Astronomy programme by the addition of a professional placement year, in your 3rd year. You will normally be assigned a tutor from the Astrophysics group, who will be an active research astronomer and will keep you in touch with the latest developments in astronomy. On graduating you will be equipped either to proceed to astrophysical research or to enter any of the fields open to other Physics graduates.

Joint Honours

- Mathematics and Physics BSc (UCAS code: FG31)

Joint Honours courses are designed for the student who wants a broader science base than can be offered by just one school. They give you the opportunity to study half of your course in another school, where you will come across further, more diverse examples of the excellent research carried out at the University. Prospective employers often view the interdisciplinary nature of the joint degree as a positive advantage, since many areas of work require knowledge in different disciplines.

The normal entry requirements are AAB grades at A-level in Mathematics, Physics and one other subject (excluding General Studies and Critical Thinking).

Please see our School website (**www.astro.cf.ac.uk**) for further details. For further information on the modules studied in the Joint school please contact the Admissions Tutor.

Degree Programme Structures

The degree programmes are designed to give you a thorough grounding in the fundamental aspects of Physics and Astronomy and to enable you to exercise as much choice as possible in your course content.

The first two years provide the basic core plus some options; the final years then allow a fuller choice of topics plus the chance to undertake major research projects. All of the degree programmes are modular with the equivalent of six modules taken in each of the spring and autumn semesters. Most of the modules will contain some element of continual assessment.

Years One and Two

The first year ensures that you have a thorough basis on which to study in future years. It will consolidate the work you will have done before university and extend your knowledge across a broad range of Physics subjects. There are some optional modules available within the first year, including one "free standing module" which may be taken from another school. Weekly tutorials and exercise classes related to the module content ensure that students have a high level of support within their first year at Cardiff. The second year of the programmes continues to build on the core physics material and extends the range of choice available through the optional modules.

Years Three and Four

The final years of our degrees allow students to specialise and study selected topics in depth. The majority of the modules taken at this stage are optional. A research project forms an important part of the teaching in both years. The third year project provides the opportunity to apply the physics learnt in years one and two and to develop independent research skills.

There are a number of additional skills associated with the project such as presentations, report writing and information management.

The fourth year project is a major part of our MPhys programmes and we attach particular importance to it at Cardiff. It accounts for half of the fourth year content and provides training in analysis, synthesis and problem solving – the key skills required of a professional physicist. Both third and fourth year projects are linked to the research work of the school and provide the opportunity for students to work alongside world leading scientists in cutting edge research.

Year One Programmes

Key:
- ● Compulsory Module
- ● Optional Module

Module Code	Module Title	Semester	Credits	BSc Physics	MPhys Physics	BSc Theoretical and Computational Physics	BSc Physics with Medical Physics	BSc Physics with Astronomy	MPhys Physics with Astronomy	BSc Astrophysics	MPhys Astrophysics	BSc Physics and Music	BSc Joint Maths and Physics
PX1121	Mechanics and Matter (20-credit Autumn)	A	20	●	●	●	●	●	●	●	●	●	●
PX1122	Mathematical Methods for Physicists I	A	10	●	●	●	●	●	●	●	●	●	
PX1123	Experimental Physics I	A	10	●	●	●	●	●	●	●	●	●	●
PX1124	The Universe from Particles to Galaxies	A	10	●	●	●	●	●	●	●	●		
PX1125	Mathematical Practice for Physical Sciences	A	10	○	○	○	○	○	○	○	○		
	Free Standing Module	A	10	○	○	○	○	○	○	○	○		
PX1221	Electricity, Magnetism and Waves (20-credit Spring)	S	20	●	●	●	●	●	●	●	●	●	●
PX1222	Mathematical Methods for Physicists II	S	10	●	●	●	●	●	●	●	●	●	
PX1223	Experimental Physics II	S	10	●	●	●	●	●	●	●	●		
PX1224	Computational Skills for Problem Solving	S	10	●	●	●	●	●	●	●	●	●	●
PX1225	Planets and Exoplanets	S	10	○	○	○		●	●	●	●		
PX1226	How the Human Body Works	S	10	○	○	○	●						

Year Two Programmes

Key:
- ● Compulsory Module
- ● Optional Module

Module Code	Module Title	Semester	Credits	BSc Physics	MPhys Physics	BSc Theoretical and Computational Physics	BSc Physics with Medical Physics	BSc Physics with Astronomy	MPhys Physics with Astronomy	BSc Astrophysics	MPhys Astrophysics	BSc Physics and Music	BSc Joint Maths and Physics
PX2131	The Physics of Fields and Flows (20-credit Autumn)	A	20	●	●	●	●	●	●	●	●	●	●
PX2132	Introductory Quantum Mechanics	A	10	●	●	●	●	●	●	●	●	●	●
PX2133	Intermediate Practical Physics I	A	10	●	●	○	●					●	
PX2134	Structured programming	A	10	●	●	●	○	●	●	●	●		
PX2135	Electronic Instrumentation	A	10	○	○	○	○	○	○				
PX2136	The Sun and Stars	A	10	○	○	○		○	○	●	●		
PX2137	Electricity in the Human Body	A	10	○	○	○	●	○	○				
	Free Standing Module	A	10	○	○	○		○	○				
PX2231	Thermal and Statistical Physics (20-credit Spring)	S	20	●	●	●	●	●	●	●	●	●	●
PX2232	Optics	S	10	●	●	●	●	●	●	●	●	●	●
PX2233	Intermediate Practical Physics II	S	10	●	●	○							
PX2234	Synoptic Physics	S	10	●	●	○	●	○	○				
PX2235	Synoptic Astrophysics	S	10			○		○	○	●	●		
PX2236	Introduction to Condensed Matter Physics	S	10	●	●	●	●	●	●	●	●	●	
PX2237	Radiation in Medical Diagnosis	S	10			○	●						
PX2338	Observational Techniques in Astronomy (20-credit Autumn/Spring)	AS	20			○		●	●	●	●		

Year Three Programmes

Key:
- ● Compulsory Module
- ● Optional Module

Third and fourth year modules reflect the research undertaken in the School and thus may vary.

Module Code	Module Title	Semester	Credits	BSc Physics	MPhys Physics	BSc Theoretical and Computational Physics	BSc Physics with Medical Physics	BSc Physics with Astronomy	MPhys Physics with Astronomy	BSc Astrophysics	MPhys Astrophysics	BSc Physics and Music	BSc Joint Maths and Physics
PX3141	Atomic and Nuclear Physics [20-credit Autumn]	A	20	●	●	●	●	●	●	●	●	●	●
PX3142	Condensed Matter Physics	A	10	●	●	●	●	●	●	●	●		
PX3143	Computational Physics	A	10	●	●	●	●	●	●	●	●		
PX3144	Electromagnetic Radiation Detection	A	10	●	●	●	●	●	●	●	●		
PX3145	Formation and Evolution of Stars	A	10					●	●	●	●		
PX3146	Cosmology	A	10	●	●	●		●	●	●	●		
PX3147	Digital Medical Imaging	A	10	●	●	●	●	●	●	●	●		
PX3148	Acoustics and Studio Sound	A	10	●	●	●	●	●	●	●	●	●	
PX4119	Large Molecules and Life [Year 4 module as option for Med Phys only]	A	10				●						
EN3006	Commercialising Innovation [Engineering module]	A	10	●	●	●	●	●	●	●	●		
PX3241	Particle Physics and Special Relativity [20-credit Spring]	S	20	●	●	●	●	●	●	●	●	●	●
PX3242	Semiconductor Devices and Applications	S	10	●	●	●	●	●	●	●	●		
PX3243	Laser Physics and Non-Linear Optics	S	10	●	●	●	●	●	●	●	●	●	
PX3244	Extragalactic Astrophysics	S	10					●	●	●	●		
PX3245	High-Energy Astrophysics	S	10					●	●	●	●		
PX3246	Medical Ultrasound	S	10	●	●	●	●						
PX3247	Radiation for Medical Therapy	S	10	●	●	●	●						
PX3248	Theoretical Physics	S	10	●	●	●	●	●	●	●	●	●	
PX3249	Statistical Mechanics	S	10	●	●	●	●	●	●	●	●	●	
PX3250	Environmental Physics	S	10	●	●	●	●	●	●	●	●	●	
PX3315	Physics Project [20-credit Autumn/Spring]	AS	20	●	●	●						●	●
PX3316	Astrophysics Project [20-credit Autumn/Spring]	AS	20					●	●	●	●		
PX3318	Medical Physics Project [20-credit Autumn/Spring]	AS	20				●						

Year Four Programmes

Key:
- ● Compulsory Module
- ● Optional Module

Third and fourth year modules reflect the research undertaken in the School and thus may vary.

Module Code	Module Title	Semester	Credits	BSc Physics	MPhys Physics	BSc Theoretical and Computational Physics	BSc Physics with Medical Physics	BSc Physics with Astronomy	MPhys Physics with Astronomy	BSc Astrophysics	MPhys Astrophysics	BSc Physics and Music	BSc Joint Maths and Physics
PX4106	Interstellar Medium and Star Formation	A	10						●		●		
PX4119	Large Molecules and Life	A	20		●				●		●		
PX4121	Quantum Field Theory (Swansea - video link)	A	10		●				●		●		
PX4124	Introduction to General Relativity	A	10		●				●				
PX4129	Relativistic Quantum Mechanics (Swansea - video link)	A	10		●				●		●		
PX4221	Low Dimensional Semiconductor Devices	A	10		●				●		●		
PX4222	Modern Quantum Optics	S	10		●				●		●		
PX4223	Physics of the Early Universe	S	10		●				●				
PX4224	Advanced General Relativity and Gravitational Waves	S	10		●				●				
PX4228	Data Analysis	S	10		●				●		●		
PX4310	Project	AS	60		●				●		●		

Employability and Careers

Physics Graduates are highly sought after by employers in every sector from industry through education and commerce to healthcare. High levels of numeracy, problem solving and IT skills are at the top of every employer's list of requirements.

A good degree in Physics ensures that your skills in these key categories are developed to exceptional levels. The Physics project in the third and fourth year 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 demonstrate that other key skill set - communication.

We also encourage our students to use their time at Cardiff to broaden their horizons and gain further useful employability skills, outside the Physics curriculum.

- First and second year students may undertake Free Standing Modules, studying for example Science and Communication, history or a foreign language, for one module per year;
- We strongly encourage students to undertake work experience placements, either over the summer break, or by taking a year out to do a Professional Placement;
- Signing up as a STEM Ambassador and doing science outreach activities with the general public, or in schools, is great experience for honing communication skills as well as ensuring that you really understand your physics.
- 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 and Industry Liaison Officer, who is a member of the academic staff, is available to help support students with their career and work experience options.

Careers and Employability Service

Cardiff University Careers Service provides a dedicated Physics careers consultant, who is available to assist with careers advice, help with CVS and applications, as well as guiding you towards all of the activities run by the Careers service. A series of timetabled Careers Management Skills sessions in the second year ensures that you are well equipped to apply for work experience and in due course, employment. We regularly invite recent Physics graduates to come back to talk to current students about their experience of working life, and these lunchtime sessions, in addition to the Careers Fairs run by the Careers Service, mean that you will be well informed about, and inspired by, the many options open to you.

Between my second and third year of academic study, I had the opportunity to undergo a year-long work placement at National Instruments UK, a company specialising in data acquisition and instrument control. During my time there I worked as a member of the applications engineering team, provided with all the training and opportunities that were available to graduate members of the department.

The placement was excellent in helping me develop a broad spectrum of skills, from problem solving to interpersonal. On a day-to-day basis I would be required to work on several problems from professional engineering customers and to balance this workload effectively. I learned a fantastic amount about programming and electronics on my placement, which have only gone on to enhance my education upon returning to academia. Using this knowledge I was even able to take place in complex electronics projects, including developing my own ultrasonic musical instrument, and working as part of a team to build a draughts playing robotic arm!

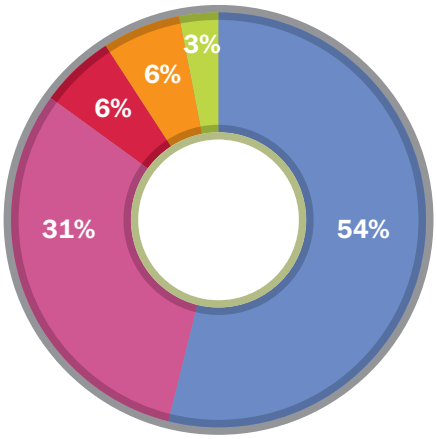
Overall I cannot recommend the placement year experience enough. It is a fantastic learning experience, allowing insight into a working environment, development of communication skills, and the opportunity for applied problem solving. A placement will make you stand out from the crowd to employers, and stand you in good stead for later graduate life.

Matt Hutchinson, third year student

More online at:
www.cardiff.ac.uk
www.cardiff.ac.uk/carsv

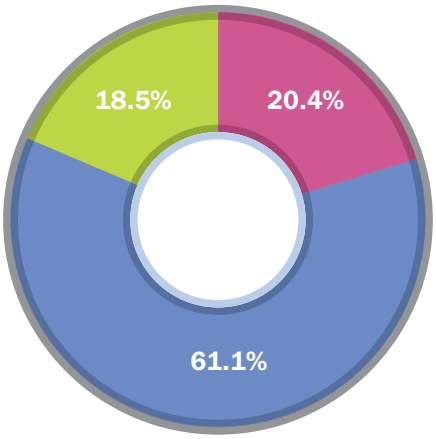
Graduation Day is a highlight of your undergraduate experience

Typical Graduate Destinations



Employment	54%
Further Study	31%
Work and Further Study	6%
Unemployed	6%
Unavailable/Other	3%

Employment Sectors



Professions/Commerce	61.1%
Industry	20.4%
Public Service	18.5%

Examples of Destinations

Industry: BAE Systems, Jaguar LandRover, EDF, National Instruments, European Space Agency, Magnox

Professions: Barclays, Clifford Talbot Partnership, FDM Academy, HBOS, Towers Watson

Public Service: AWE, Intellectual Property Office, GCHQ, HMRC

Further Study

PhD: Astrophysics, Caltech, Exeter, Edinburgh, Cardiff; Physics, University of Dresden, Cardiff, Imperial College; Medical Physics, UCL

MSc: Science Communication, Imperial College; Science and Technology of Nuclear Reactors, Birmingham; Medical Radiation Physics Swansea University

PGCE: Reading, Cheltenham, Swansea, Aberystwyth, Bangor, Teach First

What the students say . . .

Studying physics has given us the confidence to tackle complex problems head-on and find ways to overcome even the most challenging tasks that life throws our way.

Julie Gould

MPhys graduate 2012

I asked some of my fellow students what they most enjoyed about their four years here at the School of Physics and Astronomy, and there was an unrivalled winner: project work.

Being able to work on some real science and apply what we had learned in lectures. It was the sort of science that doesn't go according to plan, hardly provides any significant results, and is very unpredictable. Yet, at the same time it is also exciting, thoroughly enjoyable and very rewarding. Throughout the entire final year we were able to apply our own insights and ideas to physics that was being studied.

We were able to build experiments tailored to our interests, test our theories, and gain a deeper understanding of the scientific method.

Many of our group are going on to quench their thirst for knowledge by studying for a PhD, some of us are going into more commercial routes of research, some of us are leaving science all together, and the rest haven't decided yet. Maybe some of us will become Nobel Laureates, and some could be the next generation of influential politicians, but whatever routes we decide to take in life, we all know that we will succeed, no matter what. Studying physics has given us the confidence to tackle complex problems head-on, and find ways to overcome even the most challenging tasks that life throws our way.

Jeni Millard

Third year student

I actually started my Astrophysics degree in 2011, despite being in my third year now. When I first started, I lost a member of my family who I was very close to and I struggled to deal with her passing. I couldn't cope with the work, when I should have been able to, and was on the verge of dropping out of university completely when I spoke to Prof Carole Tucker. She listened, advised and suggested I take some time out to recover from my grief. I agreed and received councilling from the University. If it wasn't for the support system here at Cardiff, I wouldn't be studying today. I'm now averaging a first, something I wasn't even close to before, and doing a third year project on dusty stars using unreleased Herschel data. I now have the chance of a great future if I can keep up my standards - all thanks to the support of the Physics department, Cardiff University and, of course, the friends I made here.

If it wasn't for the support system here at Cardiff, I wouldn't be studying today.

Peri Jones

PhD student

I have always had an interest in Medical Physics as I had a few modules in my undergraduate degree. After some work in the first few months of my final year I realised that I enjoyed the research project better than some of the lecturing modules and decided then that I was going to pursue a PhD. As an undergraduate at Cardiff University, I had the knowledge of the city as well as the student's union and the physics department and had made many contacts within the University. The Physics department is very student orientated and tries its best to make the teaching experience the best it can be for each student.

The Physics department is very student orientated and tries its best to make the teaching experience the best it can be for each student.

Paul Hegarty

Project Manager,
Telecom New Zealand

I am working as a Project Manager in the (Information Communications Technology) ICT space. I manage the design, build and implementation of IT systems for internal business infrastructure and customer facing IT Solutions.

This is a role I would not have been suitably qualified for, as most companies require Prince II qualified Project Managers, had I not completed my degree at Cardiff University.

This is a challenging role and my degree prepared me to carry out such complex work. ICT Project management requires being able to look at a solution from a high level view and often at a very detailed level. The Computer Programming and electronics modules during my degree allowed me to gain an understanding of systems and their interactions. Alongside this the problem solving skills learnt during the degree were priceless: it is crucial to be able to approach an issue logically, when it arises, and resolve it successfully.

This is a challenging role and my degree prepared me to carry out such complex work.

Admissions and Entry Requirements

Applications

To be considered for entry onto our courses you should apply online via the UCAS website using the UCAS Apply facility.

To use this facility you need to log on to: **www.ucas.ac.uk/apply**. The website will provide you with information on how to apply and explain the procedure. Applications should be made by mid January. Please check the UCAS website for specific application deadlines.

All eligible applicants are invited to visit the School on one of our UCAS visit days. We do not routinely interview; however, informal interviews may be held on request.

The Cardiff University code is C15

The codes for our degree programmes are:

Physics (MPhys, 4 years)	**F303**
Astrophysics (MPhys, 4 years)	**F510**
Physics with Astronomy (MPhys, 4 years)	**F3FM**
Physics (BSc, 3 years)	**F300**
Astrophysics (BSc, 3 years)	**F511**
Physics with Astronomy (BSc, 3 years)	**F3F5**
Physics with Medical Physics (BSc, 3 years)	**F350**
Theoretical and Computational Physics (BSc, 3 years)	**F340**
Physics with Music (BSc, 3 years)	**FW33**
Physics with a Preliminary Year (BSc, 4 years)	**F301**
Physics with Professional Placement (BSc, 4 years)	**F302**
Physics with Astronomy with Professional Placement (BSc, 4 years)	**F3FN**
Mathematics and Physics (BSc, 3 years)	**FG31**
Physics with Professional Placement (MPhys, 5 years)	**F304**
Physics with Astronomy with Professional Placement (MPhys, 5 years)	**F5F3**

UCAS Visit 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 research and teaching staff, eat lunch in the refectory, browse the library, etc., so that you can see for yourself what it's like to be a student at Cardiff.

There is also a University-wide Undergraduate Open Day held each year in the spring. Details are available on the University website in advance.

Entry Requirements

'If you are taking or currently studying 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 achieve high grades 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 AAA-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 32 points overall with 5s in Physics and Maths for BSc courses and 34 points with 6s in Physics and Maths for MPhys.

Other Qualifications

We welcome applications from those with other qualifications including Open University, International Baccalaureate and Welsh Baccalaureate; each application is assessed individually. If you would like to discuss your application before applying, please contact the admissions tutor and you may also visit the school website for further information.

Overseas Applicants

We welcome overseas applicants. Overseas applicants' 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/caird**

Preliminary Year Entry

The school offers a Physics preliminary course (UCAS code F301), which includes a foundation year. that enables students from a wide range of educational backgrounds to gain access to our degree schemes. For example, you might have taken inappropriate A-levels for your chosen degree scheme or you may be a mature applicant wishing to return to education. Each application is assessed individually so, before applying, you might consider discussing your application with the admissions tutor. Please note the Preliminary Year programme is not suitable for applicants who have failed to meet the minimum requirements for direct entry.

The foundation year consists of 12 modules selected from a range of subjects. As a Physics applicant you would be expected to study the five Physics modules:

- Structure and Properties of Matter
- Motion and Energy
- Foundations of Modern Physics
- Electricity Magnetism and Light
- Elementary Mathematical Methods

Physics students are also required to take the Mathematics modules on offer. The most popular modules are from Chemistry and Biology. Most Physics/Astronomy students opt to take the Chemistry courses because they provide a good foundation for much of the Physics studied in the first year of the degree programme. Upon successful completion of the preliminary year you are guaranteed a place on one of the degree schemes offered by the school.

For more information, or if you wish to discuss your eligibility for the programme, please contact the School directly.

Notes for Welsh Language Applicants

We recognise that if you are a Welsh speaker you may feel more comfortable speaking to a Welsh speaking personal tutor. Provided there are Welsh speaking members of staff in your subject area, every effort will be made to allocate a Welsh speaker to you. If you wish, you can also submit your assessed work and take your examinations through the medium of Welsh, regardless of the language of tuition of the course you are following.

Some of the accommodation at Senghennydd Court and Talybont student residences has been allocated for Welsh speakers and learners who would like to be grouped together. If you would like to take advantage of this, please make a note of this on your accommodation form.

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.

Equal Opportunities

Cardiff University is committed to promoting equality and diversity in all of its practices and activities, including those relating to student recruitment, selection and admission. The University aims to establish an inclusive culture which welcomes and ensures equality of opportunity for applicants of all ages, ethnicities, disabilities, family structures, genders, nationalities, sexual orientations, races, religious or other beliefs, and socio-economic backgrounds. This commitment forms part of the Equality and Diversity Policy which is available at:
www.cardiff.ac.uk/cocom/equalityanddiversity/index.html

Applicants with Disabilities/Special Needs

All offers to study at Cardiff University are made solely on the basis of academic merit. Where applicants have specific requirements that relate to a disability or medical condition, they are encouraged to discuss these with relevant staff in order that appropriate arrangements can be made to ensure the University provides an accessible environment. Specifically, applicants are invited to contact the Disability Adviser who can provide information about the applications procedure, course delivery and access to the physical environment.

Where appropriate, informal visits can be arranged in which applicants can view accommodation and meet academic staff.

The Disability Adviser can be contacted at:

Student Support Centre
50 Park Place
Cardiff
CF10 3AT

Tel: **029 20874844**
Email: **disability@cardiff.ac.uk**

The Cardiff School of Physics and Astronomy also has a dedicated Disabilities contact in the School Office who can provide additional guidance and advice.

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

Scholarships and Bursaries

For more information please visit the following website:
www.cardiff.ac.uk/scholarships

Useful websites for information about tuition fees and financial assistance:

Cardiff University website:
www.cardiff.ac.uk/fees

Student Support Centre website:
www.cardiff.ac.uk/financialsupport/index.html

DfES Student Support web pages:
www.dfes.gov.uk/studentsupport

Welsh Assembly Student Finance web pages:
www.studentfinancewales.co.uk

Student Finance England:
www.studentfinanceengland.co.uk

Student Loans Company:
www.slc.co.uk

For further information contact:

Dr Chris North
Undergraduate Admissions Tutor

Cardiff School of Physics and Astronomy
Queen's Buildings
The Parade
Cardiff CF24 3AA

Tel: **029 2087 6457**
Email: **admissions@astro.cf.ac.uk**

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