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# **PHYSICS** **ON COURSE 2009**

**PHYSICS  
COURSES  
IN  
HIGHER  
EDUCATION  
IN THE  
UNITED KINGDOM  
AND THE  
REPUBLIC OF IRELAND  
COMMENCING  
2009**

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**Executive Editor:** Leila Solomon

This is one of a number of education and careers publications from the Education Department of the Institute of Physics. Some are mentioned in the text.

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# CONTENTS

<b>Introduction</b>	<b>1</b>
<b>Getting on course</b>	<b>2</b>
Using the guide	
Who are we?	
<b>Why study physics?</b>	<b>4</b>
What is physics?	
What do physicists do?	
<b>What are physics courses like?</b>	<b>5</b>
Degree courses	
MPhys and MSci: the extended courses	
Foundation courses	
Access to HE Courses	
The European Dimension	
HND and HNC	
<b>What you need to get in</b>	<b>8</b>
What about my maths?	
<b>What funding is available</b>	<b>9</b>
Sponsorship	
Gap Year (The Year in Industry)	
<b>Careers with physics</b>	<b>10</b>
<b>The language of higher education</b>	<b>14</b>
<b>Guide to Terminology and Abbreviations</b>	<b>29</b>
Explanatory notes to tables	
<b>Detailed Course Information</b>	<b>30</b>
<b>Departmental information</b>	<b>72</b>
<b>Index to entries</b>	<b>128</b>
Index to advertisers	
<b>Inspirational Reading Booklist</b>	<b>130</b>

## Thinking about Physics?

The Institute of Physics is the leading professional body actively working to promote developments in physics both in the UK and internationally. We work on behalf of physicists world wide, supporting their work, encouraging young people to consider physics and raising awareness of the value of physics to society.

We have a fascinating and diverse membership of some 34,000 members, ranging from university students through qualified professionals in all disciplines to the still interested and involved retired community.

### Student Membership and Nexus Activities

The Institute actively supports students through its student wing, Nexus. From September 2008 on, everyone on an accredited or recognised undergraduate degree course in Physics (or a closely related subject) can sign up for free electronic membership of the Institute and Nexus, for the duration of their course. Student members receive all the usual benefits of an IOP membership, as well as specific benefits through Nexus, which supports Student Physics Societies throughout the UK and Ireland, and organises a number of events.

Membership Benefits include:

- \* Trips and events organised and supported by Nexus
- \* Online access to Physics World – the monthly journal that keeps you up to date with developments in physics
- \* Online Members Network to interact with other student members, discuss, blog, and stay updated about society and Nexus events
- \* Information on Universities, Discounts, Funding and Careers, including individual careers advice
- \* Free membership of a specialist subject group
- \* Automatic membership of the International Association of Physics Students, which organises events and encourages international student contacts

If you would like more information about joining the Institute of Physics, visit [www.iop.org](http://www.iop.org) and select 'Supporting students with Nexus', or you can also write to [nexus@iop.org](mailto:nexus@iop.org) with questions or to request information.



# INTRODUCTION

## BY HEATHER REID



As a weather forecaster for BBC Scotland, physics impacts every day of my working life.

From the rocket technology that launches a weather satellite into a polar or geostationary orbit, to the telemetry that collates millions of weather observations each day.

From the multi-processor supercomputer that models the time evolution of the weather systems, to the graphics programme which translates the raw numbers into a visual representation of the forecast. And of course the TV studio itself complete with its data projection screens, remote cameras and digital editing suites.

On a more general level - physics provides the answers to why the sky is blue and to whether lightning really can strike twice in the same place.

MP3 players, mobile phones, the internet; physics is also the key to many of today's must have products.

However, physics is also the intellectual challenge of discovering the fundamental rules by which the universe works. It is the hunt for building blocks of nature, the development of renewable energy sources and the search for life on other planets. Physics has to be one of the most far-reaching and varied subjects in the world!

It's also not the easiest of subjects, and that is exactly the point. Be successful in your physics studies and no potential employer will doubt that you have the ability, both in intellect and hard work, to make a real contribution to their organisation.

Physics is the subject from which graduates enter all aspects of our 21st Century knowledge based economy. A degree in physics demonstrates ones ability to reduces problems to their components and then apply logic, supported by calculation, to their solution.

My own Physics degree was followed by an MSc in satellite image processing,

primarily because I enjoyed atmospheric physics during my final year at university.

I was recruited by the Met Office, initially to work within the satellite research team, but decided to embark on a further six months study which eventually made me a qualified forecaster.

Being in the right place at right time took me back to Scotland to join the BBC news team, where I have both forecast and presented the weather since 1994. My job as a TV weather forecaster has created a platform to try my hand at other things, contributing to science festivals, supporting the science centre network and even joining the Council of the Institute of Physics.

I hope that your Physics degree opens the doors that it has done for me.

This booklet details the various degree courses for which physics is a central component. Choosing a university is an important decision. In my case I chose somewhere I wanted to live and where I could study a good variety of interesting subjects. My degree then led to an exciting and challenging career that is still evolving.

I wish you every success both in your degree and beyond.

# GETTING ON A COURSE

The physicists' claim that "Physics is at the heart of everything" is largely true. We use the basic ideas – matter, force, energy, and so on – to explain almost every aspect of our world from the smallest parts of our bodies to the great clusters of galaxies. Physics is relevant to almost every human activity - jobs and careers; hobbies, interests, and leisure pursuits; and the systems that modern technology offers which can improve our health and well-being. Such is the importance of physics now and for the future that we need more young people to study physics.

In preparing this guide our aim is to show the great variety of physics courses that are on offer. Physics on Course is the most comprehensive guide available, and we hope that you will make time to explore its contents fully. Many university entries include references to web-sites from which more information can be gleaned.

If you're thinking of a full-time higher education course in the UK or Republic of Ireland with physics as at least a major part of it, read on. You will find all sorts of interesting options and possibilities, including spending part of a course studying physics in a European university, or further afield.

Even if you don't plan to make physics your main course of study in higher education, we hope you will find much of interest in this guide. After all, the subject has a part to play in many higher education courses.

## Using the guide

The tables about physics courses and individual sections about the higher education institutions are important but there's plenty of other valuable information too. The various articles that follow are designed to help you think and talk about what you might do in the next few years. There are case studies, each of which focuses on a real person, possibly someone quite like you. Indeed you might be the focus of a case study in a few years' time. Studies aim to show the different challenges, interests and enjoyment experienced by those featured during their courses, and in their subsequent careers. The advertisements provide yet further information about the general life of the university. (There's an index to advertisers on pages 128-129)

## What is the Institute of Physics?

The Institute of Physics is an organisation for physicists, with some 34 000 members including student members. The Institute supports its members and others in their work by a variety of means including meetings and conferences, journals and other publications, advice on careers, and many other services including an award-winning web-site. The student members section is a particularly active one as you will see if you turn to page iv.

This annual guide to physics courses in higher education, which the Institute has published now for over 16 years, is just one aspect of our advice service. If you have comments on its effectiveness, we will be pleased to receive them.

We are grateful to all those who have contributed to the writing and production of the 2009 and previous editions. Thus, thanks are due to Graeme Sibley of Trio Offset Ltd, who has made a significant contribution to the final stages of development of this guide and to a number of University Admissions Tutors who have commented on the pages that follow. However, the lion's share of the work including the selling of the advertising space, has been undertaken with her usual attention to detail and to style by Leila Solomon who deserves our particular thanks



Daniel Sandford Smith  
Editor

# PHYSICS ON COURSE 2009

We think Physics on Course is an important guide.

We hope you will think Physics on Course is an important guide.

Its future is, in part, dependent on individual universities agreeing that Physics on Course is an important guide.

So please mention Physics on Course 2009 when contacting the Admissions Tutor at the University of your choice.

*Thank you*

# WHY STUDY PHYSICS?

## What is physics?

We are all born with the urge to understand the world around us. One of the first words we learn to say is ‘Why?’ and then, a little later ‘How?’ So you have probably asked in your time ‘Why is the sky blue?’, ‘How does a mobile phone work?’, ‘How does the Sun keep on shining?’, ‘What is dark matter?’ among other questions. If you find that the more answers you are given or discover, the more questions you want to ask, then you could well be a physicist in the making and you should certainly consider studying physics at university.

Physics is concerned with observing natural phenomena in the world about us, trying to understand them and to predict what might happen in new and unknown situations. Physics is also about the processes of observing, understanding and predicting in relation to man-made systems. Physics deals with profound questions about the nature of the universe and with some of the most important, practical, environmental and technological issues of our time. It is a very broad subject involving experiment and observations, theory and mathematics, computing technology, materials and information theory. It is also a creative subject. Ideas and techniques from physics drive developments in related subject areas including chemistry, computing, engineering, materials science, mathematics, medicine and the life sciences, meteorology and statistics.

Physics is a subject that is continually developing and evolving, with regard to both theory and practical techniques. One of its key characteristics is that systems can be understood by identifying a few key quantities such as energy and momentum, and the universal principles that govern them. Part of the appeal of the subject is that there are relatively few such principles and that these apply throughout science, not just in physics.

Studying physics at university brings benefits that last a lifetime, including knowledge and skills that are valuable outside physics: transferable skills such as a practical approach to problem solving, the ability to reason clearly and communicate complex ideas, the facility to use ICT and self study techniques, expertise in mathematical formulation and solution. Benefits also include the pleasure and satisfaction that come from being able to understand and even, within a few years, to be able to contribute to the latest discoveries in science.

## What do physicists do?

The employment prospects for those with qualifications in physics are generally good. Physics provides a route into many careers, and opportunities exist both in Britain and throughout Europe, and North America. These prospects are not confined to research, they extend into a wide range of industries, IT, medicine, high finance, marketing, business and management. The general skills of analysis and problem-solving that a physics degree fosters, help physics graduates to contribute effectively to most areas of an organisation’s activities.

While some physics graduates go on to work in academic research and teaching, many, possibly most, physics graduates move into jobs where they are not working as ‘physicists’ as such, but in which they are using the skills developed through studying physics. They are challenged by moving into new fields but succeed because of their skills and training in physics. Some physics graduates are employed in industry, on the research and development side – industries such as those concerned with opto-electronics, computing, telecommunications, materials, motor vehicle technology, semiconductors, and power generation. Physics graduates, because of their broadly based training, often become leaders of the increasingly common multi-disciplinary teams employed on development projects.

A physicist’s work may involve experimental investigations and theoretical analysis, but physicists are increasingly employed in the world of IT using advanced computers in the solution of scientific and engineering problems, or predicting financial futures. A physicist’s ability to model complex processes is particularly valued.

Teaching physics at school or college level offers not only the opportunity to work with young people, but is also challenging in that teachers explain complex concepts while sharing their enthusiasm for the subject.

In summary a degree course in physics brings you face-to-face with the important fundamental concepts and knowledge which are at the heart of our understanding of nature. A degree course in physics also opens doors to a wider range of careers than almost any other subject.

# WHAT ARE PHYSICS COURSES LIKE

There are several different ways you can study physics in higher education.

The main route is a degree course at a university. This will provide an in-depth study of physics, in many cases with the option of pursuing other related areas. Such a first degree can lead on to further postgraduate (MSc or PhD) courses.

However, there are also other more vocational courses such as Higher National Certificates (HNC) and Higher National Diplomas (HND). These tend to have a strong technical and applied emphasis and can, in some cases lead on to a degree. A very small number of HE institutions offer HNDs in physics.

The Government has now introduced 'Foundation Degrees' of two year's duration, again with a strong vocational emphasis, similar in level to HNC and HND courses.

## Degree courses leading to a BSc or BA

In England, Northern Ireland and Wales, a BSc or BA honours physics degree usually requires three years, while in Scotland and Eire it normally takes four. Such physics courses give you a solid grounding in modern and classical physics along with the associated mathematics and experimental techniques. Important areas covered include mechanics, relativity, quantum mechanics, electromagnetism, optics, atomic and nuclear physics, and solid state physics. Teaching is usually by lectures and laboratory work, backed up by tutorials and/or problem solving classes.

In addition to this core, there are usually options in more specialised areas, such as astrophysics, particle physics, electronics, computing, biophysics, geophysics. In some cases these extra specialised courses may be specified in the degree name - like 'Physics with Electronics' or 'Physics with Astrophysics'. Increasingly, especially as semesters replace academic terms, modular courses are being introduced. Such modular courses allow students to follow more flexible programmes within certain guidelines. The ranges of courses available at a particular university or college are indicated in the tables starting on page 30.

Mathematics features in all physics courses - both as a 'language' through which physics is expressed and as a method for the development of the subject. It is also essential in problem solving. Some courses offer particularly mathematical or theoretical streams, while others tend to specialise in the more applied and technological aspects of the subject. Yet others offer both, through extensive options schemes. Since 1993 some new degree courses in Engineering Physics have been set up. These have been designed to combine education and training in the branches of physics that have been identified as important for the development

of a professional engineer. After further professional training and experience an Engineering Physics degree can lead to the award of CPhys (Chartered Physicist) and CEng (Chartered Engineer) status.

Some courses in applied physics are 'sandwich courses'. In these, one or more extended periods in industry are interleaved with study at the university. Thus they give you a chance to gain experience in a chosen job, to apply theory and practical skills in a work environment, and to make contact with potential employers, while earning some money at the same time! There are also some sandwich courses available in pure physics where the placement is likely to be a government research establishment such as Harwell or the National Physical Laboratory, or perhaps somewhere further afield like CERN in Geneva. Sandwich courses usually last four years.

Physics depends on a fairly small number of fundamental principles and methods. Undergraduate courses attempt to show how these apply to the development and extension of the subject and, in particular, how the principles and methods are used in problem solving. Most courses will include project work. Projects can include experimental, theoretical, computational and design work. They can be done individually or in small groups and often relate to research work going on in the department. Projects provide a most valuable introduction to research methods.

## MPhys and MSci: the extended courses

In 1993 an extended first degree course in physics was introduced leading to the Master of Physics (MPhys) or Master in Science (MSci) degree. Details of these courses are included in this guide. (Note that the MSci should not be confused with the one year MSc - Master of Science) These longer courses aim to fill a number of extra needs:

- to let undergraduates study physics to a greater depth than is possible in the BSc/BA course
- to provide a bridge between undergraduate physics and postgraduate research
- to provide specialist training for people who intend to become professional physicists.

In other words, while the BSc course develops a strong foundation in the subject, the four year course extends the study and/or provides some specialist training. In the extended courses, the fourth year's work is likely to consist of a compulsory core of advanced physics topics, plus an optional component and a project. In some cases industrial training may replace the project. One of the universities listed later in this book sends all its physics students out for one full year's research at a national or international laboratory or overseas university. In others, industrial training or management studies might well be included in the list of options. However, patterns vary. Both BSc and MPhys/MSci courses provide unified, coherent and broadly based training in physics. It is now estimated that, nationally, the four year degrees constitute up to 50% of first degrees awarded in physics.

Some institutions will register students on a four year course automatically on entry. If you decide initially to register for a three year course and then wish to transfer to a four year programme, this must be negotiated before the end of the first term of your second year to allow you to meet the conditions for getting a grant for the extra year. Transfer the other way should be possible at any time in the first three years (subject to certain restrictions and to grant regulations). For details of transfer arrangements within a particular university, and other advice on course arrangements, you should contact the admissions tutor concerned. The admissions tutor will also be able to advise you about sandwich courses.

In Scotland and Ireland the BSc honours degree normally lasts four years with the possibility of well qualified applicants being granted direct entry to the second year in Scotland. Most Scottish universities have introduced the 'extended' (MSci/MPhys) degree courses matching those in England and Wales. These are either 4 or 5 years in duration depending on the university, but again with the five year course, there is the possibility of direct entry to the second year for well qualified applicants.

## Foundation courses\*

Several universities offer foundation courses (or bridging courses) for those with non-standard or inappropriate entry qualifications. Such courses, which may also be known as Year 0 courses, usually last one year full-time, attract a mandatory grant, and will often be run, in collaboration, by a further education college and a university. Courses like this are particularly appropriate for people who decide to change subject after obtaining their school or college qualifications, and for mature students with limited subject experience. They provide the basic background in physics and maths necessary for entry to the first year of the main degree course and allow the student to gain maximum benefit from further study.

Some foundation courses include biology and chemistry and/or engineering as well as physics and maths. Most have a section in which students can follow their main science subjects in more depth.

As an entrant to a foundation course you enrol on a four year BSc degree course at the appropriate university. In other words if you decide on this option, from the start you are en route to a degree qualification. Provided you complete the foundation year satisfactorily, you move automatically to the second year of your degree (Level 1, which is equivalent to the first year of a three year degree). Transfers to other universities are possible at the end of the foundation year on educational grounds, but it is better to select your foundation course initially on the basis of the university of your choice.

You should enquire of the admissions tutor whether your choice of institution has such provision, or whether it accepts students who have successfully completed such a course elsewhere, or students who have obtained an Access to HE certificate as a result of having completed such a course successfully.

\*Not to be confused with the new two year Foundation Degrees

## Access to HE courses

Access to HE courses are for mature students (those over 20 or 21 years of age) who have no formal entry qualifications for a three year degree course. Such courses usually last one year full-time or two years part-time and are run by FE colleges but with the course being validated by a university or authorised validation agency. Such courses do not attract a mandatory grant, nor necessarily guarantee a place on a degree course when satisfactorily completed. They do give the student more time for consideration of where and which degree to follow afterwards. It is a good idea to discuss with Access admissions tutors the outlets available from their courses.



## The European dimension

The increasing harmonisation within the European Union (EU) is relevant to students in several ways. The most direct effect is through the increased opportunities for graduates to make careers in other EU countries. In applying for a job in any EU country, what matters is whether you have the required ability, education, training and experience, and is irrespective of the EU country from which you come. Ability to speak the language is important, of course, as is the level of qualification.

For students with career aspirations to find employment as a physicist in another EU country, the basic message is that you should not only learn the language but also aim for more than a honours BSc degree. Possible routes are to follow a BSc with either an MSc or PhD or to undertake an integrated Masters degree programme. Integrated Masters degrees are specifically designed to provide the depth of subject knowledge and the skills required to become a professional physicist. Many integrated Masters degrees will offer the opportunity to study abroad but the length of time spent abroad can vary. Such programmes give students the valuable experience of living and studying in another country in addition to enhancing language skills.

## HND and HNC

The Higher National Certificate or Higher National Diploma (HNC/HND) is a qualification which is widely accepted for entry to an honours degree. There are a number of courses available in the applied sciences. You can study for a Higher National either part-time, leading to the HNC, or full-time, leading to the HND.

# WHAT YOU NEED TO GET IN

The majority of people in the UK applying for admission to a physics degree course will be taking GCE A levels, a mixture of AS and A levels, or Scottish Highers and Advanced Highers. At present most universities expect you to have A-levels in physics and mathematics, with either a third A-level or one or more AS awards in any other subject(s) when you start your degree course. However, they have been showing increasing flexibility to non-standard entry qualifications. Some universities accept Advanced Vocational Certificates of Education (and their Scottish equivalents) in Science or Engineering and many accept Scottish Highers in physics and maths or an appropriate International Baccalaureate.

Mature candidates often have non-standard backgrounds; in such cases a specially flexible approach will be taken – the main criterion is whether you have the right abilities and the qualities to succeed.

Many colleges now run “Access to Higher Education” courses designed mainly for mature people or for those wishing to change direction towards physics or engineering. A growing number of universities offer Foundation Year or Year 0 courses for those with inappropriate entry qualifications (see Page 6).

Policy on the role of interviews in selection varies. Basically, admissions tutors look for students who are well motivated and have the ability to succeed. The particular entry qualifications required vary somewhat from one course to another. Indications of typical conditional offers made by particular institutions are given in the main tables. Often the grade in mathematics is more important than that in physics.

## What about my maths?

Whereas some universities will accept students on physics degree programmes with limited mathematics qualifications, if you are sure you want to study physics in higher education you should choose both physics and maths at A-level, although some universities will accept AS qualifications in these subjects, or their equivalents. Without such a good maths grounding, you are likely to find it difficult to digest and make progress in a degree course in physics. It is for this reason that most institutions expect an A-level maths or the equivalent with a grade C or higher. Physics is a quantitative science which can properly be described only in mathematical terms at its higher levels.

If you have studied A-level maths and not done very well, some institutions will still accept you if they feel you are capable of doing better. Also, if you don't have a pass in A-level maths (or physics), there is still the possibility of doing a foundation year as mentioned earlier in this section. A foundation year is designed to make up for deficiencies in knowledge and understanding in maths and physics. It will add a year to the length of your degree course in most places, but it is an option for students who are serious about pursuing a physics-related career but need their confidence in their abilities in mathematics boosting.

If you enjoy mathematics and are good at it, you may become a theoretical physicist. Such people have been responsible for some of the most exciting ideas – from black holes to quantum physics, from cosmology to chaos theory.

# WHAT FUNDING IS AVAILABLE

## Sponsorship

A small proportion of physics students are sponsored by companies. The form of sponsorship varies. Some companies expect students to spend a year working for them before starting at university, but others require a number of weeks during the summer vacations. All schemes offer bursaries – variable in amount – as a supplement to the LEA grant. There is no binding agreement that will oblige you to work for these companies after you graduate.

Typical sponsors of physics undergraduates are British Aerospace, National Power, Northern Telecom, Nuclear Electric plc.

Sponsorships are competitive. An Institute of Physics survey conducted three years ago showed that the success rate among those applying for sponsorship was about one in three, so it is recommended that you apply early. Deadlines vary from company to company, but you should be researching possible sponsors in the summer of the year before you plan to enter university. If you do not succeed at first, it is worth noting that a number of students have been successful in securing sponsorship for the later years of their courses.

There are many publications (which should be in your careers library) giving details of what companies have sponsorship schemes and when and how to apply. *Everything You Wanted to Know about Sponsorship, Placements and Graduate Opportunities* is published by Trotman, ISBN: 978 0 95146 298 0. This guide is packed with information on sponsorship, placements and graduate opportunities. The Institute also publishes a booklet *Sponsorship and Work Placement for Physics Students* which is available free, on request.

Although large companies, like the one mentioned above, have well publicised national sponsorship schemes, a recent survey has shown that a large proportion of sponsored students found sponsorship from local firms. These do not wish to advertise, but find their students through contacts at schools and in the careers offices. So use your initiative; look through your local paper; go to your library; ask your teachers for possible contacts. Even if a company has never sponsored a student before, a well timed letter and a well prepared CV may pay dividends.

Half the students we contacted in our survey did not know that sponsorship existed for physics undergraduates; having read this article you cannot make that excuse.

## Gap year (The Year in Industry)

You may favour a year out before embarking on your university studies. If you want to use that year in a way which may benefit your future studies in science, engineering or technology, then The Year in Industry should be of interest. Over 300 companies – from ‘blue chip’ multi-nationals to small/medium size enterprises – spanning a wide range of different industries and technologies, take part regularly. Placements may lead to undergraduate sponsorship, but the experience will be of value anyway as it should help you when you are making job applications at the end of your degree course.

If you are interested, you need to apply early in your final year at school/college. For further information you should write to: The Year in Industry National Office, University of Southampton, Southampton, SO17 1BJ

Tel: 023 8059 7061  
E-Mail: [enquiries@yini.org.uk](mailto:enquiries@yini.org.uk)  
Website: <http://www.yini.org.uk>

# CAREERS WITH PHYSICS

A physics degree gives the potential for entry to a huge range of jobs and careers. Few other subjects in higher education offer such a wealth of employment possibilities. Indeed, physics is relevant to almost every job and career, and it can help you enjoy your work more and do it better. It can help you progress faster to a better, more interesting and more rewarding life. The more you study physics, the more doors to good careers you will find open to you.

## There's more to a career in physics .....

You would expect, of course, physics to be very important in industry. After all, making things involves electricity, energy, forces, robotics, and so on - all major areas of what we call physics. Physics-based industries are major exporters, so the industrial physicist can expect to make overseas visits, and possibly to spend longer periods abroad. And 'industry' isn't just factories - agriculture, broadcasting, design, ship-building, etc are industries too. In these industries physics is just as important as it is in factories. Farmers, for instance, benefit from a knowledge of the physics of soil, the physics of weather, the physics of machines, the physics of the water cycle, etc.

Physics is equally important in offices, where commerce and trade take place. It's not just because of all the mechanical, electrical and electronic equipment, all of which depends on physics in its production, use and maintenance. Many professional people work in offices - architects, patent agents, engineers, lawyers, consultants of various kinds, exporters, accountants and entrepreneurs. For all these, and they're only examples, a knowledge of physics can be a very great help, if not essential. It's true too for the people who help those professionals, the personal assistants, surveyors, researchers, technicians, draughts people, model-makers....

Astronomy is part of physics. Physics explains how objects move in space - rockets, planets, stars, galaxies. Physics is also the basis of all methods of studying the Universe - cosmic rays, radio-telescopes, the spectrometers that show what gases there are in objects enormous distances away, the spacecraft that let us explore so much of the Sun's family of planets. It's surprising how many jobs there are for people with an interest in astronomy - jobs not just for astronomers, but for a wealth of support staff too.

Many universities have an astronomy section, while in the outside world the number of planetaria and science museums is growing. Bear in mind, however, that if you want to work as a professional astronomer, you will need follow your first degree with a research degree in the subject.

Britain is strong in communications and associated industries, and there is overlap between these industries and work in space. The design, building and testing of planes and satellites, including powerful engines for launch-craft, are just a few examples of areas of work for physicists. Looking after the spacecraft once launched, using radar and spacecraft tracking stations, is a further example.

Medical physics applies science, technology and engineering to improve our health and wellbeing and can, therefore, give particular satisfaction. A mixture of research, development and routine services to patients is usually involved. Hospital-based medical physics at one time focused on using radiation to treat cancer, but now the scope is much wider. The most common area of work of the hospital physicist is in nuclear medicine, usually alongside medical staff in x-ray or nuclear medicine departments. But medical physicists are also concerned with designing, constructing and maintaining electronic instrumentation for monitoring patients, designing technical aids for the handicapped, and using computers, ultrasound, lasers and ultraviolet radiation for diagnosis or treatment of a wide range of illnesses and disabilities.

Information technology is a huge business around the world. At its heart is communication of one form or another whether it be the transfer of pictures, sound, words, numbers and computer data from place to place. And physics - radio, electricity, electronics, magnetism, light, sensing - is the basis of all forms of communication.

These are all areas where technicians, physicists, and engineers find a great range of work. A lot of these people work hard, and with great creativity and satisfaction, in applying research findings to new systems, and in production and marketing. And of course if you want to share your passion for physics - teaching might be the career for you. So there's much more to a career with physics than doing research, although finding out new things and developing ideas is the work of many people in government establishments, higher education, research centres and private laboratories.

And how do you relax when your days work is done? Physics has improved the quality of almost all areas of leisure. Sports and games equipment, sound systems, cinema projection, the intricate lighting effects at discos - a lot of physics goes into their design.

So there are careers with physics here too!

We could go on. Physics is relevant to energy and to the environment, to education and to eating, to Earth resources and to eye surgery.

To everything, in fact!

Project Juno and Athena SWAN are schemes for departments to demonstrate that they are taking steps to address the under-representation of women in physics by taking action on issues such as work-life balance, career development and organisational culture. Departments that are Juno Champions or have Athena SWAN recognition are likely to provide a more supportive environment for both men and women. To find departments that are following good practice check the list of Juno Supporters at [www.iop.org/activity/diversity](http://www.iop.org/activity/diversity) or the Athena SWAN website at [www.athenaswan.org.uk](http://www.athenaswan.org.uk)

## Choosing your university course

In recent decades, physics courses in higher education have changed a great deal. They are more flexible in their make-up and can be better matched to your future career needs. This makes them more interesting, too, in most people's eyes. That's why this publication is so large! Hundreds of courses jostle for your attention, and all have their special aspects, their particular strengths and approaches. Choosing between them isn't easy.

So you need to

- discuss the choice with your tutors and careers staff and your family and friends;
- think a lot about how you might like to proceed, and what you would like to be doing in, say, five years' time, and another five years after that;
- make a short list of the universities which offer the courses and facilities which attract you most and send for further details;
- study the brochures, departmental booklets and web-sites available and use Open Days and other visits as an opportunity to explore and to talk with the students and staff.
- check which courses are accredited at <http://policy.iop.org/IOP/accreditation.html> to ensure that your degree will fulfil the educational requirements for the professional award of Chartered Physicist from the Institute of Physics .

## Career choice

Career choice isn't easy, but you should find the careers services provided by your school or college and in your local area of help. Also the careers services provided in higher education are excellent. Most universities have very large, well-staffed careers advice centres which stock vast numbers of booklets and periodicals about what you might do when you graduate. Increasingly, such information is computerised or to be found on the Internet. Many now continue to provide careers advice after graduation too. Furthermore, physics departments also have careers sections in their libraries and notice boards with information about jobs.

Additionally there's the 'milk round', the term used to describe the period in your final year when recruitment managers from various firms visit the universities to look for potential new employees. There are lots of careers conventions and exhibitions too, for both undergraduates and graduates.

In our modern world, there are few 'jobs for life' and so even when you have chosen your career and started off in it, there will be changes in store for you. You will need to be flexible, to develop and deploy a wide range of skills and to be ready to assimilate new information, ideas and techniques - the training provided by a degree in physics will help you in this respect.

Your first career step could be crucial, so the sooner you start thinking seriously about what the possibilities are and what your preferences might be, the better. In this respect the advice we gave about choosing your physics course also applies. You will need to:-

- discuss the matter with your tutors and careers staff and your family and friends;
- think a lot about how you might like to proceed, and what you would like to be doing in, say, five or ten years' time. The Institute video and booklet Building Careers that Fit will be essential viewing when you start to consider your possible career progression in more detail;
- study all the brochures, booklets and adverts you can find;
- and use the milk round, exhibitions and visits as an opportunity to explore and to talk with employed people and trainees.

We wish you happiness and success!



## Bringing business and the Institute of Physics together

The Business and Innovation team at the Institute of Physics plays a pivotal role in creating an essential link between the Institute and business. The Institute is active in representing the views of its business members and of physics based industries to government agencies and other funding bodies. We produce reports on the health of physics-based industry and host events attracting high-profile speakers addressing issues relevant to the physics-based business community. Recent speakers have included: Dr Ian Pearson MP, Minister of State for Science and Innovation, Iain Gray, CEO Technology Strategy Board and Sir John Chisholm, Chairman of QinetiQ and MRC.

The Institute of Physics has a strong link with organisations of all sectors and all sizes that engage with physics or employ physics trained staff. An important element of the link is the **Corporate Affiliates Network**, which has over fifty members, including exciting start-up ventures as well as global commercial organisations. The network bridges the gap between science and technology and supports professional physicists in business, giving a unique insight into the world of work and the roles that scientists and engineers can play. Corporate affiliates support the professional development of their young physicists, providing them with the technical and business awareness needed to build a successful career at the frontiers of industry.

## Careers advice at every stage of your career

The Institute of Physics Careers Service is one of the major benefits of joining the Institute. At any stage of your career, you will be able to seek advice and guidance on how to further enhance your career prospects. It is likely, that at this stage, you already have an idea of how you are going to spend the next few years but you may be wondering what you are going to do afterwards? If you are uncertain about what to do next or have not thought beyond graduating, then the IOP careers service is here to help. The advice and information we offer does limit itself to academia or a physics related career, instead we understand the skills and qualities that makes our members uniquely employable and we are therefore better equipped to help you to explore your career options: be it in research, banking, medicine, engineering, IT etc.

The Institute's careers service can:

- Guide you in your job search, assisting you in finding your ideal job
- Assist you with writing/amending your CV, so that your CV stands out from the rest
- Offer you advice on how best to fill in application forms to ensure that you fill it in correctly
- Advise you on how to best prepare yourself for assessment centres
- Deliver mock interview sessions, preparing you for the real thing and to boost your confidence

We can offer these services through face-to-face guidance sessions. If this is not possible then we can offer both E-guidance and telephone guidance. To find out more about these sessions, visit:  
<http://tinyurl.com/5elsca>

## Booklets

The careers service also produces a suite of booklets that have been written especially for physicists. These guides cover areas such as *Getting the most from a physics degree*, the pros and cons of embarking on a PhD, making the most of assessment centres, writing your CV and filling in application forms.

A large number of our members find that having a mentor can take the stress out of starting a new job or making a radical career change. A mentor may also be able to help in developing new skills, working in a competitive environment and understanding the politics within an organisation. Having recognised the benefits of mentoring, the IOP has developed a mentor matching service to assist members in their career, please visit: <http://www.iop.org/activity/careers/Mentoring>.

Many Corporate Affiliate Network members also participate within the scheme, imparting their knowledge, skills and professionalism to members who are just starting out in their career, who wish to gain a professional qualification or are seeking a better understanding of the careers available in their sector.

## Useful Links

### Institute of Physics

[www.iop.org](http://www.iop.org)

### IOP Business & Innovation

[www.iop.org/activity/business/index.html](http://www.iop.org/activity/business/index.html)

### IOP Careers

[www.iop.org/activity/careers/index.html](http://www.iop.org/activity/careers/index.html)

# THE LANGUAGE OF HIGHER EDUCATION

## academic year

typically this has been three terms of 8-12 weeks but it is being replaced progressively in universities by a two semester year

## admissions tutor

the person in the department of a university or college responsible for organising the selection and admission of students

## alternative prospectus

a booklet written by students giving information about the institution and its courses from the point of view of students

## applied science

science-based subject or course concerned with the solution of practical problems, and often related to industrial requirements

## campus university/college

an institution with all or most of its buildings, including halls of residence, on a self-contained site

## Chartered Engineer (CEng)

designation granted by The Engineering Council, a route to which is provided by the Institute of Physics

## Chartered Physicist (CPhys)

designation offered by the Institute of Physics to its members

## college of education/higher education

an institution where a student can study and qualify for teaching by obtaining a four-year BED degree. Most colleges also offer a range of courses for the Dip HE and other degrees which do not in themselves qualify you to teach

## college of further education

a college catering for school-leavers and older students. It provides courses on a part-time and full-time basis, both academic and vocational. Some colleges of further education offer advanced post-18 course leading to Higher National Certificates and Diplomas, degrees and professional qualifications

## collegiate university

a university made up of separate colleges where the academic management of students depends on the college (eg Cambridge, Durham, Oxford, St Andrews)

## combined studies

a course that combines two or more subjects, often from different disciplines, eg accountancy and physics

## conditional offer

an offer of a place on a course which depends on certain grades being obtained in later examinations - a major part of the usual application and acceptance procedures

## course unit system

a course, such as a first degree, consisting of several different units; final qualification is awarded after completion of the required units

## Diploma in Higher Education (DipHE)

a higher education qualification (but not from universities) which takes two years' full-time study. Students are usually at least 18 when they start a DipHE course, and have qualifications such as two A-levels. It is often possible to obtain a degree by a further year of full-time study

## discipline

a subject (eg biology) or subject area (eg foreign languages)

## discretionary grant

a local education authority grant awarded at the discretion of the LEA for a course which is not normally eligible for a mandatory grant, or to a person who is not personally eligible for such

## employer-based sandwich course

a sandwich course linked throughout its duration with one employer

## engineering physics

course designed specially for those wishing to use physics in the field of engineering

## further education (FE)

refers to post-16 education, generally requiring GCSE or S-Grade qualifications as a starting point. The term is sometimes restricted, inappropriately, to vocational education

## general physics course

A combined science degree which may include physics together with two or more other subjects.

## higher awards

awards such as Higher National Diploma (HND), obtained with two years' full-time study after A-levels/Highers or GNVQs/GSVQs

## higher education (HE)

education at a higher level than A-level or equivalent and leading to a degree. The term is usually applied to courses offered by universities and some colleges

## Higher National Diploma (HND)

a higher education qualification which normally takes two years' full-time study. Usually students are at least 18 when they start an HND course, and have qualifications such as a BTEC 'National' or one or two A-levels, or equivalent. It is possible to obtain a degree by further full-time study, for example by way of the '2+2' route, the two years of the HND being supplemented by the final two years of a degree course

## honours degree

the main type of first degree, in which you can obtain different final classifications, ie 1st, upper 2nd, etc. BSc degrees in England, Wales and Northern Ireland normally last three years, in Scotland four years. Many institutions offer a more advanced honours degree called MSci (Master in Science) or MPhys (Master of Physics), taking an extra year. These degrees are analogous to the four-year MEng (Master of Engineering) degrees

## Institute of Physics

a learned society and professional qualifying association established by Royal Charter to promote physics, pure and applied

**institute of higher education (IHE)**

a non-university establishment where you can follow degree or sub-degree level courses, eg Diploma in Higher Education

**International Baccalaureate (IB)**

established primarily to provide internationally mobile students with a curriculum and examinations system with international acceptability in relation to university entrance. Its philosophy emphasises the importance of breadth in the curriculum, alongside opportunities for specialisation. The IB Diploma is awarded on the successful completion of studies at appropriate levels in six subject areas, plus a course in the theory of knowledge and engagement in extra-curricular activities

**joint degree**

a course in which two separate, often little related, subjects are taken to degree level, eg physics with German

**modular course**

a course constructed from a wide range of smaller units or modules, each with their discrete assessment system

**MPhys/MSci**

an extended degree designed to be taken as an alternative to the traditional BSc. It has the advantage of providing a more in-depth study of physics and brings UK degrees more in line with other European first degrees. For further information see "What are physics courses like" in this book

**Open University**

Britain's largest university, catering mostly for students who study part time from home. Regional centres provide tutorials, while the OU centrally produces the printed and broadcast material, the computer and audio-visual software and organises residential weeks. OU degrees are modular and there are plenty of physics and technology modules at the different levels

**points score**

A means of calculating A-level performance by assigning points to grades. For up-to-date information on A-level point scores refer to the UCAS Web site: [www.ucas.com](http://www.ucas.com)

**postgraduate**

someone studying or doing research for a degree higher than BSc or MSci (eg an MSc or PhD)

**Postgraduate Certificate in Education (PGCE)**

a qualification for teaching achieved by graduates who complete successfully a one-year full-time course of study in higher education. Students following PGCE courses will be paid a £9,000 bursary. Additional inducements are available for those training for maths and science teaching, these may include a 'golden hello' and repayment of student debts.

**prospectus**

the official booklet covering all courses provided by a university. In addition, many physics departments provide further details about their courses in separate leaflets and booklets and on the world wide web.

**registrar**

an administrator to contact for information about the prospectus and courses at a particular institution of higher education

**sandwich course**

a course which combines periods of full-time study with a job. The way in which the periods of work and study combine depends on whether the course is a thick or a thin sandwich (see later entries). Sandwich courses take one year longer than the corresponding degree course, eg four years for a BSc

**seminar**

a group discussion involving the tutor and a number of students who meet at regular intervals to discuss particular topics relating to the course. Often students write essays called seminar papers to read and discuss

**sponsorship**

(usually) payment of an amount of money to cover time at university/college, in many cases with a salary during industrial placement

**subsidiary subjects**

subject studied in addition to physics (the main subject) but to a lower level

**tertiary level**

degree level, ie higher education

**thick sandwich course**

a sandwich course in which one long period in full-time employment, usually lasting twelve months, is part of the course

**thin sandwich course**

a sandwich course with two or three periods of employment, each lasting no more than sixth months, included at different stages

**tutorial**

a meeting involving a tutor and a small number of students who come together regularly to discuss particular topics relating to the course and work they have done. The tutorial system of teaching is common in higher education

**undergraduate**

a student working for a first degree

**Universities and Colleges Admission Service (UCAS)**

the organisation which handles applications for universities and college admissions

**university**

a place which offers degree (including higher degrees) and diplomas courses only. The older universities have a long tradition of research as well as teaching. Universities administer their own degrees independently of each other.



## Brian O'Rourke

My favourite subjects at school had always been science and maths but I liked physics in particular and it seemed a natural progression to continue to study it at university. I chose a four year masters degree at Queens University Belfast and I had a great time as an undergraduate. I participated in two separate summer student exchanges, both through the international association for exchange of students for technical experience (IAESTE). The first was to Trondheim in Norway where I spent three months working for an oil research company between my second and third years. I was invited back by my supervisor to continue that research the following summer. Just after I finished my degree I found myself travelling again, this time all the way to Australia and the Australian National University in Canberra. I studied the flow of supersonic air using laser induced fluorescence. In both Norway and Australia the projects were interesting and challenging and I gained an appreciation of how the physics I had learned in the lecture theatre was applied in real life. I also had a great time travelling in both countries!

Over the course of my degree at QUB, apart from learning a lot of interesting physics, I came to feel part of the large extended family which was, and still is, the physics department. In fact, I was so loathe to leave the department that I decided to stay and subject myself to the joys, and pains, of a PhD. Having always been fascinated by atoms and atomic physics I chose a project studying the collisions between highly charged ions and electrons. These collisions are studied using machines called electron beam ion traps (EBITs), and so it was that I found myself in Tokyo a few months into my PhD, performing experiments at the Tokyo EBIT with my supervisor.

From the moment I arrived I was fascinated by Japan and all things Japanese and after the first month long visit I couldn't wait to go back again. Luckily for me all my PhD experiments were performed at the Tokyo EBIT, returning back to Belfast after each experiment to perform data analysis and avail of the somewhat cheaper Guinness. In total I spent about four months in Japan during my PhD and I also travelled to a number of international conferences where I presented posters and gave talks on my research.

In the final year of PhD I started thinking about what to do next. I knew I wanted to stay in atomic physics but after seven years of study I decided that first a break was in order. Although I always disliked languages at school, after my trips to Japan I felt I really wanted to learn more Japanese, partly for the challenge but mainly to help me understand this fascinating country. I was awarded a Daiwa Scholarship, a twenty month scholarship open to all disciplines with an emphasis on language training. I arrived in Japan again last September, just a few weeks after submitting my thesis.

I have been living in Tokyo for just over a year now spending a good deal of that time at a Japanese language school in central Tokyo. My Japanese has improved rapidly and I've had a great time, travelling all over Japan and meeting lots of interesting people. I even spent one month in the countryside living with a Japanese rice wholesaler! Not forgetting physics, I have recently joined a project investigating highly charged ion - surface interactions at RIKEN labs outside Tokyo.

For now I'm continuing part time with my Japanese studies and really enjoying my life here. Although I don't know what the future will bring I am sure the experiences I've have thus far will be invaluable.



## Beth Vokurka

I am American.

Like a select few other physics students, I had the rare delight of going to some exotic, foreign locale for my third year as an undergraduate. I was lucky enough to be accepted as an exchange student to the University of Manchester ..... England.

I was getting a bit restless in my physics courses at the University of Illinois in Champaign-Urbana, so I took the advice of a friend who had received his PhD from the Manchester Physics Department. I headed off to the home of the Industrial Revolution and the Manchester City Football Club, armed with little except a shockingly minimal knowledge of the native language.

I was used to the American way of Physics: 1) If you are a physics student, you better be willing to get a PhD or you have little hope of getting a job. Thousands of engineers take up all the technical jobs. 2) If you want to get a PhD, better be willing to work in physics labs from the ripe old age of 17. So there I was, expecting tiny lecture audiences (I graduated with 20 other students in Illinois) and assuming that I would easily be able to work for a research group during the year ..... right.

I walked out of my first lecture before it even started. I thought I must have stumbled upon an Economics course by accident. I couldn't imagine 200 people in their right minds would want to attend a Quantum Mechanics Lecture. It also took me a mere 2.5 months of daily visits to my present supervisor before he was willing to give me a bit of research work. I ended up helping to code a programme geared towards 6th form students that illustrated basic Particle Physics.

And after one year a British physics student, I didn't want to go back to the States.

What was a girl to do? I headed home, finished up my degree, found funding (a Marshall scholarship) and caught the first boat back to Manchester.

I've been here ever since as a postgraduate PhD student in Experimental Particle Physics. This is my final year, and I've never regretted my choice of returning to work with Manchester's High Energy Physics Group. In fact, I'm hoping to stay in Britain and continue research in physics, so if you know of anyone who needs an eager American physicist .....



## Tim Prestidge

At school, I decided on the 'safe job' option and applied for electronic engineering courses. However, before taking up my offer I had a change of heart, rejected my place, and disappeared to Australia for a year. A couple of jobs in electronics while out there convinced me that I'd chosen wisely, and my interest in physics made my subsequent decisions all the easier.

On my return I began work with Renishaw – an engineering company based in Gloucestershire. My sponsorship deal with them was the one genuinely useful thing to come from my first round of university applications, and their support has been a consistent theme throughout my university career. They readily accommodated my change from electronic engineering to physics, and I then worked with them for a year on a variety of research projects.

During this period I was again applying to universities, but post A-level the whole process was very simple. I applied to take physics at the University of Edinburgh, and they accepted me. Thus began four great years in a fantastic city – made all the more special thanks to a couple of fortunate coincidences. Firstly, just after my course had begun, Renishaw opened a research facility in Edinburgh – ideal for working during the holidays. Secondly, Edinburgh also offered the course that I really wanted to do but hadn't realised existed – theoretical (or mathematical) physics. I changed my honours course in my third year, and from then on I avoided the experiments that 'never worked' for me and concentrated instead on the things that I really enjoyed – plenty of Quantum Theory and General Relativity.

After graduating with a first, the urge to continue onto some research was too great to ignore. With my interest in Relativity and Cosmology my options were fairly limited, but the obvious first stage was the Certificate of Advanced Study in Mathematics at Cambridge. Renishaw again stepped in and agreed to finance me. The atmosphere in Cambridge was competitive, but the subjects on offer were ideal. I chose the Relativity and Cosmology options, but others ranged from Fluid Dynamics to String Theory. After the hardest year of my university life I graduated with distinction, and decided to test my luck and ask Stephen Hawking to supervise my PhD.

Well, he agreed, and I worked with him for three years on, amongst other things, the famous 'information loss puzzle' in Black Holes. During this time I made regular visits with him to Caltech in California and I also attended several international conferences, giving me the opportunity to discuss my research with many of the world's most eminent physicists. I finally submitted my thesis in January 2000, and graduated that June.

I've been incredibly fortunate to have had such a rewarding university career. However, after completing my PhD I decided that academic research wasn't really ideal for me, and I started work with Renishaw as a Director and General Manager. In this new and exciting role, I've found that the technical and personal skills I developed while studying theoretical physics have proven to be invaluable and also highly transportable. I've learned that studying physics can offer genuine benefits in the workplace. So, the message here is clear: if it's the high-flying jet-setting lifestyle you're after, then Theoretical Physics is most definitely for you!





## Carrie Trundle

When the time came to decide on a University course, it really wasn't obvious to me what to do. I bounced around from law to business to general science courses with nothing really catching my interest. One afternoon whilst wondering aimlessly around a careers open day, a friend pointed out a course in Physics with Astrophysics in Queen's University Belfast (QUB). This course immediately caught my attention as it suited my academic strengths in mathematics and physics and my childhood dreams of being an astronaut.

So in September 1996, I packed my rucksack and headed from Dublin to Belfast. My undergraduate years flew past in a whirlwind of parties, lectures and exams. The courses were packed with transferable skills sought after in many fields such as health services, accountancy, IT and telecommunications. In the end, with an Msci in my pocket, I decided I hadn't quite finished studying and opted for more research and the promise of travel by taking a PhD course in extragalactic astronomy at QUB.

During my first year as a PhD student, I started teaching in the physics labs and in the maths department. Initially this was a nerve wrecking experience as the students were only a few years younger and even some were older. Nevertheless, it was worthwhile when I saw the penny drop as they suddenly got something. That first year, my work brought me to new and exciting places such as New Mexico, Hawaii and I even worked with the magnificent Very Large Telescopes (VLT) in Chile. Somehow I always managed to squeeze in some explorations of deserts and volcanoes and all the local culture had to provide. Back in Belfast, I took part in the parachute club one of many clubs available to students. There is nothing like floating back to earth with only the sound of wind rushing past your ears.

In my second year I was offered an opportunity to take a part time job as a support astronomer in one of the top observatories in the Northern Hemisphere - the Isaac Newton Group of Telescopes. This meant moving from Belfast to a little Island called La Palma in the Canaries. This was something I couldn't turn down and ended up staying there for three years. Suddenly my life style changed to include a foreign language, snorkelling and hiking, as well as analysing stellar spectra. Watching the sunset from a 2500 m high mountaintop, with only the sounds of domes opening and telescopes slewing to break the silence of night falling, is a fantastic feeling.

The final years of my thesis were tough, but not enough to deter me from a career as an astrophysicist. Since finishing my studies in May 2004, I have worked in Hawaii for a couple of months and I've just started a job in Tenerife. This job will allow me to continue my research in the investigation of stars in distant galaxies to understand their evolution and their influence on the evolution of their host galaxy. Many of my classmates also took the PhD path and now as we are scattered around the globe, I think we can all agree it was the right choice. Who knows where I'll go next but all the doors are open and I'm looking forward to the adventures ahead.



## Paula Mills

My career has taken a rather circuitous route to date but I believe that my present post encompasses all of the interests that led up to my appointment four years ago. In high school I was torn between languages and science but for A-levels I took the traditional route of physics, chemistry and maths. Later, my decision to study physics as opposed to an engineering or an 'applied' degree was in all fairness due to laziness. I did look into becoming a chemical engineer (I attended an excellent Women in Engineering course at Bradford University in my lower sixth) but the thought of wearing a hard hat for most of my working life didn't appeal. I succumbed to the pearls of wisdom from my physics teacher and accepted a place at the University of York. Experimental physics rather than theoretical was worrying at first especially as experiments always went wrong, but that was all part of the learning curve.

In my final year I had to decide 'what next?', the thought of the real world was too much for me so I looked at what further degree I could do. I temporarily reverted to the possibility of wearing a hard hat again (maybe one day!) in that an MSc in Exploration

Geophysics sounded fun, but in the end I opted to stay at York to discover the wonderful world of glass. Glass corrosion studies had been ongoing in the York physics department since the mid-seventies although I was considered a bit of an oddity - studying medieval windows meant that I talked about churches and history all the time, but they agreed this was more interesting than the more usual my equipment doesn't work! During my time at York I was encouraged to participate in the teaching and local community access events and this is how I became a 'seasonal' tutor for the Open University.

It seemed natural to try to find a job that combined science and art in the way my DPhil had - and this is where I am now - a conservation scientist at the Victoria and Albert Museum. The post was created to increase the understanding of the museum environment alternatively known as preventive conservation. The advances in technology have meant that more and more of the environment can be studied and I participated in a pollution monitoring project with the Historic Royal Palaces - a rare opportunity to see behind the scenes at Kensington Palace!

Opportunities for professional development are numerous and that is how I became production editor for the V&A Conservation quarterly journal. My current research oscillates from understanding and modelling of display cases to identifying the difference between Chinese and European pink glazed porcelain from the eighteenth century. Whenever I say I work at the V&A, I'm always delighted at the enthusiasm people have for the museum and the opportunity I have to work with these great works of art.

Physics has allowed me to combine the thirst for knowledge with my fascination for history - it truly is the path to follow.



## Claire Chandler

Science and mathematics were my strongest subjects at high school, but deciding what to study at university was bewildering: so many of the courses I looked at seemed interesting, and I felt it was a bit of a lottery. As it happened, I won the lottery by choosing to study Physics with Astrophysics at the University of Birmingham. I had never been much of an amateur astronomer, but I found that the application of physics and chemistry to astronomical environments -- the extreme conditions encountered in neutron stars, black holes in the centre of galaxies, chemical processes in the rarefied gas between the stars -- to be awe inspiring and fascinating. I graduated from Birmingham in 1987 with what has turned into a lifelong passion for astrophysics. The final year course in Stellar Evolution led me to a PhD at the University of Edinburgh, which was completed in 1991. My thesis was an observational study of very young protostars, still so deeply enshrouded in their natal clouds of gas and dust that they are invisible in optical light. Most of the radiation from these stars emerges at far-infrared and radio wavelengths, and I have spent much of the last decade using infrared, millimetre-wave, and radio telescopes around the world to continue my research into the early lives

of young stars and planetary systems.

After completing my PhD at Edinburgh I decided to take a huge step, leaving England to work in the United States for a while. When I look back on it now I can hardly believe I did this, but I managed to obtain a NATO-funded grant to go to the California Institute of Technology in Pasadena, California. From there everything seemed to take off, and I went on to work at the National Radio Astronomy Observatory in Socorro, New Mexico, home of the most powerful radio telescope in the world, the Very Large Array (VLA). After five years in the US I returned to England, moving to the Cavendish Astrophysics group in the Department of Physics in Cambridge. The warmth and sunshine of the New Mexican desert has brought me back to the US, in February 2000 I re-joined the scientific staff at the VLA. When I look back on how the decisions I have made led me to where I am now I see that I have been very lucky that my chosen subject, astrophysics, has turned into a such a wonderful career. I also have many other colleagues who studied astrophysics at undergraduate and PhD level, driven by their interest in astronomy, and who have used their expertise in understanding and modelling physical systems to move into financial or other careers in the city. A background in physics can take you almost anywhere.



## Treasa Ní Mhíocháin

What to study at university? Law or Maths, French or Physics, English or Drama? I suppose I was lucky that I enjoyed so many different things, but it made it none too easy to make up my mind. University education, certainly in Ireland, is so specialised, and I didn't want to give anything up. In the end I compromised and decided to be the all-singing, all-dancing physicist.

So in October 1992, I packed my lunch box and left for a degree in Theoretical Physics at Trinity College Dublin. And what an amazing four years. It seemed a shame to waste my gift of the Irish gab, so to spare my friends, I transferred my monologues to the debating chamber and the stage. Between playing Nancy in 'Oliver', Roxy in 'Chicago' and Mary in 'Jesus Christ Superstar', and then running around the country trying to sound passionate about the motion of the day at intervarsity debates, my physics career was surrounded by a haze of petticoats and 'points of information'. Yet the more physics I studied, the happier I was with my choice. Four years later when I came to graduate, I knew I had chosen the most fascinating and challenging degree in the country. My years of physics had opened so many doors to me and closed none. And suddenly I was back as I had been in 1992, spoiled for choice. What next? I had been offered a

job as a financial manager, and there was always postgrad. But then again, there was the rest of the World. Personally, I chose the World.

This time I packed rather more than my sandwiches, and two weeks after graduation I landed in Japan where I was to spend the most amazing year of my life. When I left Dublin my Japanese extended no further than 'Konnichiwa', so the frying pan was barely distinguishable from the fire when I first arrived, but when faced with the kindness, hospitality and unending patience of the Japanese, I soon learned to remember to take my shoes off when entering a house. I worked as an English teacher in two Junior High Schools in a small town near Fukuoka in Southern Japan, all organised by the excellent Japan Exchange and Teaching (JET) Programme. I climbed Mount Fuji, learned karate, did a five day Zen Buddhist Retreat, sang more karaoke than I care to remember and met people I will remember all my life. But what of my physics? I know it seems strange, but it was as I sat on the bullet train returning from my first visit to Hiroshima, an experience guaranteed to focus the mind, that I realised how important science is to me and to all of us. I determined to begin my PhD on my return, though I took a bit of a detour through China en route.

And now here I am in 1999, back in Trinity College Dublin, eighteen months into my PhD and loving it. I am working in Magnetism, but still singing and dancing. In fact this week I'm performing with a musical society in the National Concert Hall. And this summer I'm presenting work at a conference in Korea. It seems quite fitting that Physics is sending me back to the East after the East sent me back to Physics. The doors are all still open.



## James Tacchi

I had known almost all my life that I wanted to become an airline pilot; in fact it was something of a dream. It is widely regarded throughout the industry that a good grounding in mathematics and physics, although not a strict pre-requisite, is looked upon very favourably by many airlines. Having enjoyed both physics and mathematics at A-Level it seemed ridiculous to do anything less than study one of these disciplines at university.

However, there were elements of mathematics that I did not enjoy, and likewise there were elements of physics, namely practical work, that I certainly wouldn't miss.

Whilst contemplating which degree course to study at the myriad of universities all offering physics or mathematics, I came across a course that immediately grabbed my attention - Theoretical Physics and Applied Mathematics at the University of Birmingham. A little further research and my decision was made. This was the ideal course – I was to get the opportunity to study both physics and mathematics to a very high level at

reputedly one of the country's top universities.

The first year of the course was basically spent giving everybody a good grounding in basic physics and mathematics, filling any gaps in the knowledge of those from differing A-Level backgrounds, but even at this early stage the emphasis on theory was evident with courses in quantum physics, chaos and relativity.

This was followed up in years two and three with even more theoretical courses, and the excellent teaching methods meant that all of the advanced principles could be understood without even looking at a piece of lab equipment! On the mathematics side there was also a great selection of advanced applied courses with a minimal emphasis on pure mathematics.

The course was certainly a challenge but I found it both interesting and enjoyable, and the support from staff during the more difficult periods was excellent. Also, I found the physics department, including both staff and students very friendly and relaxed. I believe it makes a huge difference to your success when you can honestly say that you are enjoying what you do, and this was certainly true in my case.

Those who chose to study a fourth year were able to really get to grips with theoretical physics or applied mathematics by undertaking a research project. However, my passion for flying led me to opt for the three year BSc course, and during my final year, I was fortunate to be selected to attend an eighteen month flying training course, sponsored by British Airways, leading to employment as a pilot with them. I am shortly to begin flying a 150-seat jet out of Heathrow airport, and I feel like my feet quite literally haven't touched the ground! Although the selection procedure and the ensuing course were tough, I believe that a lot of the skills acquired during my time at Birmingham helped me to succeed.

I still keep a strong interest in physics, and maybe in the future I'll return to university and complete a higher degree on a part-time basis. Were it not for my desire to fly professionally, I would probably be studying for a PhD at Birmingham.

I can strongly recommend a physics course to anybody no matter what their career aspirations are, particularly one of the wide variety of courses offered at the University of Birmingham. I'm quite certain that I'll never be required to solve problems in quantum tunnelling, 4-vector space-time or do anything with Maxwell's equations in my future career! But I'm sure that the skills I acquired whilst doing so at Birmingham have prepared me for many problems that I may face throughout my working life.



## Emily Cook

I first began to enjoy physics when, at GCSE, I had a very enthusiastic, if slightly eccentric, teacher. Although I toyed with the idea of doing an engineering degree, which would lead to a specific job, I realised that I shouldn't cut out any options as I had no definite career plans. I managed to get myself accepted by Oxford and, not being able to turn down the opportunity, off I went.

The first year is mostly a blur to me. I took up football, rowing and ice hockey and, having not done further maths A Level, had no idea what was going on in lectures! Initially a lot of the work went over my head, although for a while in each of my two weekly tutorials, things became slightly clearer. Luckily I passed the year, and having given up rowing, managed to stay awake through enough of the second year for it to make sense. The second year also gave me the option of swapping a term's worth of practicals for time in a local school and the university education department. I really enjoyed both my time in school and the project I undertook, however the highlight was undoubtedly being asked out by a thirteen year old!

Another feature of the second year is that everyone has to prepare and deliver a talk to their tutors and the other Physicists in their college. Those who find they enjoy talking can then move on to the University competition and, as in my case, this can then spiral out of control. My talk on the Physics of Music got me to the Institute of Physics Undergraduate Lecture Competition, which I somehow won, and has resulted in my giving the talk at a conference in Brighton, and also a trip to Budapest in the summer for another conference.

Having struggled throughout my first year, it slowly all came together and, with most of my finals completed, I'm online for a First. Next year I plan to go on and do a PGCE with a view to becoming an enthusiastic, and hopefully not too eccentric, Physics teacher! Hard as it has been, my time at Oxford has been rewarding and enjoyable and I'm leaving with a definite sense of achievement.

After graduating, I worked for a year as a physics teacher in the Midlands and then started research at the Department of Bioengineering and Medical Physics at University College London on the use of x-ray diffraction to detect breast tumours. Having completed my PhD in this topic, I am currently working on the use of physics techniques to detect illicit drugs.





## Nick Vanter

OK, I admit that I might be one of the fortunate ones. The decision made during my A-levels to spend the next 4 years studying for a physics degree was not difficult though like most that's not to say I knew what I was going to do with it once I got it.

Now I've got a job and the truth is I'm still not completely certain where it will take me.

My reason for doing physics was simple – I enjoyed it. It was obvious that I would head for the science and technology subjects at school ever since destroying my toys as a kid to see how they worked despite my mum and dad's protests. With a little persuasion from my GCSE science teacher, I was convinced to take up physics at A-level. Following an entertaining couple of years of physics at college much due to a very mad white haired lecturer, I knew I was going to be applying to do physics at university. Had I any thoughts of a career yet? None. Though at the time the options seemed limited to hiding in a physics lab at a large company or that of the eternal student. This was a view I was soon to change.

The University of Birmingham beckoned and I enrolled on the 4 year MSci qualification. The first three years saw a growing interest into anything quantum mechanical (as well as anything served behind the student union bar) and mid way through the third year I was considering a PhD in such an area. At this time I also needed to get a more worthwhile summer job rather than succumbing to the agency slave drivers as of previous years. So I applied to Rolls-Royce, amongst others, for a vacation trainee place.

I found myself in the materials group working with aviation fuels and lubricants – a far cry from my interest in quantum mechanics. I was involved in chemistry, materials science, legal issues, manufacturing as well as physics.

It was here I had my eyes opened and I soon realised there were far more opportunities open to physicists.

Whilst the degree was interesting it became clear that the benefit of a physics degree in terms of a career was not so much the subject matter but more the by way the way you learn to think. And this is far by the most employable bit. I was offered a job by Rolls-Royce and joined the graduate training scheme where I have since been exposed to all sorts of potential career paths. So now I have an idea of where I want to go. That's not to say I won't change my mind tomorrow to something completely different. However I am sure that whatever I'll be doing, it will be benefiting from my physics degree.



## Cormac McGrath

Knowing from an early age that I wanted to Physics at University, I began my University life studying Chemical Engineering in September 1993 at Queen's University Belfast. Encouraged by some of my teachers, it seemed the sensible course to follow, being vocational and there were jobs waiting at the end. Within a month I knew that ChemEng just didn't "do it" for me and so I enquired about changing. I was too late to enrol in Physics that year but they unconditionally accepted me for the following year. I choose to stay in ChemEng as I was having such a blast with university life. I did some work and passed my exams and so with much excitement I began Joint Hons in Physics & Maths.

Choosing to leave the empirical world of ChemEng and joining the Physics world and finding out how things tick, was one of the best decisions of my life. My undergraduate degree was challenging and stimulating and never a drag. Even with the odd hangover I still managed to drag myself to lectures. I spent my summers in the USA and Europe working and having a great time. In 1997, I graduated with a First Class Hons.

What next? The subject that most interested me at undergraduate was Atomic & Molecular Physics and I knew straight away that I wanted to do a PhD in the subject. So I researched and realised that world class research in Atomic & Molecular Physics was being done right at Queen's in Belfast. But I didn't want to start straight after my degree and so I took a year out to travel and see more of the world.

I worked in the USA running a small mobile business selling art prints and posters on University campuses. Over the years, I have managed to visit 35 states. I also visited Japan and travelled all over this beautiful country and was a voluntary English teacher in the Hiroshima prefecture. I taught in a number of different schools around Fukuyama, including some on very small island in the south Japanese sea. I appeared on local television dancing and playing the tyko drums at a matsuri (festival). Japan was a truly wonderful experience. I also visited New Zealand, Singapore, Canada, Cuba and the Cayman Islands.

And so with my year out over, I began my PhD in "Fundamental Collisions of Hydrogen Ions with Atoms and Molecules". While learning plenty of Physics, I gained many skills valuable in other aspects of life. In my first year of my PhD, I travelled to Belgium to attend a course on vacuum technology, and I went back to Japan to participate in the ICPEAC (International Conference on Photonic, Electronic & Atomic Collisions) conference in Sendai. I was also fortunate enough to be awarded the Emily Sarah Montgomery Travel Scholarship to travel to Rio de Janeiro to work with the Laboratório Van de Graff in Pontificia Universidade Católica. I was also able to travel a little around Brazil and one of the highlights was hang-gliding from one of the mountains that surround Rio, soaring over the shanty-towns and skyscrapers and landing on the beach.

Post-PhD, I did post-doctoral research in QUB and also in the University of Windsor, Ontario, Canada. My research here involved cooling Caesium atoms to  $\mu\text{K}$  temperatures using a combination of laser and magnetic fields and bombarding the trapped atoms with electrons.

Since then I have returned to Belfast and I have finished my first year in Medical Physics, specialising in Nuclear Medicine. This is a thoroughly fascinating field, seeing the application of Physics to medicine and health. I have found with my choice of Physics at University that although it is not a directly vocational degree, such as Accountancy, it has closed no doors to me and opened so many.



## Katherine Mayes

I have only ever lived in towns that begin with the letter D. First I lived in Dublin, then in Darmstadt, and for the last 3 months I've lived in Dilla. And it is physics that's taken me on this curious route. In school I loved maths and physics, so Theoretical Physics in Trinity College, Dublin was an obvious choice for a Dublin girl. It was a wonderful time, but when I graduated in 1995 I still had no more of an idea what I wanted to do than I'd had four years earlier. So I postponed any decisions, and applied to do an MSc, somewhere where they didn't speak English. And that turned out to be the Technical University of Darmstadt, Germany, with which Trinity had an Erasmus exchange program. Those two years were wonderful, but I realised it takes a lot more than two years to feel at home somewhere. I felt I was only beginning to learn to speak German. So after my MSc, I enrolled as a PhD student in theoretical solid state physics there, and spent 5 years wavering between the thrills of getting a tricky calculation out and the despair of thinking I'd never finish this old

thing. The German graduate system is rigorous indeed, and the final grade depends on a public oral examination on all areas of physics. Although it is a year ago that I did it, I still can hardly believe I got through that afternoon last January. But I did, and discovered to my surprise that I still had no better an idea what to do with myself than I'd had at any of the other junctures in my life. So I postponed any decisions, and applied to VSO (Voluntary Service Overseas), a British charity that sends qualified people to developing countries. Since September I've been teaching physics at Debub University, in Dilla, a town in the south of Ethiopia, about half way between Addis Ababa and the Kenyan border. The work is challenging in the extreme: a very high standard of theoretical work, while experimental physics is sadly neglected. But I love it, every day is full of surprises, and I'm looking forward immensely to the rest of my placement here.

Maybe I'll stay 7 years here too, till I'm fluent in Amharic. But already I'm looking at my map of the world, wondering what other towns beginning with the letter D physics might take me to next. Durban, Delhi, Danmarks Havn.....



## Rachel Busfield

I cannot believe it's now over ten years since I left school - the time has just flown by! As a kid I was always testing my Dad's patience by persistently asking about why and how something works; which could explain my interest in the science and technology. It was interest that led me to study Physics, rather than a chosen career path, because I've never been one of these people who knows exactly "what they want to do when they grow up".

I enrolled for the 3 year BSc at Durham University. The Durham Physics department scores highly in assessments and the University has the bonus of the collegiate system. The courses included up to date topics as well as the traditional subjects, and made use of team projects for some of the practical projects. In our third year we were offered the opportunity to enrol for an additional year as the guinea pigs for the 4 year MSci course. I wasn't sure what I wanted to do after University so

an extra year would give me so more thinking time, and had decided that I wanted to go into technology research so re-registered for Applied Physics. After four years crammed with Physics, rowing, football, and partying, the hard work paid off and I graduated with a first.

A friend encouraged me to apply for a summer job in industry. I applied for the vacation training scheme at Rolls-Royce in my home town of Derby and spent 8 weeks with the noise department, who are responsible for ensuring that the civil aero-engines meet the noise regulations. That would be my number one tip for anyone at University - try and get some work experience in at least one of your vacations because most employers will be looking for evidence of work experience. Plus you'll use some of the knowledge you've acquired, and get paid for it! I enjoyed my attachment so much that I accepted a place on the graduate training scheme to start the following year. The Rolls Royce training scheme is affiliated with the IMechE and the IoP, and is made up of a series of attachments 8-10 weeks long for a period of up to 2 years. It is a good chance to learn about different technology areas, and start to build up your network of contacts across the organisation.

My first position after the training scheme was with the Measurement Technology team whose role is to advise on the implementation of instrumentation used on test aero-engines. I specialised in thin film sensors, and during my 5 years with the team I completed a full time PhD sponsored by the company in conjunction with University of Salford on this subject. I was also sponsored to go and work with the thin film sensor team at NASA Glenn Research Centre, Ohio USA for four months. It was an amazing experience to live and work in another country. Working for a large global company means you will definitely find yourself working with other people from around the world, in fact most people will do some travelling for work, but there are also opportunities for longer term placements or re-location.

Last year I took up a new position working on research and development for engine health monitoring technologies. The concept is to acquire data from aero-engines during flights to monitor how they are performing and therefore predict the onset of faults before they occur, making them more reliable. Rolls-Royce is such a large company that you only have to look at the internal job adverts to realise how much opportunity there is; the professional development structure allows you to move between departments, and some also make the move from engineering to marketing or finance areas.

In the end, I would recommend Physics to anyone with an enquiring mind, who isn't too put off by the maths. A Physics degree definitely doesn't restrict you to the more traditional routes of a PhD and a job in academia or teaching, but does give you the opportunity to develop very marketable job skills. You learn how to interpret and question new ideas, analyse problems, devise experiments, interpret data and risk, write reports, give presentations, and work in a team; these were the most important skills I took from my Physics degree.

# GUIDE TO TERMINOLOGY AND ABBREVIATIONS

## COURSE TITLE/COURSE TYPE

Courses are listed within four categories:

1 Physics (Single Honours): courses which have physics as the major component not combined with another subject (eg: physics, applied physics, theoretical physics).

2 Physics with... (Single Honours): courses which have physics as the major component combined with another subject which occupies approximately 20-30% of curriculum time (examples include: physics with european studies, physics with astro-physics)

3 Physics and... (Combined Honours): courses which have physics as an approximately equal component of curriculum time with another subject (eg: physics and chemistry, physics and philosophy)

4 HND

## COURSE DURATION (YRS)

Figures represent years of full-time study unless otherwise indicated.

Sandwich courses are also specified.

## ENTRY INFORMATION: SUBJECTS

Codes for A-level subjects normally required:

<b>P</b>	Physics
<b>M</b>	Maths
<b>C</b>	Chemistry
<b>PS</b>	Physical Science
<b>E</b>	Engineering
<b>B</b>	Biology
<b>Mus</b>	Music
<b>CS</b>	Computer Science
<b>...</b>	Any A-level or equivalent subject

## ENTRY INFORMATION: ALTERNATIVE QUALIFICATIONS

Codes for acceptable alternative qualifications

<b>Access</b>	An Access course
<b>AE</b>	All European
<b>AH</b>	Advanced Highers
<b>AS</b>	Advanced Subsidiary
<b>BTEC</b>	Business & Technology Education Council
<b>CSYS</b>	Certificate of Sixth Year Studies (Scotland)
<b>EB</b>	European Baccalaureate
<b>GNVQ</b>	General National Vocational Qualification (Advanced)/ Vocational A-levels
<b>GSVQ</b>	General Scottish Vocational Qualification (Advanced)
<b>HND</b>	Higher National Diploma
<b>IB</b>	International Baccalaureate
<b>ILC</b>	Irish Leaving Certificate
<b>ONC</b>	Ordinary National Certificate
<b>OND</b>	Ordinary National Diploma
<b>Ot</b>	Others
<b>OU</b>	Open University Foundation Course
<b>SCE</b>	Scottish Certificate of Education
<b>SH</b>	Scottish Highers

(Normal entry to Scottish/Irish universities is via Scottish Highers and Irish Leaving Certificates respectively, with A-level candidates also accepted. In some Scottish cases this might be into the 2nd year.)

COURSE TITLE (See Note)	QUAL AWARD	DURATION  (See Note)	ENTRY INFORMATION						
			A-level or equivalent subject required (See Note)	Points required	TYPICAL GRADE OFFERS				
					AS	A	Highers	Irish Leaving Cert	Alternatives

UNIVERSITY OF ABERDEEN									
Physics	BSc	3	M + ...	240†	BBBB	CCC**	BBBB	BBBB	IB,AH(BCC)
	BSc(Hons)	4**	M + ...	240†	BBBB	CCC**	BBBB	BBBB	IB,AH(BCC)
Physical Science	BSc	3	M + ...	240†	BBBB	CCC**	BBBB	BBBB	IB,AH(BCC)
	BSc(Hons)	4**	M + ...	240†	BBBB	CCC**	BBBB	BBBB	IB,AH(BCC)
Physics with French*	BSc	3	M + ...	240†	BBBB	CCC**	BBBB	BBBB	IB,AH(BCC)
	BSc(Hons)	4**	M + ...	240†	BBBB	CCC**	BBBB	BBBB	IB,AH(BCC)
Physics with Gaelic*	BSc	3	M + ...	240†	BBBB	CCC**	BBBB	BBBB	IB,AH(BCC)
	BSc(Hons)	4**	M + ...	240†	BBBB	CCC**	BBBB	BBBB	IB,AH(BCC)
Physics with German*	BSc	3	M + ...	240†	BBBB	CCC**	BBBB	BBBB	IB,AH(BCC)
	BSc(Hons)	4**	M + ...	240†	BBBB	CCC**	BBBB	BBBB	IB,AH(BCC)
Physics with Spanish*	BSc	3	M + ...	240†	BBBB	CCC**	BBBB	BBBB	IB,AH(BCC)
	BSc(Hons)	4**	M + ...	240†	BBBB	CCC**	BBBB	BBBB	IB,AH(BCC)
Physics with Geology	BSc	3	M + ...	240†	BBBB	CCC**	BBBB	BBBB	IB,AH(BCC)
	BSc(Hons)	4**	M + ...	240†	BBBB	CCC**	BBBB	BBBB	IB,AH(BCC)
Physics with Chemistry	BSc	3	M + ...	240†	BBBB	CCC**	BBBB	BBBB	IB,AH(BCC)
	BSc(Hons)	4**	M + ...	240†	BBBB	CCC**	BBBB	BBBB	IB,AH(BCC)
Physics with Philosophy	BSc	3	M + ...	240†	BBBB	CCC**	BBBB	BBBB	IB,AH(BCC)
	BSc(Hons)	4**	M + ...	240†	BBBB	CCC**	BBBB	BBBB	IB,AH(BCC)
Geology – Physics	BSc	3	M + ...	240†	BBBB	CCC**	BBBB	BBBB	IB,AH(BCC)
	BSc(Hons)	4**	M + ...	240†	BBBB	CCC**	BBBB	BBBB	IB,AH(BCC)
Mathematics – Physics	BSc	4**	M + ...	240†	BBBB	CCC**	BBBB	BBBB	IB,AH(BCC)
	MA	4**	M	240†	BBBB	CCC	BBBB	BBBB	IB,AH(BCC)
Natural Philosophy	MA	4**	M	240†	BBBB	CCC	BBBB	BBBB	IB,AH(BCC)
Philosophy – Physics	MA	4**	M	240†	BBBB	CCC	BBBB	BBBB	IB,AH(BCC)
Physics – Education	BSc	3	M + ...	240†	BBBB	CCC**	BBBB	BBBB	IB,AH(BCC)
	BSc(Hons)	4**	M + ...	240†	BBBB	CCC**	BBBB	BBBB	IB,AH(BCC)
Footnote:									
Accommodation places are offered to all students not domiciled locally.									
Admission is to degree of BSc or MA not to department.									
* Alternative language courses for beginners and qualified speakers.									
** Students with BBC at A-level or BBB at Advanced Higher, including Maths and Physics, qualify for direct entry to year 2.									
† UCAS tariff from not more than 4 subjects.									

COURSE TITLE (See Note)	QUAL AWARD	DURATION  (See Note)	ENTRY INFORMATION						
			A-level or equivalent subject required (See Note)	Points required	TYPICAL GRADE OFFERS				
					AS	A	Highers	Irish Leaving Cert	Alternatives

ABERYSTWYTH UNIVERSITY								
Physics	BSc	3	P+M	240	BC	BBBBC	BBBBC	BTEC,AS(P or M),IB
	MPhys	4	P+M	240	BC	BBBBC	BBBBC	BTEC,AS(P or M),IB
Physics and Mathematics	BSc	3	P + M	240	BC	BBBBC	BBBBC	BTEC,AS(P or M),IB
Physics with Planetary & Space Physics	BSc	3	P+M	240	BC	BBBBC	BBBBC	BTEC,AS(P or M),IB
	MPhys	4	P+M	240	BC	BBBBC	BBBBC	BTEC,AS(P or M),IB
Physics with Business Studies	BSc	3	P+M	240	BC	BBBBC	BBBBC	BTEC,AS(P or M),IB
Physics with German	BSc	3	P+M	240	BC*	BBBBC	BBBBC	BTEC,AS(P or M),IB
Physics with Spanish	BSc	3	P+M	240	BC*	BBBBC	BBBBC	BTEC,AS(P or M),IB
Physics with French	BSc	3	P+M+French	240	BCC	BBBBC	BBBBC	BTEC,AS(P or M),IB
Joint Honours including Physics	BSc	3	P+M	240	BC	BBBBC	BBBBC	BTEC,AS(P or M),IB
Physics (including Foundation Year)**	BSc	4	–	–	–	–	–	–
Physics (Ordinary)	BSc	3	–	–	–	CC	CC	BTEC.GNVQ,IB
Physics with Education	BSc	3	P+M	240	BC	BBBBC	BBBBC	BTEC.GNVQ,IB
Space Science and Robotics	BSc	3	P+M†	240	BC	BBBBC	BBBBC	BTEC.GNVQ,IB
Footnote								
*	Including evidence of linguistic ability or aptitude.							
**	Mature students who join the foundation year – their choice of course is open until entry into the third year.							



COURSE TITLE (See Note)	QUAL AWARD	DURATION  (See Note)	ENTRY INFORMATION						
			A-level or equivalent subject required (See Note)	Points required	TYPICAL GRADE OFFERS				
					AS	A	Highers	Irish Leaving Cert	Alternatives

UNIVERSITY OF BATH									
Physics	BSc	3 or	P + M + ...		AAB/ABB***	–	–	BTEC,IB,EB,ILC,	
		4(placement)						CSYS,OU,**	
	MPhys	4(optional	P + M + ...		AAB/ABB***	–	–	BTEC,OU,EB,AE	
		year abroad)						CSYS,ILC,Access,IB,**	
	MPhys	4(placement)	P + M + ...		AAB/ABB***	–	–	BTEC,OU,IB,EB,	
								CSYS,Access,AE,**,Ot	
Physics with Computing	BSc	3 or	P + M + ...		AAB/ABB***	–	–	BTEC,IB,EB,ILC,	
		4(placement)						CSYS,OU,**	
Physics with a study year abroad*	BSc	4	P + M + ...		AAB/ABB***	–	–	BTEC,IB,EB,ILC,.	
								CSYS,OU,**	
Physics with Education*	BSc***	4	P + M + ...		AAB/ABB***	–	–	BTEC,OU,IB,EB,	
								CSYS,2A+2AS,ILC,	
								Access,AE,Ot	
Mathematics and Physics	BSc	3	P + M + ...		AAB†				
		4(placement) or							
	MSci	4(year abroad)	P + M + ...		AAB†				
Footnote:									
* Final year can be Physics, Physics with Computing									
** GNVQ with A-level Maths. *** and qualified teacher status									
*** AA or AB in Maths and Physics									
† Maths A, Physics A									

COURSE TITLE (See Note)	QUAL AWARD	DURATION	ENTRY INFORMATION						
		(See Note)	A-level or equivalent subject required (See Note)	Points required	TYPICAL GRADE OFFERS				
					AS	A	Highers	Irish Leaving Cert	Alternatives

UNIVERSITY OF BIRMINGHAM								
Physics	BSc***	3	P + M + ...	ABB†	AAA-ABB in AH	AAAABB	IB/EB	
	MSci	4	P + M + ...	AAB†				
Physics and Astrophysics	BSc***	3\$	P + M + ...	ABB†	AAA-ABB in AH	AAAABB	IB/EB	
	MSci	4	P + M + ...	AAB†				
Theoretical Physics	BSc***	3\$	P + M + ...	ABB†	AAA-ABB in AH	AAAABB	IB/EB	
	MSci	4	P + M + ...	AAB†				
Physics with Particle Physics and Cosmology	BSc***	3\$	P + M + ...	ABB†	AAA-ABB in AH	AAAABB	IB/EB	
	MSci	4	P + M + ...	AAB†				
Physics with Business Management	BSc***	3	P + M + ...	ABB†	AAA-ABB in AH	AAAABB	IB/EB	
	MSci	4	P + M + ...	AAB†				
Physics (International Study)	BSc	4*	P + M + ...**	ABB**†	AAA-ABB in AH	AAAABB	IB/EB	
	MSci	4*	P + M + ...**	AAB**†				
Physics with Nanoscale Physics	MSci	4	P + M + ...	AAB†	AAA-ABB in AH	AAAABB	IB/EB	
Theoretical Physics and Applied Mathematics	BSc	3	P + M + ...	AAB†	AAA-ABB in AH	AAAABB	IB/EB	
	MSci	4	P + M + ...	AAB†				
Footnote:								
\$ A four year degree programme with Study in a Continental University in year 3 is available as an option.								
† The third A-level can be replaced by 2 new AS-levels in year 13.								
300-340 tariff points to include a minimum of 280 points (MSci) 260 points (BSc) achieved in year 13 from 3 Advanced levels or equivalent.								
* Year 3 abroad studying in a Continental University								
** Plus appropriate language at a minimum of GCSE Grade B								
*** Intercalated year in Computer Science (BSc only)								

COURSE TITLE (See Note)	QUAL AWARD	DURATION  (See Note)	ENTRY INFORMATION					
			A-level or equivalent subject required (See Note)	Points required	TYPICAL GRADE OFFERS			
					AS	A	Highers	Irish Leaving Cert

UNIVERSITY OF BRISTOL									
Physics	BSc	3	P + M	–	AAB	AAAAB-AAABB	AAAABB	EB,IB,FB,Abitur	
	MSci	4	P + M	–	AAB	AAAAB-AAABB	AAAABB	EB,IB,FB,Abitur	
Chemical Physics	BSc	3	P + M + C	–	ABB	AAAAB-AAABB	AAAABB	EB,IB,FB,Abitur	
	MSci	4	P + M + C	–	ABB	AAAAB-AAABB	AAAABB	EB,IB,FB,Abitur	
Chemical Physics with a year in Industry	MSci	4	P + M + C	–	ABB	AAAAB-AAABB	AAAABB	EB,IB,FB,Abitur	
Mathematics and Physics	BSc	3	P + M	–	A in Maths, AB	AAAAB-AAABB	AAAABB	EB,IB,FB,Abitur	
	MSci	4	P + M	–	A in Maths, AB	AAAAB-AAABB	AAAABB	EB,IB,FB,Abitur	
Physics and Philosophy	BSc	3	P + M	–	AAB	AAAAB-AAABB	AAAABB	EB,IB,FB,Abitur	
	MSci	4	P + M	–	AAB	AAAAB-AAABB	AAAABB	EB,IB,FB,Abitur	
Physics with Study in Continental Europe	BSc	4	P + M	–	AAB	AAAAB-AAABB	AAAABB	EB,IB,FB,Abitur	
	MSci	4	P + M	–	AAB	AAAAB-AAABB	AAAABB	EB,IB,FB,Abitur	
Physics with a Year in Industry	BSc	4	P + M	–	AAB	AAAAB-AAABB	AAAABB	EB,IB,FB,Abitur	
	MSci	4	P + M	–	AAB	AAAAB-AAABB	AAAABB	EB,IB,FB,Abitur	
Physics and Philosophy with Study in Continental Europe	BSc	4	P + M	–	AAB	AAAAB-AAABB	AAAABB	EB,IB,FB,Abitur	
Physics with Astrophysics	BSc	3	P + M	–	AAB	AAAAB-AAABB	AAAABB	EB,IB,FB,Abitur	
	MSci	4	P + M	–	AAB	AAAAB-AAABB	AAAABB	EB,IB,FB,Abitur	
Physics with Astrophysics with a Year in Industry	BSc	4	P + M	–	AAB	AAAAB-AAABB	AAAABB	EB,IB,FB,Abitur	
Physics with a Preliminary Year	BSc	4	N/A	–	N/A	N/A	N/A	Access,GNVQ, GSVQ,BTEC	
Footnote: We would normally look for AAB Advanced Highers									

COURSE TITLE (See Note)	QUAL AWARD	DURATION	ENTRY INFORMATION						
		(See Note)	A-level or equivalent subject required (See Note)	Points required	TYPICAL GRADE OFFERS				
					AS	A	Highers	Irish Leaving Cert	Alternatives

UNIVERSITY OF CAMBRIDGE									
Experimental and Theoretical Physics	BA MSci	3 4	P + M			AAA			IB,CSYS,EB
Footnote: First year 3 subjects + Maths, second year Physics plus minor subject, third and fourth year physics only. Admission is via a college. The Department provides a 3/4 year course leading to BA/MSci degrees. The fourth year offers a variety of specialised physics topics.									

CARDIFF UNIVERSITY									
Physics	BSc	3	P + M	300		BBB	–	–	EB,IB,Abitur,BTEC, GNVQ,other - please contact admissions tutor
	MPhys	4	P + M	340		AAB	–	–	
Physics with Medical Physics	BSc	3	P + M	300		BBB	–	–	as above
Physics with Astronomy	BSc	3	P + M	300		BBB	–	–	as above
	MPhys	4	P + M	340		AAB	–	–	
Astrophysics	BSc	3	P + M	300		BBB	–	–	as above
	MPhys	4	P + M	340		AAB	–	–	
Physics with Music	BSc	3	P + M + Mus	300		BBB	–	–	as above
Physics and Chemistry	BSc	3	P + M+ Chem	300		BBB	–	–	as above
Physics (with a professional placement)	BSc	4	P + M	300		BBB	–	–	as above
Physics with Astronomy (with a professional placement)	BSc	4	P + M	300		BBB	–	–	as above
Mathematics and Physics	BSc	3	P + M	300		BBB	–	–	as above
Theoretical and Computational Physics	BSc	3	P + M	300		BBB	–	–	as above
Physics with a Preliminary Year	BSc	4	N/A	N/A		N/A			Access, BTEC, etc. Please contact admissions tutor
Footnote: Possibility to study a European language to diploma standard (on all courses). Typical offer is: BSc – 300 pts with minimum of B in Physics and Maths MPhys – 340 pts with minimum of A in Physics and Maths									

COURSE TITLE (See Note)	QUAL AWARD	DURATION  (See Note)	ENTRY INFORMATION						
			A-level or equivalent subject required (See Note)	Points required	TYPICAL GRADE OFFERS				
					AS	A	Highers	Irish Leaving Cert	Alternatives

UNIVERSITY OF CENTRAL LANCASHIRE									
Physics	BSc (Hons) MPhys	3/4	P + M*	280		BBC	AAAB	ABBBB	IB
Applied Physics	BSc (Hons) MPhys	3/4	P + M*	280		BBC	AAAB	ABBBB	IB
Physics with Astrophysics	BSc (Hons) MPhys	3/4	P + M*	280		BBC	AAAB	ABBBB	IB
Astrophysics	BSc (Hons) MPhys	3/4	P + M*	280		BBC	AAAB	ABBBB	IB
Footnote: * Pass required at A2 level in Physics and Mathematics.									

CORK INSTITUTE OF TECHNOLOGY									
Computerised Instrument Systems	BSc (Hons)	4	–	–	–	CCC	–	ILC*	EB,IB
Applied Physics and Instrumentation	BSc (Hons)	4	–	–	–	CCC	–	–	ND,BSc (50% average) EB,IB
Applied Physics and Instrumentation	BSc/HC	3,2	–	–	–	CDD	–	ILC*	EB,IB
Applied Physics and Semiconductor Technology	BSc	3	–	–	–	CDD	–	–	HC,NC EB,IB
Footnote: Students have the option of placement abroad in the third and final years for a minimum of 3 months. BSc (Hons)/BSc courses in Applied Physics and Instrumentation feature an integrated ladder structure: students enter the BSc followed by BSc (Honours) (+ 1 year). Students who successfully complete year 2 of the BSc may exit with a Higher Certificate. * Places offered by Central Applications Office, Galway on basis of Irish Leaving Certificate results.									

COURSE TITLE (See Note)	QUAL AWARD	DURATION	ENTRY INFORMATION						
		(See Note)	A-level or equivalent subject required (See Note)	Points required	TYPICAL GRADE OFFERS				
					AS	A	Highers	Irish Leaving Cert	Alternatives

DUBLIN CITY UNIVERSITY							
Applied Physics	BSc (Hons)	4	M + P (C or B or PS)	BCC	–	\$	EB,IB,HNC,ONC
Physics with Language (French or German)	BSc (Hons)	4(Sandwich)*	M + P + French or German	BCC	–	\$	EB,IB,HNC,ONC
Physics with Astronomy**	BSc (Hons)	4	M + P (C or B or PS)	BCC	–	\$	EB,IB,HNC,ONC
Physics with Biomedical Sciences	BSc (Hons)	4	M + (P, C or B)	BCC	–	\$	EB,IB,HNC,ONC
Science Education (Physics & Chemistry)	BSc*** (Hons)	4	M + P (B or C)	BCC	–	\$	EB,IB,HNC,ONC
Footnote: -							
* The second semester of third year is spent abroad at a French or German speaking University							
\$ Places offered by Central Applications Office, Galway on basis of Irish Leaving Certificate results							
Direct applications may be made through the Office for Academic Affairs at University							
** Includes a field trip to a Foreign Observatory							
*** Graduates will have a teacher qualification							

DUBLIN INSTITUTE OF TECHNOLOGY						
Physics Technology	BSc	4	M,P,C,B or E	CCC	M,P,C,B, or E + 5 others*	
Physics with Medical Physics and Bioengineering	BSc (Hons)	4	M,P,C,B or E	CCC	M,P,C,B, or E + 5 others*	
Science with Nanotechnology	BSc (Hons)	4	M,P,C,B or E	CCC	M,P,C,B, or E + 5 others*	
Industrial and Environmental Physics	BSc (ord)	3	M,P,C,B or E	CDD	M + 4 others*	
Footnote: -						
* Places offered by Central Applications Office, Galway on basis of Leaving Certificate results. Mature Applicants welcome.						

COURSE TITLE (See Note)	QUAL AWARD	DURATION	ENTRY INFORMATION						
		(See Note)	A-level or equivalent subject required (See Note)	Points required	TYPICAL GRADE OFFERS				
					AS	A	Highers	Irish Leaving Cert	Alternatives

## UNIVERSITY COLLEGE DUBLIN

### School of Physics

Physics	BSc (Hons)	4	*	CCC**	—	***	—
Theoretical Physics	BSc (Hons)	4	*	BBB**	—	***	—
Physics with Astronomy and Space Science	BSc (Hons)	4	*	CCC**	—	***	—
Physics and Biochemistry	BSc (Jt. Hons)	4	*	CCC**	—	***	—
Physics and Chemistry	BSc (Jt. Hons)	4	*	CCC**	—	***	—
Physics and Computer Science	BSc (Jt. Hons)	4	*	CCC**	—	***	—
Physics and Mathematics	BSc (Jt. Hons)	4	*	CCC**	—	***	—
Physics and Mathematical Physics	BSc (Jt. Hons)	4	*	CCC**	—	***	—
Physics	BSc (Gen)	3	*	CCC**	—	***	—

#### Footnote:

\* O-level certificate with English, Modern Language, Mathematics and Laboratory Science Subject plus A-level as below.

\*\* CCC or BCD or ACE or BBE or ADD

\*\*\* Places offered by Central Applications Office, Galway, on basis of Irish Leaving Certificate results.

\*\*\*\* BSc Second Class Honours Degree, or BSc General with two year's approved experience, or equivalent.

### School of Mathematical Sciences

Mathematical Physics	BSc (Hons)	4	*	CCC**	—	***	—
Mathematical Physics and Mathematics	BSc (Hons)	3	*	CCC**	—	—	—
Mathematical Physics and Physics	BSc (Hons)	4	*	CCC**	—	—	—
Mathematical Physics and Computer Science	BSc (Hons)	4	*	CCC**	—	—	—
Mathematical Physics	BSc (Gen)	3	*	CCC**	—	***	—
Mathematical Physics	MSc	1	—	—	—	—	—

#### Footnote:

\* O-level certificate with English, Modern Language, Mathematics and Laboratory Science subject plus A-level as below.

\*\* CCC or BCD or ACE or BBE or ADD

\*\*\* Places offered by Central Applications Office, Galway on basis of Irish Leaving Certificate results.



COURSE TITLE (See Note)	QUAL AWARD	DURATION	ENTRY INFORMATION						
		(See Note)	A-level or equivalent subject required (See Note)	Points required	TYPICAL GRADE OFFERS				
					AS	A	Highers	Irish Leaving Cert	Alternatives

### UNIVERSITY OF DUNDEE

Physics	BSc	3	M*	200		CDD	BCCC	**	IB***,SQA,GSVQ(111), AGNVQ,Access,Other
Physics	BSc (Hons)	4	M*	240		CCC	BBBB	**	IB***,SQA,GSVQ(111), AGNVQ,Access,Other
Physics	MSci	5	M*	240		CCC	BBBB	**	IB***,SQA,GSVQ(111), AGNVQ,Access,Other
Physics and Mathematics	BSc (Hons)	4	M*	240		CCC	BBBB	**	IB***,SQA,GSVQ(111), AGNVQ,Access,Other
Applied Physics	BSc (Hons)	4	M*	240		CCC	BBBB	**	IB***,SQA,GSVQ(111), AGNVQ,Access,Other
Physics and Microelectronics	BSc (Hons)	4	M*	240		CCC	BBBB	**	IB***,SQA,GSVQ(111), AGNVQ,Access,Other
Electronic Engineering and Physics	BEng (Hons)	4	M*	240		CCC	BBBB	**	IB***,SQA,GSVQ(111), AGNVQ,Access,Other

**Footnote:**

\* + another science. Normal entry is via Scottish Highers or A-level. Suitably qualified students with 276 points may enter directly into the 2nd year.

\*\* BBC Highers including Mathematics and Physics.

\*\*\* 28 points including at least one Science Higher and Subsidiary Mathematics.

### DURHAM UNIVERSITY

Physics	BSc	3	P + M	AAA/AAB	AAA/AAB**	490/600†	IB(38),EB(>85%)††
	MPhys*	4	P + M	AAA/AAB	AAA/AAB**	490/600†	IB(38),EB(>85%)††
Physics and Astronomy	BSc	3	P + M	AAA/AAB	AAA/AAB**	490/600†	IIB(38),EB(>85%)††
	MPhys*	4	P + M	AAA/AAB	AAA/AAB**	490/600†	IB(38),EB(>85%)††
Theoretical Physics	MPhys*	4	P + M	AAA/AAB	AAA/AAB**	490/600†	IB(38),EB(>85%)††
Chemistry and Physics	MSci*	4	P + M + C	AAA	AAA**	490/600†	IB and EB***
Mathematics and Physics	BSc	3	P + M	AAA	AAA**	490/600†	IB(38),EB(>85%)††
	MSci*	4	P + M	AAA	AAA**	490/600†	IIB(38),EB(>85%)††
e-Science and Physics	MSci*	4	P + M	AAA	AAA**	490/600†	IB(38),EB(>85%)††

**Footnote: -**

\* In the fourth year of the MPhys you choose courses from the areas of astrophysics, applied physics, solid state physics and theoretical physics. MPhys and MSci students also do an extended research project (theoretical or experimental) with one of the departments' research groups.

\*\* All three must be advanced highers and include maths and physics.

\*\*\* With subjects taken at higher level equated to A-level. Other qualifications BTEC, etc., considered.

† ILC to include A1 or A2 in Maths and Physics.

†† EB: typically > 85% overall, with > 85% in Maths and Physics.

COURSE TITLE (See Note)	QUAL AWARD	DURATION  (See Note)	ENTRY INFORMATION						
			A-level or equivalent subject required (See Note)	Points required	TYPICAL GRADE OFFERS				
					AS	A	Highers	Irish Leaving Cert	Alternatives

THE UNIVERSITY OF EDINBURGH									
Physics	BSc	4(3*)	P + M	–	–	BBB (AAB*)	BBBB (AA*)	BBBBC	IB: 30(34*)**
Mathematical Physics	BSc	4(3*)	P + M	–	–	ABC (AAB*)	ABBC (AA*)	BBBBB	IB: 30(34*)**
Astrophysics	BSc	4(3*)	P + M	–	–	BBB (AAB*)	BBBB (AA*)	BBBBC	IB: 30(34*)**
Computational Physics	BSc	4(3*)	P + M	–	–	BBB (AAB*)	BBBB (AA*)	BBBBC	IB: 30(34*)**
Chemical Physics	BSc	4(3*)	P + M + C	–	–	BBB (AAB*)	BBBC (AA*)	BBBBC	IB: 30(34*)***
Computer Science & Physics	BSc	4	P + M	–	–	BBB	BBBB	BBBBB	IB: 30**
Mathematics & Physics	BSc	4(3*)	P + M	–	–	ABB	ABBB	ABBBC	IB: 30(34*)**
Physics and Music	BSc	4	P + M	–	–	BBB	BBBB	BBBBC	IB: 30**
Physics with Meteorology	BSc	4	P + M	–	–	BBB	BBBB	BBBBC	IB: 30**
Geophysics	BSc	4(3*)	P + M	–	–	BBB	ABBB	ABBBB	IB: 30(34*)**
Physics	MPhys	5(4*)	P + M	–	–	BBB (AAB*)	BBBB (AA*)	BBBBC	IB: 30(34*)**
Mathematical Physics	MPhys	5(4*)	P + M	–	–	ABC (AAB*)	ABBC (AA*)	BBBBB	IB: 30(34*)**
Astrophysics	MPhys	5(4*)	P + M	–	–	BBB (AAB*)	BBBB (AA*)	BBBBC	IB: 30(34*)**
Computational Physics	MPhys	5(4*)	P + M	–	–	BBB (AAB*)	BBBB (AA*)	BBBBC	IB: 30(34*)**
Chemical Physics	MChemP	5(4*)	P + M + C	–	–	BBB (AAB*)	BBBC (AA*)	BBBBC	IB: 30(34*)***
Footnote:									
More detailed information regarding entrance requirements (e.g. AS Levels and Advanced Highers) can be obtained from <a href="http://www.ph.ed.ac.uk/undergraduate/apply/entry.html">www.ph.ed.ac.uk/undergraduate/apply/entry.html</a>									
An ‘A’ grade in Mathematics and ‘B’ grade in Physics is required for Mathematical Physics.									
* A fast-track programme is available to those with suitable additional qualifications (CSYS, Advanced Highers) or enhanced grades (IB, or A-level as specified here).									
‘A’ grades in both Mathematics and Physics are required.									
** At least 5 points in each of Physics and Mathematics.									
*** At least 5 points in each of Physics, Mathematics and Chemistry.									

COURSE TITLE (See Note)	QUAL AWARD	DURATION	ENTRY INFORMATION						
		(See Note)	A-level or equivalent subject required (See Note)	Points required	TYPICAL GRADE OFFERS				
					AS	A	Highers	Irish Leaving Cert	Alternatives

UNIVERSITY OF EXETER									
Physics	BSc(Hons)	3	P + M + ...	300		BBB	BBB	BBBBB	BTEC,IB,EB,OND,*
	MPhys(Hons)	4	P + M + ...	320		ABB	BBB	ABBBB	BTEC,IB,EB,OND,*
Physics with North American Study	MPhys(Hons)	4	P + M + ...	320**		ABB	BBB	ABBBB	IB,EB
Physics with Medical Applications	BSc(Hons)	3	P + M + ...	300		BBB	BBB	BBBBB	BTEC,IB,EB,OND,*
Physics with Medical Physics	MPhys(Hons)	4	P + M + ...	320		ABB	BBB	ABBBB	BTEC,IB,EB,OND,*
Physics with Quantum and Laser Technology	BSc(Hons)	3	P + M + ...	300		BBB	BBB	BBBBB	BTEC,IB,EB,OND,*
Quantum Science and Lasers	MPhys(Hons)	4	P + M + ...	300		ABB	BBB	ABBBB	BTEC,IB,EB,OND,*
Physics and Mathematics	BSc(Hons)	3	P + M + ...	300**		BBB	BBB	BBBBB	BTEC,IB,EB,*
Physics with Astrophysics	BSc(Hons)	3	P + M + ...	300		BBB	BBB	BBBBB	BTEC,IB,EB,*
	MPhys(Hons)	4	P + M + ...	320		ABB	BBB	ABBBB	BTEC,IB,EB,*
Physics with European Study	MPhys(Hons)	4	P + M + ...	320**		ABB	BBB	ABBBB	BTEC,IB,EB,*
Physics with Professional Experience	MPhys(Hons)	4	P + M + ...	320**		ABB	BBB	ABBBB	BTEC,IB,EB,*
Physics with Australian Study	MPhys(Hons)	4	P + M + ...	320**		ABB	BBB	ABBBB	BTEC,IB,EB,*
Physics with Study in New Zealand	MPhys(Hons)	4	P + M + ...	320**		ABB	BBB	ABBBB	BTEC,IB,EB,*
Footnote:									
* Access, Mature.									
** A grade A or B in A-level Mathematics is required.									

COURSE TITLE (See Note)	QUAL AWARD	DURATION	ENTRY INFORMATION						
		(See Note)	A-level or equivalent subject required (See Note)	Points required	TYPICAL GRADE OFFERS				
					AS	A	Highers	Irish Leaving Cert	Alternatives

UNIVERSITY OF GLASGOW								
Physics**	BSc	4	P + M	18	CCC	BBB*	–	BTEC,HND,SCOTVEC,Ot
	MSci	4 or 5	P + M	18	CCC	BBB*	–	BTEC,HND,SCOTVEC,Ot
Chemical Physics**	BSc	4	P + M	18	CCC	BBB*	–	BTEC,HND,SCOTVEC,Ot
	MSci	4 or 5	P + M	18	CCC	BBB*	–	BTEC,HND,SCOTVEC,Ot
Mathematics and Physics**	BSc or MA	4	P + M	18	CCC	BBB*	–	BTEC,HND,SCOTVEC,Ot
	MSci	5	P + M	18	CCC	BBB*	–	BTEC,HND,SCOTVEC,Ot
Physics and Applied Mathematics	BSc	4	P + M	18	CCC	BBB*	–	BTEC,HND,SCOTVEC,Ot
	MSci	5	P + M	18	CCC	BBB*	–	BTEC,HND,SCOTVEC,Ot
Physics and Astronomy**	BSc	4	P + M	18	CCC	BBB*	–	BTEC,HND,SCOTVEC,Ot
	MSci	4 or 5	P + M	18	CCC	BBB*	–	BTEC,HND,SCOTVEC,Ot
Physics with Astrophysics**	BSc	4	P + M	18	CCC	BBB*	–	BTEC,HND,SCOTVEC,Ot
	MSci	4 or 5	P + M	18	CCC	BBB*	–	BTEC,HND,SCOTVEC,Ot
Astronomy and Mathematics**	BSc or MA	4	P + M	18	CCC	BBB*	–	BTEC,HND,SCOTVEC,Ot
	MSci	5	P + M	18	CCC	BBB*	–	BTEC,HND,SCOTVEC,O
Astronomy and Applied Mathematics	BSc	4	P + M	18	CCC	BBB*	–	BTEC,HND,SCOTVEC,Ot
	MSci	5	P + M	18	CCC	BBB*	–	BTEC,HND,SCOTVEC,O
Physics or Astronomy and certain Arts subjects	MA	4	P + M	18	CCC	BBB*	–	BTEC,HND,SCOTVEC,Ot
Computing Science and Physics	BSc	4	P + M	18	CCC	BBB*	–	BTEC,HND,SCOTVEC,Ot
Footnote:								
	All first year students, not within daily travelling distance, who request accommodation ‘on time’ are currently offered Hall accommodation.							
*	BBB (or ABC) in 3 Sciences/Maths subjects, or BBBB including 2 Science/Maths subjects, or AB BB including 1 Science/Maths subject.							
**	MSci has years 1 and 2 common with BSc; thereafter separate and distinctive curriculum, which can in most combinations be studied in 5 years or in an accelerated 4 year course.							

COURSE TITLE (See Note)	QUAL AWARD	DURATION	ENTRY INFORMATION						
		(See Note)	A-level or equivalent subject required (See Note)	Points required	TYPICAL GRADE OFFERS				
					AS	A	Highers	Irish Leaving Cert	Alternatives

HERIOT-WATT UNIVERSITY									
Physics	BSc MPhys	4 (3*) 5 (4*)	P + M		CC BC	BBBC AABB		AS AS	
Computational Physics	BSc MPhys	4 (3*) 5 (4*)	P + M		CC BC	BBBC AABB		AS AS	
Physics with Environmental Science	BSc	4 (3*)	P + M		CC	BBBC		AS	
Physics with Electronic Engineering	BSc MPhys	4(3*) 5 (4*)	P + M		CC BC	BBBC AABB		AS AS	
Engineering Physics	BSc MPhys	4 (3*) + vac. ind. attach 5 (4*) + vac. ind. attach	P + M		CC BC	BBBC AABB		AS AS	
Mathematical Physics	BSc MPhys	4 (3*) 5 (4*)	P + M		CC BC	BBBC AABB		AS AS	
Nano-science	BSc MPhys	4 (3*) 5 (4*)	P + M		CC BC	BBBC AABB		AS AS	
Photonics and Lasers	BSc MPhys	4 (3*) 5 (4*)	P + M		CC BC	BBBC AABB		AS AS	
Energy Science and Technology	BSc MPhys	4 (3*) 5 (4*)	P + M		CC BC	BBBC AABB		AS AS	
Footnote: - * Accommodation guaranteed for those firmly accepting a place before 1st September. Direct entry into second year is possible for applicants with good Advanced Highers or good 'A' levels.									

UNIVERSITY OF HERTFORDSHIRE									
Physics	BSc(Hons)	3	P + M		CC(C)	BBBC	BBBC	BTEC,GNVQ,GSVQ,	
Astrophysics	BSc(Hons)	3	P + M		CC(C)	BBBC	BBBC	BTEC,GNVQ,GSVQ,	
Physics with Scientific Computing	BSc(Hons)	3	P + M		CC(C)	BBBC	BBBC	BTEC,GNVQ,GSVQ,	
Astrophysics with Scientific Computing	BSc(Hons)	3	P + M		CC(C)	BBBC	BBBC	BTEC,GNVQ,GSVQ,	
Footnotes:- Part-time study possible on all degrees									

COURSE TITLE (See Note)	QUAL AWARD	DURATION	ENTRY INFORMATION						
		(See Note)	A-level or equivalent subject required (See Note)	Points required	TYPICAL GRADE OFFERS				
					AS	A	Highers	Irish Leaving Cert	Alternatives

UNIVERSITY OF HULL									
Physics	BSc	3	P + M + ...	240-300	CCC-BBB	BBBCC	BBBCC	BTEC,OU,IB,EB	
	MPhys	4	P + M + ...	260-300	BBC-BCD	BBBBB	BBBBC	BTEC,OU,IB,EB	
Applied Physics	BSc	3	P + * + ...	240-300	CCC-BBB	BBBCC	BBBCC	BTEC,OU,IB,EB	
	MPhys	4	P + M + ...	240-280	BCC-CCD	BBBBB	BBBBC	BTEC,OU,IB,EB	
Physics with Astrophysics	BSc	3	P + M + ...	240-300	CCC-BBB	BBBCC	BBBCC	BTEC,OU,IB,EB	
	MPhys	4	P + M + ...	260-300	BBC-BCD	BBBBB	BBBBC	BTEC,OU,IB,EB	
Physics and Philosophy	BSc	3	P + M + ...	240-300	CCC-BBB	BBBCC	BBBCC	BTEC,OU,IB,EB	
Physics with Laser Science	BSc	3	P + M	240-300	CCC-BBB	BBBCC	BBBCC	BTEC,OU,IB,EB	
	MPhys	4	P + M	260-300	BBC-CCD	BBBBB	BBBBC	BTEC,OU,IB,EB	
Physics with Nanotechnology	BSc	3	P + M	240-300	CCC-BBB	BBBCC	BBBCC	BTEC,OU,IB,EB	
	MPhys	4	P + M	260-300	BBC-CCD	BBBBB	BBBBC	BTEC,OU,IB,EB	
Physics (with Foundation Science)	BSc	4	**	40-100	Flexible			Flexible	
Footnotes: -									
*	A-level Maths not mandatory for entry to BSc Applied Physics								
**	Not essential								
Note:	Points totals include AS levels not converted to A-levels								

UNIVERSITY OF KEELE									
Physics with *	BSc (Hons)	3	P + ... + ... ***	260	BCC	BBCCC	–	BTEC,IB,EB,AS,SH,OU, CSYS,HND,GNVQ,Access	
Physics and **	BSc (Hons)	3	P + ... + ... ***	260	BCC	BBCCC	–	BTEC,IB,EB,AS,SH,OU, CSYS,HND,GNVQ,Access	
Astrophysics with *	BSc (Hons)	3	P + ... + ... ***	260	BCC	BBCCC	–	BTEC,IB,EB,AS,SH,OU, CSYS,HND,GNVQ,Access	
Astrophysics and **	BSc (Hons)	3	P + ... + ... ***	260	BCC	BBCCC	–	BTEC,IB,EB,AS,SH,OU, CSYS,HND,GNVQ,Access	
Footnote: -									
*	Biochemistry/Biology/Chemistry/Computer Science/Geology/Mathematics/Applied Environmental Science/Information Systems/Medicinal Chemistry/Neuroscience.								
**	Biochemistry/Biology/Applied Environmental Science/Business Administration/Chemistry/Computer Science/Economics/Educational Studies/ English/French/Geology/History/Human Resource Management/Management Science/Mathematics/Medicinal Chemistry/Neuroscience/ Philosophy/Sociology/Music/Politics/American Studies/Criminology/Information Systems/Marketing/Media, Communications and Culture/Music Technology.								
***	The other subject may require a specific A-level subject.								

COURSE TITLE (See Note)	QUAL AWARD	DURATION	ENTRY INFORMATION						
		(See Note)	A-level or equivalent subject required (See Note)	Points required	TYPICAL GRADE OFFERS				
					AS	A	Highers	Irish Leaving Cert	Alternatives

UNIVERSITY OF KENT									
Physics	BSc	3	P + M		BBC			BTEC,HNC,HND,OU, IB,EB,CSYS,Access, AE,Ot	
	MPhys	4	P + M		BBC				
Physics with Astrophysics	BSc	3	P + M		BBC			BTEC,HNC,HND,OU, IB,EB,CSYS,Access, AE,Ot	
	MPhys	4	P + M		BBC				
Physics with Astrophysics with a year in the USA	MPhys	4	P + M		BBC			BTEC,HNC,HND,OU, IB,EB,CSYS,Access, AE,Ot	
Physics with Space Science and Systems	BSc	3	P + M		BBC			BTEC,HNC,HND,OU, IB,EB,CSYS,Access, AE,Ot	
	MPhys	4	P + M		BBC				
Physics with Space Science and Systems with a year in the USA	MPhys	4	P + M		BBC			BTEC,HNC,HND,OU, IB,EB,CSYS,Access, AE,Ot	
Astronomy, Space Science and Astrophysics	BSc	3	P + M		BBC			BTEC,HNC,HND,OU, IB,EB,CSYS,Access, AE,Ot	
	MPhys	4	P + M		BBC				
Astronomy, Space Science and Astrophysics with a year in the USA	MPhys	4	P + M		BBC			BTEC,HNC,HND,OU, IB,EB,CSYS,Access, AE,Ot	
Physics with Forensic Science	BSc	3	P + M		BBC			BTEC,HNC,HND,OU, IB,EB,CSYS,Access, AE,Ot	
Physics Foundation*	BSc	4	–		EE			Flexible	
Physics with a Year in the USA	MPhys	4	P + M		BBC			BTEC,HNC,HND,OU, IB,EB,CSYS,Access, AE,Ot	
Footnote: - * Physics Foundation leads to any BSc degree offered.									



COURSE TITLE (See Note)	QUAL AWARD	DURATION	ENTRY INFORMATION						
		(See Note)	A-level or equivalent subject required (See Note)	Points required	TYPICAL GRADE OFFERS				
					AS	A	Highers	Irish Leaving Cert	Alternatives

UNIVERSITY OF LANCASTER									
Physics	BSc (Hons)	3	P + M	300	BBB	BBBBB†	450	PPlato,BTEC(NC,OND, HNC,HND),CSYS,IB, EB,OU,GNVQ(A) same as above	
	MPhys	4	P + M	320	ABB	AABBB†	510		
Theoretical Physics	BSc (Hons)	3	P + M	300	BBB	BBBBB†	450	PPlato,BTEC(NC,OND, HNC,HND),CSYS,IB, EB,OU,GNVQ(A) same as above	
	MPhys	4	P + M	320	ABB	AABBB†	510		
Physics with Medical Physics	BSc (Hons)	3	P + M	300	BBB	BBBBB†	450	PPlato,BTEC(NC,OND, HNC,HND),CSYS,IB, EB,OU,GNVQ(A) same as above	
	MPhys	4	P + M	320	ABB	AABBB†	510		
Physics with Particle Physics and Cosmology	BSc (Hons)	3	P + M	300	BBB	BBBBB†	450	PPlato,BTEC,CSYS IB,EB,OU,GNVQ(A) same as above	
	MPhys	4	P + M	320	ABB	AABBB†	510		
Physics, Astrophysics and Cosmology	BSc (Hons)	3	P + M	300	BBB	BBBBB†	450	PPlato,BTEC(NC,OND, HNC,HND),CSYS,IB, EB,OU,GNVQ(A) same as above	
	MPhys	4	P + M	320	ABB	AABBB†	510		
Physics with Space Science	BSc (Hons)	3	P + M	300	BBB	BBBBB†	450	PPlato,BTEC(NC,OND, HNC,HND),CSYS,IB, EB,OU,GNVQ(A) same as above	
	MPhys	4	P + M	320	ABB	AABBB†	510		
Physics (North America)	BSc (Hons)	3	P + M	320	ABB	AABBB†	510	PPlato,BTEC(NC,OND, HNC,HND),CSYS,IB, EB,OU,GNVQ(A) same as above	
	MPhys	4	P + M	320	ABB	AABBB†	510		
Theoretical Physics with Mathematics	BSc (Hons)	3	P + M	320	ABB	AABBB†	510	PPlato,BTEC,CSYS IB,EB,OU,GNVQ(A) PPlato,BTEC(NC,OND, HNC,HND),CSYS,IB, EB,OU,GNVQ(A)	
	MSci	4	P + M	320	ABB	AABBB†	510		
Footnote: -									
† Physics and Maths at Advanced Higher level. Irish Leaving Certificate - Points Score									

COURSE TITLE (See Note)	QUAL AWARD	DURATION	ENTRY INFORMATION						
		(See Note)	A-level or equivalent subject required (See Note)	Points required	TYPICAL GRADE OFFERS				
					AS	A	Highers	Irish Leaving Cert	Alternatives

UNIVERSITY OF LEEDS									
Physics	BSc (Hons)	3	P + M +...		ABB	ABB†	ABBBBB	IB,EB,HND, BTEC,OU Access, AEA	
	MPhys* (Hons)	4	P + M +...		AAB	AAB†	AABBBB	Same as above	
Physics with Astrophysics	BSc (Hons)	3	P + M +...		ABB	ABB†	ABBBBB	Same as above	
	MPhys* (Hons)	4	P + M +...		AAB	AAB†	AABBBB	Same as above	
Physics with Nanotechnology	BSc (Hons)	3	P + M +...		ABB	ABB†	ABBBBB	Same as above	
	MPhys* (Hons)	4	P + M +...		AAB	AAB†	AABBBB	Same as above	
Physics (Industrial): any of the above programmes with Year 3 in an Industrial Placement	BSc (Hons)	4	P + M +...		ABB	ABB†	ABBBBB	Same as above	
Physics (European): any of the above programmes with Year 3 in France, Germany or Spain	BSc (Hons)	4	P + M +...		ABB	ABB†	ABBBBB	Same as above	
Physics (European): any of the above programmes with one semester project with a research group in Denmark, France, Germany or Spain	MPhys* (Hons)	4	P + M +...		AAB	AAB†	AABBBB	Same as above	
Physics (North American): any of the above programmes with year 3 in North America	MPhys* (Hons)	4	P + M +...		AAB	AAB†	AABBBB	Same as above	
Medical Physics	MPhys (Hons)	4	P + M + ...	320	AAB	AAB†	AABBBB	Same as above	
Theoretical Physics	MPhys (Hons)	4	P + M + ...		AAB	AAB†	AABBBB	IB.EB.AE	
Physics with Foundation Studies	BSc (Hons)	4	**	**	**	**	**	**	
	MPhys* (Hons)	5	**	**	**	**	**	**	
Footnote:-									
	All first year students, not within daily travelling distance, who request accommodation 'on time' are currently offered University accommodation.								
*	Progression to an MPhys Programme of study is based on the academic performance at the end of Year 2.								
**	Entry to this programme of study is decided on an individual basis but will normally require candidates to have good GCSEs in Mathematics and Science together with additional experience of science or technology to A-level standard. A-level passes are not essential.								
†	Advanced Highers								

COURSE TITLE (See Note)	QUAL AWARD	DURATION	ENTRY INFORMATION						
		(See Note)	A-level or equivalent subject required (See Note)	Points required	TYPICAL GRADE OFFERS				
					AS	A	Highers	Irish Leaving Cert	Alternatives

UNIVERSITY OF LEICESTER									
Physics	BSc	3	P + M + ...	280	BBC	BBBBC	BBBBC	IB,EB,BTEC, AGNVQ,OU,CSYS	
Physics	MPhys	4	P + M + ...	320	ABB	ABBBB	ABBBB	IB,EB,BTEC, AGNVQ,OU,CSYS	
Physics with Astrophysics	BSc	3	P + M + ...	280	BBC	BBBBC	BBBBC	IB,EB,BTEC, AGNVQ,OU,CSYS	
Physics with Astrophysics	MPhys	4	P + M + ...	320	ABB	ABBBB	ABBBB	IB,EB,BTEC, AGNVQ,OU,CSYS	
Physics with Nanoscience and Technology	BSc	3	P + M + ...	280	BBC	BBBBC	BBBBC	IB,EB,BTEC, AGNVQ,OU,CSYS	
Physics with Nanoscience and Technology	MPhys	4	P + M + ...	320	ABB	ABBBB	ABBBB	IB,EB,BTEC, AGNVQ,OU,CSYS	
Physics with Planetary Science	BSc	3	P + M + ...	280	BBC	BBBBC	BBBBC	IB,EB,BTEC, AGNVQ,OU,CSYS	
Physics with Planetary Science	MPhys	4	P + M + ...	320	ABB	ABBBB	ABBBB	IB,EB,BTEC, AGNVQ,OU,CSYS	
Physics with Space Science & Technology	BSc	3	P + M + ...	280	BBC	BBBBC	BBBBC	IB,EB,BTEC, AGNVQ,OU,CSYS	
Physics with Space Science & Technology	MPhys	4	P + M + ...	320	ABB	ABBBB	ABBBB	IB,EB,BTEC, AGNVQ,OU,CSYS	
Integrated Sciences	BSc	3	*	260	BBC	BBBBC	BBBBC	IB,EB,BTEC, AGNVQ,OU,CSYS	
Integrated Sciences	MPhys	4	*	320	ABB	ABBBB	ABBBB	IB,EB,BTEC, AGNVQ,OU,CSYS	
Footnotes: - Selected MPhys students may spend third year studying at a European University, or at US or Australian institutions which have reciprocal agreements with University of Leicester. All Physics courses (except Integrated Sciences) require Maths & Physics at A2. Integrated Sciences can transfer to single subject at end of year 2. French, German, Italian and Spanish language studies available (all degrees). Maths and Physics A-level, 3rd grade can be A-level or equivalent combination of AS grades. * At least one Science A2 plus two more.									

COURSE TITLE (See Note)	QUAL AWARD	DURATION  (See Note)	ENTRY INFORMATION						
			A-level or equivalent subject required (See Note)	Points required	TYPICAL GRADE OFFERS				
					AS	A	Highers	Irish Leaving Cert	Alternatives

LIVERPOOL JOHN MOORES UNIVERSITY								
Physics with Astronomy	BSc/ BSc (Hons)	3 Full Time	P + M +...	340-300	AAB-BBB	AAB-BBB*–	–	IB,BTEC,Access
Astrophysics	MPhys	4 full time	P + M +...	360-320	AAA-ABB	AAA-ABB*–	–	IB,BTEC,Access
Footnote: -								
* Advanced Highers								

UNIVERSITY OF LIVERPOOL							
Physics*	BSc	3	P + M	AAB-BBB	–	–	–
	MPhys	4	P + M	AAA-ABB	–	–	–
Physics for New Technology*	BSc	3	P + ...	BCC	–	–	–
Physics with Medical Applications	BSc	3	P + M + ...	AAB-BBB	–	–	–
Astrophysics	BSc	3	P + M + ...	AAB-BBB	–	–	–
	MPhys	4	P + M + ...	AAA-ABB	–	–	–
Physics and Mathematics Theoretical Physics	BSc	3	P + M	ABB-BBB	–	–	–
	MPhys	4	P + M	ABB-BBB			
Mathematical Physics	BSc	3	P + M	ABB-BBB	–	–	–
	MPhys/Maths	4	P + M	ABB-BBB			
Physics (Combined Honours)*	BSc	3	P + ...	ABB-BBC	–	–	–
Physics with Ocean & Climate Studies	BSc (Hons)	3	P + M	BBB	–	–	–
Footnote:							
* Where Mathematics is not specified, it is desirable but not essential							

COURSE TITLE (See Note)	QUAL AWARD	DURATION	ENTRY INFORMATION						
		(See Note)	A-level or equivalent subject required (See Note)	Points required	TYPICAL GRADE OFFERS				
					AS	A	Highers	Irish Leaving Cert	Alternatives

IMPERIAL COLLEGE LONDON									
Physics	BSc*	3	P + M + ...			AAA			AH,IB,EB
	MSci*	4	P + M + ...			AAA			AH,IB,EB
Physics with a year in Europe	MSci	4	P + M + ...			AAA			AH,IB,EB
Physics with Theoretical Physics	BSc	3	P + M + ...			AAA			AH,IB,EB
	MSci	4	P + M + ...			AAA			AH,IB,EB
Physics and Studies in Musical Performance**	BSc	4	P + M + ...			AAA			AH,IB,EB
Footnote:									
* Transfers between BSc and MSci courses are possible before the end of the second year.									
** Music at Royal College of Music.									

UNIVERSITY OF LONDON: UNIVERSITY COLLEGE LONDON									
Physics	BSc	3	P + M + ...	–		AAB-BBB/Pass*		AABBB	AH,IB,EB
	MSci	4	P + M + ...	–		AAB-BBB/Pass		AABBB	AH,IB,EB
Astronomy	BSc	3	P + M + ...	–		ABB-BBB/Pass*		AABBB	AH,IB,EB
	MSci	4	P + M + ...	–		ABB-BBB/Pass		AABBB	AH,IB,EB
Astrophysics	BSc	3	P + M + ...	–		AAB-BBB/Pass*		AABBB	AH,IB,EB
	MSci	4	P + M + ...	–		AAB-BBB/Pass		AABBB	AH,IB,EB
Theoretical Physics	BSc	3	P + M + ...	–		AAB-ABB/Pass*		AABBB	AH,IB,EB
	MSci	4	P + M + ...	–		AAB-ABB/Pass		AABBB	AH,IB,EB
Physics with Medical Physics	BSc	3	P + M + ...	–		AAB-BBB/Pass*		AABBB	AH,IB,EB
	MSci	4	P + M + ...	–		AAB-BBB/Pass		AABBB	AH,IB,EB
Mathematics and Physics	BSc	3	P + M + ...	–		AAB/Pass**		AAABB	AH,IB,EB
	MSci	4	P + M + ...	–		AAB/Pass		AAABB	AH,IB,EB
Footnote: -									
For all course titles, first three years of MSci in parallel with BSc. Fourth year taught in common programme with other Colleges of London University.									
* Advanced GCE grades as stated and a pass in a fourth subject at AS level.									
** Advanced GCE (or Advanced Higher) grade A in Mathematics and B in Physics plus a pass in a fourth subject at AS level.									

COURSE TITLE (See Note)	QUAL AWARD	DURATION	ENTRY INFORMATION						
		(See Note)	A-level or equivalent subject required (See Note)	Points required	TYPICAL GRADE OFFERS				
					AS	A	Highers	Irish Leaving Cert	Alternatives

UNIVERSITY OF LONDON: QUEEN MARY							
Physics	BSc	3	P + M + ...	BBC	BBC	BBC	AS(P or M),IB,EB, BTEC,SCE same as above
	MSci	4	P + M	AAB	AAB	AAB	
Theoretical Physics	BSc	3	P + M + ...	BBC	BBC	BBC	AS(P),IB,EB,SCE same as above
	MSci	4	P + M	AAB	AAB	AAB	
Astrophysics	BSc	3	P + M + ...	BBC	BBC	BBC	AS(P or M),IB,EB BTEC,SCE same as above
	MSci	4	P + M	AAB	AAB	AAB	
Physics with Computing	BSc	3	P + M + ...	BBC	BBC	BBC	AS(P or M),IB,EB BTEC,SCE
Physics with Business Management	BSc	3	P + M + ...	BBC	BBC	BBC	AS(P or M),IB,EB BTEC,SCE
Astronomy	BSc	3	P + M + ...	BBC	BBC	BBC	AS(P or M),IB,EB BTEC,SCE same as above
	MSci	4	P + M	AAB	AAB	AAB	
Physics and Computer Science	BSc	3	P + M + ...	BBC	BBC	BBC	AS(P or M),IB,EB BTEC,SCE
NanoScience and Nanotechnology	BSc	3	P + M + ...	BBC	BBC	BBC	AS(P or M),IB,EB, BTEC,SCE same as above
	MSci	4	P + M	AAB	AAB	AAB	
Natural Sciences	BSc	3	P + M + ...*	BBC	BBC	BBC	BTEC,OU,IB,EB, Access
Footnote: Students may enter for the BSc at first and decide within the first 16 months of entry to take the MSci option in order to qualify for a mandatory LEA Award for 4 years. Please note: Our BSc codes require BBC. Our MSci codes require AAB. * P + M + ... preferred, but 2 Science A-levels accepted provided one is P or M. Note: this is a combined honours programme.							

COURSE TITLE (See Note)	QUAL AWARD	DURATION	ENTRY INFORMATION						
		(See Note)	A-level or equivalent subject required (See Note)	Points required	TYPICAL GRADE OFFERS				
					AS	A	Highers	Irish Leaving Cert	Alternatives

UNIVERSITY OF LONDON: KING'S COLLEGE								
Physics	BSc	3	P + M + ...	pass**	ABB	A/B P + M + 3 other passes at B or better	A/B P + M + 3 other passes at B or better	BTEC,IB,EB,SCE, AE,Access same as above
	MSci	4	P + M + ...	pass**	ABB			same as above
Physics with Medical Applications*	BSc	3	P + M + ...	pass**	ABB	"	"	same as above
Physics with Astrophysics*	BSc	3	P + M + ...	pass**	ABB	"	"	same as above
Physics with Computer Science*	BSc	3	P + M + ...	pass**	ABB	"	"	same as above
Physics with Management*	BSc	3	P + M + ...	pass**	ABB	"	"	same as above
Physics with a year abroad*	BSc	4	P + M + ...	pass**	ABB	"	"	same as above
Mathematics and Physics*	BSc	3	P + M + ...	pass**	AAB	A/A P + M + AAB	A/A P + M + AAB	IB,EB,CSYS,AE
	MSci	4	P + M + ...	pass**	AAB	A/A P + M + AAB	A/A P + M + AAB	IB,EB,CSYS,AE
Mathematics and Physics with Astrophysics*	BSc	3	P + M + ...	pass**	AAB	A/A P + M + AAB	"	IB,EB,CSYS,AE
Physics and Philosophy	BSc	3	P + M + ...	pass**	AAB	A/B P + M + ABB	A/B P + M + ABB	IB,EB,CSYS,AE
Physics and Philosophy with a year abroad	BSc	4	P + M + ...	pass**	AAB	"	"	IB,EB,CSYS,AE
Footnote: -								
* An MSci version of this course is available. The final year of the MSci will involve a choice from about 25 optional modules in Physics, Theoretical Physics, Applied Physics, and Astrophysics, taught in collaboration with other London Colleges.								
** In a subject not taken to A2 level.								
For up-to-date details please refer to our web site.								
IOP accredited degree programmes.								



COURSE TITLE (See Note)	QUAL AWARD	DURATION	ENTRY INFORMATION						
		(See Note)	A-level or equivalent subject required (See Note)	Points required	TYPICAL GRADE OFFERS				
					AS	A	Highers	Irish Leaving Cert	Alternatives

**UNIVERSITY OF LONDON:  
ROYAL HOLLOWAY**

Physics	BSc	3	P + M + ...	340	AAB	AAB*	AABBB**	IB, EB, OU, Ot
	MSci	4	P + M + ...	340	AAB	AAB*	AABBB**	IB, EB, OU, Ot
Applied Physics	MSci	4	P + M + ...	340	AAB	AAB*	AABBB**	IB, EB, OU, Ot
Theoretical Physics	BSc	3	P + M + ...	340	AAB	AAB*	AABBB**	IB, EB, OU, Ot
	MSci	4	P + M + ...	340	AAB	AAB*	AABBB**	IB, EB, OU, Ot
Astrophysics	BSc	3	P + M + ...	340	AAB	AAB*	AABBB**	IB, EB, OU, Ot
	MSci	4	P + M + ...	340	AAB	AAB*	AABBB**	IB, EB, OU, Ot
Physics with Particle Physics	BSc	3	P + M + ...	340	AAB	AAB*	AABBB**	IB, EB, OU, Ot
Physics with Music	BSc	3	P + M + Mus	340	AAB†	AAB*	AABBB**	IB, EB, OU, Ot
Physics with Philosophy	BSc	3	P + M + ...	340	AAB	AAB*	AABBB**	IB, EB, OU, Ot
Computer Science and Physics	BSc	3	P + M + ...	340	AAB	AAB*	AABBB**	IB, EB, OU, Ot
Planetary Geology	BSc	3	P + M + ...	340	AAB	AAB*	AABBB**	IB, EB, OU, Ot
Mathematics and Physics	BSc	3	P + M + ...	340	AAB	AAB*	AABBB**	IB, EB, OU, Ot
	MSci	4	P + M + ...	340	AAB	AAB*	AABBB**	IB, EB, OU, Ot

Footnote: -

\* Advanced Highers including Mathematics and Physics

\*\* Irish Leaving Certificate to include A1 or A2 in Mathematics and Physics at Higher Level.

† Including A in Music.

COURSE TITLE (See Note)	QUAL AWARD	DURATION	ENTRY INFORMATION						
		(See Note)	A-level or equivalent subject required (See Note)	Points required	TYPICAL GRADE OFFERS				
					AS	A	Highers	Irish Leaving Cert	Alternatives

LOUGHBOROUGH UNIVERSITY									
Physics	BSc	3,4(Sandwich)	P + M +...	280	BBC	ABBCCC	ABBCCC	IB,OU,BTEC, Access	
	MPhys	4, 5(Sandwich)	P + M +...	300	BBC	ABBCCC	ABBCCC	IB,OU,BTEC Access	
Engineering Physics	BSc	3,4(Sandwich)	P + M +...	280	BBC	ABBCCC	ABBCCC	IB,OU,BTEC Access	
	MPhys	4, 5(Sandwich)	P + M +...	300	BBC	ABBCCC	ABBCCC	IB,OU,BTEC Access	
Sports Science and Physics	BSc	3,4(Sandwich)	P + M +...	280	BBC	ABBCCC	ABBCCC	IB,OU,BTEC Access	
	MPhys	4	P + M +...	300	BBC	ABBCCC	ABBCCC	IB,OU,BTEC Access	
Physics and Mathematics	BSc	3,4(Sandwich)	P + M + ...	280	BBC	ABBCCC	ABBCCC	IB,OU,BTEC Access	
	MPhys	4, 5(Sandwich)	P + M +...	300	BBC	ABBCCC	ABBCCC	IB,OU,BTEC Access	
Physics with Management	BSc	3,4(Sandwich)	P + M	280	BBC	ABBCCC	ABBCCC	IB,OU,BTEC Access	
	MPhys	4	P + M +...	300	BBC	ABBCCC	ABBCCC	IB,OU,BTEC Access	
Information Technology and Physics	BSc	3,4(Sandwich)	P + M + ...	280	BBC	ABBCCC	ABBCCC	IB,OU,BTEC Access	
	MPhys	4	P + M +...	300	BBC	ABBCCC	ABBCCC	IB,OU,BTEC Access	
Information Networks and Physics	BSc	3,4(Sandwich)	P + M +	280	BBC	ABBCCC	ABBCCC	IB,OU,BTEC, Access	
	MPhys	4	P + M +...	300	BBC	ABBCCC	ABBCCC	IB,OU,BTEC Access	
Footnote: - A one-year course in Science and Engineering Foundation Studies may allow entry to these courses for students with non-traditional qualifications. Typical offer for Highers or ILC is A/B Physics/Maths and 4 grade C's in other subjects. All applicants making Loughborough their first choice are guaranteed a place in Hall in their first year.									

COURSE TITLE (See Note)	QUAL AWARD	DURATION	ENTRY INFORMATION						
		(See Note)	A-level or equivalent subject required (See Note)	Points required	TYPICAL GRADE OFFERS				
					AS	A	Highers	Irish Leaving Cert	Alternatives

UNIVERSITY OF MANCHESTER							
Physics*	BSc MPhys	3 4	P + M + ...	AAA-AAB	AAA-AAB in AH	AAAAB	IB,EB,AE,BTEC,Ot 2 AS's for 3rd A-level Access
Physics with Astrophysics*	BSc MPhys	3 4	P + M + ...	AAA-AAB	AAA-AAB in AH	AAAAB	As above
Physics with Photonics*	BSc MPhys	3 4	P + M + ...	AAA-AAB	AAA-AAB in AH	AAAAB	As above
Physics with Theoretical Physics*	BSc MPhys	3 4	P + M + ...	AAA-AAB	AAA-AAB in AH	AAAAB	As above
Physics with Study in Europe	MPhys	4	P + M + ...	AAA-AAB	AAA-AAB in AH	AAAAB	As above
Physics with Business and Management	BSc MPhys	3 4	P + M + ...	AAA-AAB	AAA-AAB in AH	AAAAB	As above
Physics with Philosophy	BSc MPhys	3 4	P + M + ...	AAA-AAB	AAA-AAB in AH	AAAAB	As above
Mathematics and Physics	BSc MMath & Phys	3 4	P + M + ...	AAA-AAB	AAA-AAB in AH	AAAAB	As above
Footnote:-							
* A limited number of students on these programmes will have the opportunity to spend one year of their course studying at the University of California or at the University of Toronto, or one semester studying at the University of Melbourne or at the Australian National University in Canberra.							

COURSE TITLE (See Note)	QUAL AWARD	DURATION	ENTRY INFORMATION						
		(See Note)	A-level or equivalent subject required (See Note)	Points required	TYPICAL GRADE OFFERS				
					AS	A	Highers	Irish Leaving Cert	Alternatives

NATIONAL UNIVERSITY OF IRELAND, CORK									
Physics	BSc (Hons)	4	-	-				ILC	
Astrophysics	BSc (Hons)	4	-	-				ILC	
Physics and Mathematics	BSc (Hons)	4	-	-				ILC	
Physics and Applied Mathematics	BSc (Hons)	4	-	-				ILC	
Footnote: * 20-30 students study Physics in 2nd, 3rd and 4th year.									

NATIONAL UNIVERSITY OF IRELAND, GALWAY									
Experimental Physics*	BSc	4	**ILC in M + P, C or B		BC			ILC	EB,IB,CSYS, SCE
Applied Physics and Electronics*	BSc	4	**ILC in M + P, C or B		BC			ILC	EB,IB,CSYS SCE
Footnote: - * Students choose between Applied Physics and Electronics or Experimental Physics in 3rd year. ** Places offered by Irish Central Applications Office (CAO), Eglington Street, Galway. Entry via CAO course code GY302 (Denominated Physics) or GY301 (General Science).									

NATIONAL UNIVERSITY OF IRELAND, MAYNOOTH									
Physics	BSc	4	P + M	–	DD	–	300 pts	–	
Physics with Astrophysics	BSc	4	P + M	–	CC	–	430 pts	–	
Physics and Chemistry	BSc	4	P + M	–	DD	–	300 pts	–	
Physics and Maths Physics	BSc	4	P + M	–	DD	–	300 pts	–	
Physics and Biology	BSc	4	P + M	–	DD	–	300 pts	–	
Physics and Computer Science	BSc	4	P + M	–	DD	–	300 pts	–	
Physics and Maths	BSc	4	P + M	–	DD	–	300 pts	–	
Footnote: -									

COURSE TITLE (See Note)	QUAL AWARD	DURATION  (See Note)	ENTRY INFORMATION						
			A-level or equivalent subject required (See Note)	Points required	TYPICAL GRADE OFFERS				
					AS	A	Highers	Irish Leaving Cert	Alternatives

NESCOT					
Science (Engineering)	HND	2 Full Time	P or M or PS	C/D	BTEC Sci (National) BTEC Engineering, I.T., GNVQ Adv NC/D Telecommunication or equivalent
Telecommunications	HNC	2 Part Time	or CS		
Science (Physics)					
Diploma in Acoustics (Institute of Acoustics)	MSci	2 Part Time	*		
MSc in Acoustics					
Photography and Digital Imaging	FD	2 Full Time 3 Part Time		C/D	
Footnote: -					
* Degree or equivalent in Physical Sciences					

COURSE TITLE (See Note)	QUAL AWARD	DURATION	ENTRY INFORMATION						
		(See Note)	A-level or equivalent subject required (See Note)	Points required	TYPICAL GRADE OFFERS				
					AS	A	Highers	Irish Leaving Cert	Alternatives

UNIVERSITY OF NOTTINGHAM									
Physics	BSc	3	P + M + ...	–	AAB/ABB	AAB/ABB at AH	ABBBB	IB (6,6,5)	
	MSci	4	P + M + ...	–	AAB/ABB	AAB/ABB at AH	ABBBB	IB (6,6,5)	
Physics with Theoretical Physics	BSc	3	P + M + ...	–	AAB/ABB	AAB/ABB at AH	ABBBB	IB (6,6,5)	
	MSci	4	P + M + ...	–	AAB/ABB	AAB/ABB at AH	ABBBB	IB (6,6,5)	
Physics with Theoretical Astrophysics	BSc	3	P + M + ...	–	AAB/ABB	AAB/ABB at AH	ABBBB	IB (6,6,5)	
	MSci	4	P + M + ...	–	AAB/ABB	AAB/ABB at AH	ABBBB	IB (6,6,5)	
Physics with Astronomy	BSc	3	P + M + ...	–	AAB/ABB	AAB/ABB at AH	ABBBB	IB (6,6,5)	
	MSci	4	P + M + ...	–	AAB/ABB	AAB/ABB at AH	ABBBB	IB (6,6,5)	
Chemistry and Molecular Physics	BSc	3	P + M + C	–	BBB	BBB at AH	BBBBB	IB (6,5,5)	
	MSci	4	P + M + C	–	ABB	ABB at AH	ABBBB	IB (6,6,5)	
Mathematical Physics	BSc	3	P + M + ...	–	AAB	AAB at AH	AABBB	IB (6,6,6)	
	MSci	4	P + M + ...	–	AAB	AAA at AH	AABBB	IB (6,6,6)	
Physics and Philosophy	BSc	3	P + M + ...	–	AAB	AAB/ABB at AH	ABBBB	IB (6,6,5)	
Physics with European Language	BSc	4(Sandwich)	P + M + ...	–	AAB/ABB	AAB/ABB at AH	ABBBB	IB (6,6,5)	
	MSci	4(Sandwich)	P + M + ...	–	AAB/ABB	AAB/ABB at AH	ABBBB	IB (6,6,5)	
Physics with Medical Physics	BSc	3	P + M + ...	–	AAB/ABB	AAB/ABB at AH	ABBBB	IB (6,6,5)	
	MSci	4	P + M + ...	–	AAB/ABB	AAB/ABB at AH	ABBBB	IB (6,6,5)	
Physics with Nanoscience	BSc	3	P + M + ...	–	AAB/ABB	AAB/ABB at AH	ABBBB	IB (6,6,5)	
	MSci	4	P + M + ...	–	AAB/ABB	AAB/ABB at AH	ABBBB	IB (6,6,5)	
Physics with a Foundation Year in Science	BSc	3*			Flexible	Flexible	Flexible	IB,BTEC,EB, Access,OU, ETC	
Footnote: Transfer between most of the above courses possible. * Candidates who successfully complete the Foundation Year can normally transfer to the Qualifying Year of our other degree programmes (BSc and MSci).									

COURSE TITLE (See Note)	QUAL AWARD	DURATION	ENTRY INFORMATION						
		(See Note)	A-level or equivalent subject required (See Note)	Points required	TYPICAL GRADE OFFERS				
					AS	A	Highers	Irish Leaving Cert	Alternatives

NOTTINGHAM TRENT UNIVERSITY									
Physics	MSci†	4	P + M	240		BC	*	**	***
Physics	BSc (Hons)	3 4(Sandwich)	P + M	220		CC	*	**	***
Physics with Astrophysics	BSc (Hons)	3 4(Sandwich)	P + M	220		CC	*	**	***
Physics with Forensic Applications	BSc (Hons)	3 4(Sandwich)	P + M	220		CC	*	**	***
Technological Physics	BSc (Hons)	3 4(Sandwich)	P + M	220	C in AS Maths	C (Physics) + 1 other C	*	**	***
University Foundation Degree in Physics††	FdSc	2		100		E in Maths or Physics			
Astronomy and Physics	BSc (Hons)	3 4(Sandwich)	P + ...	220		CC (Physics) + 1 other C	*	**	***
Quantum & Cosmological Physics	MSci	4	P + M + ...	280		BBC Maths/ Physics + 1 other C	*	**	***
Quantum & Cosmological Physics	BSc (Hons)	3 4(Sandwich)	P + M	260		BB Maths/ Physics + 1 other C	*	**	***
Physics with Forensic Applications	BSc (Hons)	3 4(Sandwich)		220	C in AS Chemistry	CC	*	**	***
Astronomy	BSc (Hons)	3 4 (with placement)	P + ...	220		CC (Physics) + 1 other C in Science or Maths	*	**	***
Footnote: - * 3 passes at Higher Grade, B in Maths or Physics. ** 5 C's at Higher Level, including Physics and Maths *** GNVQ (Advanced) in Science: Merit. Optional and additional units must be physics-based. Other qualifications: consult Admissions Tutor. † MSci includes pathways in Astrophysics and Forensic Applications. †† Satisfactory completion of University Foundation Degree (FdSc) guarantees entry to Year Two of the BSc(Hons) Physics Programmes at Nottingham Trent University. In some cases this transfer may be possible at the end of Year One of the FdSc.									

COURSE TITLE (See Note)	QUAL AWARD	DURATION	ENTRY INFORMATION						
		(See Note)	A-level or equivalent subject required (See Note)	Points required	TYPICAL GRADE OFFERS				
					AS	A	Highers	Irish Leaving Cert	Alternatives

### THE OPEN UNIVERSITY

Physical Science	BSc (Hons)	4-6 Part-Time	None		*	*	*	*
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Footnote:

\* No formal academic qualifications are required for entry to the Open University.

### UNIVERSITY OF OXFORD

Physics	BA	3	P + M	–	*AAA	*AAAAB + CSYS AA/AB	*AAAABB	IB 38 pts, 7 pts in P + M at higher level
	MPhys	4	P + M	–	*AAA	*AAAAB + CSYS AA/AB	*AAAABB	IB 38 pts, 7 pts in P + M at higher level
Physics and Philosophy	MPhysPhil	4	P + M	–	*AAA	*AAAAB + CSYS AA/AB	*AAAABB	IB 38 pts, 7 pts in P + M at higher level

Footnote:

\* A in Maths and Physics

### THE QUEEN'S UNIVERSITY OF BELFAST

Physics	BSc*	3	P + M	18	BBC	–	BBBCC	BTEC,GNVQ
	MSci**	4	P + M	22	AAB	–	ABBBBB	+ A-level Maths
Physics and Applied Maths	BSc*	3	P + M	18	BBC	–	BBBCC	BTEC,GNVQ
	MSci**	4	P + M	22	AAB	–	ABBBBB	+ A-level Maths
Physics and Computer Science	BSc*	3	P + M	18	BBC	–	BBBCC	BTEC,GNVQ + A-level Maths
Physics with Astrophysics	BSc*	3	P + M	18	BBC	–	BBBCC	BTEC,GNVQ
	MSci**	4	P + M	22	AAB	–	ABBBBB	+ A-level Maths
Physics with Medical Applications	BSc*	3	P + M	18	BBC	–	BBBCC	BTEC,GNVQ
	MSci**	4	P + M	22	AAB	–	ABBBBB	+ A-level Maths
Physics with Extended Studies in Europe	BSc*	3 + 1	P + M	18	BBC	–	BBBCC	BTEC,GNVQ
	MSci**	4 + 1	P + M	22	AAB	–	ABBBBB	+ A-level Maths

Footnote:

\* BBC including Maths and Physics at B for BSc - except BSc Theoretical Physics degree and Applied Maths + Physics degree ABC with A in Maths and B in Physics. BSc Theoretical Physics degree and Applied Maths + Physics degree; Irish Leaving Certificate ABBBCC/AB2B2B2B2 at Higher Level including Mathematics at grade A and Physics at Grade B.

\*\* All MSci Irish Leaving Certificate ABBBBB at Higher Level including Mathematics and Physics. Grade A would be required in Mathematics or Physics except Theoretical Physics and Applied Maths + Physics degrees..ABBBBB at Higher Level including Mathematics at grade A and Physics at Grade B.



COURSE TITLE (See Note)	QUAL AWARD	DURATION	ENTRY INFORMATION						
		(See Note)	A-level or equivalent subject required (See Note)	Points required	TYPICAL GRADE OFFERS				
					AS	A	Highers	Irish Leaving Cert	Alternatives

UNIVERSITY OF ST ANDREWS								
Astrophysics	MPhys	4*	P + M	AAB	AAB at Adv. H.			IB
		5	P + M	AAB	AAAB	AAAB		IB
Physics	MPhys	4*	P + M	AAB	AAB at Adv. H.			IB
		5	P + M	AAB	AAAB	AAAB		IB
Physics with Photonics	MPhys	4*	P + M	AAB	AAB at Adv. H.			IB
		5	P + M	AAB	AAAB	AAAB		IB
Physics with French**	BSc	3*	P + M + F	AAB	AAB at Adv. H.			IB
		4	P + M	AAB	AAAB	AAAB		IB
Physics with Spanish**	BSc	4	P + M	AAB	AAAB	AAAB		IB
Theoretical Physics	MPhys	4*	P + M	AAB	AAB at Adv. H.			IB
		5	P + M	AAB	AAAB	AAAB		IB
Mathematics and Theoretical Physics	MPhys	4*	P + M	AAB	AAB at Adv. H.			IB
		5	P + M	AAB	AAAB	AAAB		IB
Astrophysics	BSc	3*	P + M	AAB	AAB at Adv. H.			IB
		4	P + M	AAB	AAAB	AAAB		IB
Physics	BSc	3*	P + M	AAB	AAB at Adv. H.			IB
		4	P + M	AAB	AAAB	AAAB		IB
Chemistry and Physics	MSci	5	P + M + C	AAB	AAAB	AAAB		IB
Computer Science and Physics	BSc	4	P + M	AAB	AAAB	AAAB		IB
Internet Computer Science and Physics	BSc	4	P + M	AAB	AAAB	AAAB		IB
Physics and Logic & Philosophy of Science	BSc	4	P + M	AAB	AAAB	AAAB		IB
Mathematics and Physics	BSc	3*	P + M	AAB	AAB at Adv. H.			IB
		4	P + M	AAB	AAAB	AAAB		IB
Footnote:								
* Assuming direct entry to level 2.								
** Also available with integrated year abroad.								

COURSE TITLE (See Note)	QUAL AWARD	DURATION	ENTRY INFORMATION						
		(See Note)	A-level or equivalent subject required (See Note)	Points required	TYPICAL GRADE OFFERS				
					AS	A	Highers	Irish Leaving Cert	Alternatives

UNIVERSITY OF SALFORD									
Physics	BSc	3 or 4(Sandwich)	P + M + ...	260		BCC*	AABB/BCC	BBBCC	Access,BTEC,EB,IB, GNVQ,GSVQ,ONC, OND,Ot
	MPhys	4 or 5(Sandwich)	P + M + ...	280		BBC*	AAAB/BBC	BBBBC	Access,BTEC,EB,IB, GNVQ,GSVQ,ONC, OND,Ot
Pure and Applied Physics	BSc	3 or 4(Sandwich)	P + ...	200		†		CCCCC	As Physics
	MPhys	4 or 5(Sandwich)	P + ...	200		†		CCCCC	As Physics
Physics with Space Technology	BSc	3 or 4(Sandwich)	P + M + ...	260		BCC*	AABB/BCC	As Physics	As Physics
	MPhys	4 or 5(Sandwich)	P + M + ...	280		BBC*	AAAB/BBC	As Physics	As Physics
Physics with Acoustics	BSc	3 or 4(Sandwich)	P + M + ...	260		BCC*	AABB/BCC	As Physics	As Physics
	MPhys	4 or 5(Sandwich)	P + M + ...	280		BBC*	AAAB/BBC	As Physics	As Physics
Physics with Additional Studies in Europe	BSc	4	P + M + ...+**	260		BCC*	AABB/BCC	As Physics	As Physics
	MPhys	4	P + M + ...+**	280		BBC*	AAAB/BBC	As Physics	As Physics
MPhys with Honours in Physics with a year in North America	MPhys	4 or 5(Sandwich)	P + M + ...	280		BBC*	AAAB/BBC	As Physics	As Physics
Physics with Aviation Studies	BSc	3 or 4(Sandwich)	P + M + ...	260		BCC*	AABB/BCC	As Physics	As Physics
Physics with Pilot Studies	BSc	3 or 4(Sandwich)	P + M + ...	260		BCC*	AABB/BCC	As Physics	As Physics
Physics with a Foundation Year	BSc	4 or 5(Sandwich)	***			***		DDDDD	As Physics
Footnote: * Key skills accepted. Entrance scholarships available. ** GCSE pass required in a language. *** Students are normally expected to have studied Maths/Physics at A-level or equivalent. Individual cases discussed at interview. † Pure and Applied Physics – Typical Grade Offers A/AS: Minimum 60 points in Physics with 140 others (Maths A-level must have been studied) Highers: Minimum 60 points in Physics with 120 others (Maths Highers must have been studied) Irish Leaving Certificate: CCCC (including Physics) D Maths									

COURSE TITLE (See Note)	QUAL AWARD	DURATION	ENTRY INFORMATION						
		(See Note)	A-level or equivalent subject required (See Note)	Points required	TYPICAL GRADE OFFERS				
					AS	A	Highers	Irish Leaving Cert	Alternatives

UNIVERSITY OF SHEFFIELD									
Physics	BSc	3	P + M + ...		ABB	AAAB+ BB in AH	AABBB	IB,EB,BTEC	
	MPhys	4	same as above						
Theoretical Physics	BSc	3	P + M + ...		ABB	AAAB + BB in AH	AABBB	IB,EB,BTEC	
	MPhys	4	same as above						
Chemical Physics	BSc	3	P + M + C		BBC	AABB or BBBC + AH	BBBBB	IB,EB,BTEC	
	MPhys	4	P + M + C		BBB	AAAB or BBBB + AH	ABBBB		
Physics with Study in Europe*	BSc	4	P + M + ...		ABB	AAAB+ BB in AH	AABBB	IB,EB,BTEC	
Physics and Astrophysics	BSc	3	P + M + ...		ABB	AAAB+ BB in AH	AABBB	IB,EB,BTEC	
	MPhys	4	same as above						
Physics with Medical Physics	BSc	3	P + M + ...		ABB	AAAB+ BB in AH	AABBB	IB,EB,BTEC	
	MPhys	4	same as above						
Physics with Computer Science	BSc	3	P + M + ...		ABB	AAAB + BB in AH	AABBB	IB,EB,BTEC	
	MPhys	4	same as above						
Physics with study in North America	MPhys	4	P + M + ...		ABB	AAAB + BB in AH	AABBB	IB,EB,BTEC	
Physics with study in Australasia	MPhys	4	P + M + ...		ABB	AAAB + BB in AH	AABBB	IB,EB,BTEC	
Physics with Enterprise Management	BSc	3	P + M + ...		ABB	AAAB+ BB in AH	AABBB	IB,EB,BTEC	
	MPhys	4	same as above						
Physics and Mathematics	BSc	3	P + M + ...		ABB	A Maths A Phys + AB	A Maths, A Phys + BBB	IB,EB,BTEC	
	MPhys	4	same as above						
Astromony and Mathematics	BSc	3	P + M + ...		ABB	A Maths + AAB	A Maths + ABBB	IB,EB,BTEC	
	MMath	4	same as above						

COURSE TITLE (See Note)	QUAL AWARD	DURATION	ENTRY INFORMATION						
		(See Note)	A-level or equivalent subject required (See Note)	Points required	TYPICAL GRADE OFFERS				
					AS	A	Highers	Irish Leaving Cert	Alternatives

Physics and Philosophy	BSc	3	P + M + ...		ABB	AAAB + BB in AH	AABBB	IB,EB,BTEC
Foundation Year leading to degree in Physics**		1	Including one science subject		CCC/BCC			IB,EB,BTEC
Footnote: * Year 3 is spent at a university in France, Germany or Spain. Either an A/AS-level or GCSE Grade B or above is required in the relevant language. ** Intended for students who have not taken both Physics and Mathematics at A-level. Successful completion of the Foundation Year course permits progression to year 1 of any of the degree courses listed above.								

UNIVERSITY OF SOUTHAMPTON								
Physics	BSc	3	P + M	340 points from 18 units	AAB			BTEC,OU,IB, EB,CSYS,Access,Ot
	MPhys	4	P + M	same as above	AAB			same as above
Physics with Astronomy	BSc	3	P + M	same as above	AAB			same as above
	MPhys	4	P + M	same as above	AAB			same as above
Physics with Mathematics	BSc	3	P + M	same as above	AAB			same as above
	MPhys	4	P + M	same as above	AAB			same as above
Physics with Photonics	BSc	3	P + M	same as above	AAB			same as above
	MPhys	4	P + M	same as above	AAB			same as above
Physics with Space Science	BSc	3	P + M	same as above	AAB			same as above
	MPhys	4	P + M	same as above	AAB			same as above
Physics with Nanotechnology	MPhys	4	P + M	same as above	AAB			same as above
Physics with Astronomy (with a year abroad)	MPhys	4	P + M	360 points*** from 18 units	AAA***			same as above
Particle Physics (with a year abroad)	MPhys	4	P + M +...	360 points*** from 18 units	AAA***			same as above
Physics with a Foundation Year*	BSc	4	**	**	**			same as above
Footnote: - * Intended for students wishing to transfer to science. ** Consult Admissions Tutor *** Plus Entrance Examination								

COURSE TITLE (See Note)	QUAL AWARD	DURATION  (See Note)	ENTRY INFORMATION						
			A-level or equivalent subject required (See Note)	Points required	TYPICAL GRADE OFFERS				
					AS	A	Highers	Irish Leaving Cert	Alternatives

UNIVERSITY OF STRATHCLYDE								
Physics	BSc	3	P + M		BBC		N/A	*
	(Hons) BSc (Hons)	4	P + M		CCC	BBB	BBB	*
Physics with Teaching	BSc	3	P + M + English**		BBC		N/A	*
	(Hons) BSc (Hons)	4	P + M + English**		CCC	BBB	BBB	*
Mathematics and Physics	BSc	3	P + M		ABC		N/A	*
	(Hons) BSc (Hons)	4	P + M		BB	ABBB	ABBB	*
Physics and Mathematics	MPhys	4	P + M		AAB		N/A	*
	MPhys	5	P + M		BCC	AABB	AABB	*
Footnote:								
* Please contact Department								
** Please contact Department regarding English qualifications								
Students entering <b>Year 1</b> with Advanced Higher Physics at B or better will be given an exemption from certain Physics classes. Students entering <b>Year 1</b> with Higher Mathematics at A and Advanced Higher Mathematics at B will be given an exemption from certain Mathematics classes..								
Direct entry to <b>Second Year</b> of the MPhys degree is possible if an applicant has the following qualifications: AB in Advanced Higher Physics and Mathematics plus two other Highers at AB or ABB including both Advanced Higher Advanced Higher Physics and Mathematics plus another Higher at A.								

COURSE TITLE (See Note)	QUAL AWARD	DURATION	ENTRY INFORMATION						
		(See Note)	A-level or equivalent subject required (See Note)	Points required	TYPICAL GRADE OFFERS				
					AS	A	Highers	Irish Leaving Cert	Alternatives

UNIVERSITY OF SURREY								
Physics	BSc***	3/4*	M + P	220†	ABB	ABBBB	BBBC	AE,Access,BTEC,OU, EB,IB,AS and (M + GNVQ Science)
Physics	MPhys***	4**	M + P	220†	ABB	ABBBB	BBBC	As above
Physics with an Integrated Foundation Year	BSc***	4/5*	Any two	220	ABB	ABBBB	BBBC	AE,BTEC,ASEB,IB, and GNVQ Science
Physics with Nuclear Astrophysics	BSc***	3/4*	M + P	220†	ABB	ABBBB	BBBC	AE,Access,BTEC,OU, EB,IB,AS and (M + GNVQ Science)
Physics with Nuclear Astrophysics	MPhys***	4**	M + P	220†	ABB	ABBBB	BBBC	As above
Physics with Satellite Technology	BSc***	3/4*	M + P	220†	ABB	ABBBB	BBBC	As above
Physics with Satellite Technology	MPhys***	4**	M + P	220†	ABB	ABBBB	BBBC	As above
Physics with Finance	BSc***	3/4*	M + P	220†	ABB	ABBBB	BBBC	As above
Physics with Finance	MPhys***	4**	M + P	220†	ABB	ABBBB	BBBC	As above
Footnote:								
Any student with AS levels in Maths and Physics, but without full A-levels should contact the Department on an individual basis for advice on which course to apply for.								
† Minimum points requirements from M and P A-levels alone.								
* Optional Professional Training Year.								
** Includes a full year of Research Training.								
*** Transfers between all MPhys and BSc degree programmes are possible in the second year.								

COURSE TITLE (See Note)	QUAL AWARD	DURATION  (See Note)	ENTRY INFORMATION						
			A-level or equivalent subject required (See Note)	Points required	TYPICAL GRADE OFFERS				
					AS	A	Highers	Irish Leaving Cert	Alternatives

UNIVERSITY OF SUSSEX						
Physics (Research Placement)	MPhys	4	P + M	AAA	AAAAA	IB*
Theoretical Physics (Research Placement)	MPhys	4	P + M	AAA	AAAAA	IB*
Astrophysics (Research Placement)	MPhys	4	P + M	AAA	AAAAA	IB*
Physics with Astrophysics (Research Placement)	MPhys	4	P + M	AAA	AAAAA	IB*
Physics	BSc	3	P + M	ABB-BBB	ABBBB	IB***
	MPhys	4	P + M	AAB-ABB	AABBB	IB**
Theoretical Physics	BSc	3	P + M	ABB-BBB	ABBBB	IB***
	MPhys	4	P + M	AAB-ABB	AABBB	IB**
Physics with Astrophysics	BSc	3	P + M	ABB-BBB	ABBBB	IB***
	MPhys	4	P + M	AAB-ABB	AABBB	IB**
Astrophysics	MPhys	4	P + M	AAB-ABB	AABBB	IB**
Physics and Astronomy degrees (with a Foundation Year)	BSc	4	P or M			****
Footnote: - IB* Pass with overall score of 38 points including 12 points from M+P at higher level IB** Pass with overall score of 34 points including 11 points from M+P at higher level IB*** Pass with overall score of 32 points including 10 points from M+P at higher level **** Access, BTEC, OU, AS, A's other than M+P						

COURSE TITLE (See Note)	QUAL AWARD	DURATION	ENTRY INFORMATION						
		(See Note)	A-level or equivalent subject required (See Note)	Points required	TYPICAL GRADE OFFERS				
					AS	A	Highers	Irish Leaving Cert	Alternatives

SWANSEA UNIVERSITY									
Physics	BSc (Hons)	3	P + M	280	BBC	AABCC	BBBBBB	IB,BTEC,CSYS,SCE	
Physics	MPhys	4	P + M	320	ABB	AABBC	ABBBBB	IB,BTEC,CSYS,SCE	
Theoretical Physics	BSc (Hons)	3	P + M	300	BBB	AABBC	ABBBBB	IB,BTEC,CSYS,SCE	
Theoretical Physics	MPhys	4	P + M	320	ABB	AABBC	ABBBBB	IB,BTEC,CSYS,SCE	
Physics with Nanotechnology	BSc (Hons)	3	P + M	280	BBC	AABCC	BBBBBB	IB,BTEC,CSYS,SCE	
Physics with Particle Physics and Cosmology	BSc (Hons)	3	P + M	280	BBC	AABCC	BBBBBB	IB,BTEC,CSYS,SCE	
Physics and Mathematics	BSc (Hons)	3	P + M	300-320	ABB	AABBC	ABBBBB	IB,BTEC,CSYS,SCE	
Physics and Computer Science	BSc (Hons)	3	P + M	280	BBC	AABCC	BBBBBB	IB,BTEC,CSYS,SCE	
Physics with Sports Science	BSc (Hons)	3	P + M	280	BBC	AABCC	BBBBBB	IB,BTEC,CSYS,SCE	
Physics with Year Abroad	BSc (Hons)	4	P + M	280	BBC	AABCC	BBBBBB	IB,BTEC,CSYS,SCE	
Integrated 4-Year BSc with Foundation Year (Honours)	BSc (Hons)	4	*						
Footnote: - * Contact Admissions Tutor									

UNIVERSITY OF TEESIDE									
Applied Science and Forensic Investigation	BSc	3	Any Scienc + ...		180 UCAS Points			BTEC, AS(P)	
Crime Scene Science	BSc	3	Any Science + ...		180 UCAS Points			BTEC, AS(P)	
Footnote: - A foundation year is available.									



COURSE TITLE (See Note)	QUAL AWARD	DURATION	ENTRY INFORMATION						
		(See Note)	A-level or equivalent subject required (See Note)	Points required	TYPICAL GRADE OFFERS				
					AS	A	Highers	Irish Leaving Cert	Alternatives

### TRINITY COLLEGE, UNIVERSITY OF DUBLIN

Physics	BA (Hons)	4	—	420**	*	—
Theoretical Physics	BA (Hons)	4	P + M	460***	*	—
Physics and Chemistry of Advanced Materials	BA (Hons)	4	—	370**	*	—
Physics and Astrophysics	BA (Hons)	4	—	420**	*	—
Physics and Computer Simulation	BA (Hons)	4	—	420**	*	—
Footnote: * Offers are made based on the points required as set by the Irish Central Admissions Office (CAO) in each year. Up to four subject at A or AS level may be counted. The points awarded are: A level grade A: 150; B: 130; C:105; D:80; AS level grade a: 60; b: 50; c: 40; d:30. The points required for each course in 2007 are given above as a guide only. . ** Including grade C in two science subjects at higher level or higher (refers to Irish Leaving Certificate only). *** Including grade B in both Mathematics and Physics at higher level or higher (refers to Irish Leaving Certificate only).						

### UNIVERSITY OF WARWICK

Physics*	BSc	3	P + M + ...	AAA/AAB	AAAB	AAAAAA	IB,EB,AH
	MPhys	4	P + M + ...	AAA/AAB	AAAB	AAAAAA	IB,EB,AH
Mathematics and Physics*	BSc	3	P + M + ...	AAA	AAAB	AAAAAA	IB,EB,AH
	MMathPhys	4	P + M + ...	AAA	AAAB	AAAAAA	IB,EB,AH
Physics and Business Studies	BSc	3	P + M + ...	AAA	AAAB	AAAAAA	IB,EB,AH
Footnote: * Students must decide before the end of the first year whether to aim for the BSc or MPhys.							

COURSE TITLE (See Note)	QUAL AWARD	DURATION	ENTRY INFORMATION						
		(See Note)	A-level or equivalent subject required (See Note)	Points required	TYPICAL GRADE OFFERS				
					AS	A	Highers	Irish Leaving Cert	Alternatives

UNIVERSITY OF THE WEST OF SCOTLAND									
Physics	BSc (Hons) BSc	5(Sandwich) 4 3	P + M	12	CD*	BCC	BCC	SCE H,HND,BTEC, Access,HNC,SCOTVEC	
Physics with Maths	BSc (Hons) BSc	5(Sandwich) 4 3	P + M	12	CD*	BCC	BCC	SCE H,HND,BTEC, Access,HNC,SCOTVEC	
Physics and Maths	BSc (Hons) BSc	5(Sandwich) 4 3	P + M	12	CD*	BCC	BCC	SCE H,HND,BTEC, Access,HNC,SCOTVEC	
Physics with Medical Technology	BSc (Hons)	4	P + M	12	CD	BBC	BBC	same as above	
Physics with Multimedia	BSc (Hons) BSc	5(Sandwich) 4 3	P + M	12	CD	BCC	BCC	same as above	
Footnote: * Well qualified entrants offered direct entry to second year.									

UNIVERSITY OF YORK							
Physics	BSc (Hons)	3	P + M + ...	BBB	ABBB	AABB	AH*,EB**,IB***
	MPhys	4	P + M + ...	AAB	AABB	AAAB	
Physics with Astrophysics	BSc (Hons)	3	P + M +...	BBB	ABBB	AABB	AH*,EB**,IB***
	MPhys	4	P + M + ...	AAB	AABB	AAAB	
Theoretical Physics	BSc (Hons)	3	P + M + ...	BBB	ABBB	AABB	AH*,EB**,IB***
	MPhys	4	P + M + ...	AAB	AABB	AAAB	
Maths/Physics	BSc (Hons)	3	P + M +...	ABB	AABB	AABB	AH*,EB**,IB***
	MMath	4	P + M + ...	AAB	AABB	AAAB	
Physics/Business Management	BSc (Hons)	3	P + M + ...	BBB	ABBB	AABB	AH*,EB**,IB***
	MPhys	4	P + M + ...	AAB	AABB	AAAB	
Physics/Philosophy	BSc (Hons)	3	P + M + ...	BBB	ABBB	AABB	AH*,EB**,IB***
	MPhys	4	P + M + ...	AAB	AABB	AAAB	
Physics with Foundation Year	BSc (Hons)	4	Not Essential	Flexible			Flexible
	MPhys	5	Not Essential	Flexible			
Footnote: -							
	All degrees can be taken with a year spent in Europe (total course duration: 4 years), except the MPhys programme in Maths/Physics.						
*	BB/AB Maths and Physics						
**	70%/75% with 7.5 in Maths and Physics						
***	30/33 points with grade 5/6 in Maths and Physics						

# GUIDE TO TERMINOLOGY AND ABBREVIATIONS

## COURSE TITLE/COURSE TYPE

Courses are listed within four categories:

1 Physics (Single Honours): courses which have physics as the major component not combined with another subject (eg: physics, applied physics, theoretical physics).

2 Physics with... (Single Honours): courses which have physics as the major component combined with another subject which occupies approximately 20-30% of curriculum time (examples include: physics with european studies, physics with astrophysics)

3 Physics and... (Combined Honours): courses which have physics as an approximately equal component of curriculum time with another subject (eg: physics and chemistry, physics and philosophy)

4 HND

## COURSE DURATION (YRS)

Figures represent years of full-time study unless otherwise indicated.

Sandwich courses are also specified.

## ENTRY INFORMATION: SUBJECTS

Codes for A-level subjects normally required:

<b>P</b>	Physics
<b>M</b>	Maths
<b>C</b>	Chemistry
<b>PS</b>	Physical Science
<b>E</b>	Engineering
<b>B</b>	Biology
<b>Mus</b>	Music
<b>CS</b>	Computer Science
<b>...</b>	Any A-level or equivalent subject

## ENTRY INFORMATION: ALTERNATIVE QUALIFICATIONS

Codes for acceptable alternative qualifications

<b>Access</b>	An Access course
<b>AE</b>	All European
<b>AH</b>	Advanced Highers
<b>AS</b>	Advanced Subsidiary
<b>BTEC</b>	Business & Technology Education Council
<b>CSYS</b>	Certificate of Sixth Year Studies (Scotland)
<b>EB</b>	European Baccalaureate
<b>GNVQ</b>	General National Vocational Qualification (Advanced)/ Vocational A-levels
<b>GSVQ</b>	General Scottish Vocational Qualification (Advanced)
<b>HND</b>	Higher National Diploma
<b>IB</b>	International Baccalaureate
<b>ILC</b>	Irish Leaving Certificate
<b>ONC</b>	Ordinary National Certificate
<b>OND</b>	Ordinary National Diploma
<b>Ot</b>	Others
<b>OU</b>	Open University Foundation Course
<b>SCE</b>	Scottish Certificate of Education
<b>SH</b>	Scottish Highers

(Normal entry to Scottish/Irish universities is via Scottish Highers and Irish Leaving Certificates respectively, with A-level candidates also accepted. In some Scottish cases this might be into the 2nd year.)

# DEPARTMENTAL INFORMATION



## UNIVERSITY OF ABERDEEN

### PHYSICS

or take physics with

**GEOLOGY, MATHEMATICS, CHEMISTRY, EDUCATION,  
PHILOSOPHY OR MODERN LANGUAGES**

Aberdeen's entry system allows enviable flexibility to students who have not already chosen their special interest. The broad range of our degrees aims to build on this and to provide understanding and skills for a wide choice of careers. Our **Honours Physics** degree draws on the talents of physicists in a variety of different subject areas. A wide range of options enables physics to be studied to Honours level with **Mathematics, Geology, Chemistry, Education, French, German, Spanish, Gaelic or Philosophy**.

Aberdeen University provides friendly teaching in pleasant surroundings. Physics has been taught here for 500 years. Along with cobbled streets and a medieval chapel you will find the latest technological developments used in a modern University. On the edge of an international city, with a vibrant life, the campus nestles between sandy beaches and the dramatic mountains and lochs of the Scottish Highlands.

**Further information from the  
Student Recruitment and Admissions Services,  
University of Aberdeen  
Regent Walk, Aberdeen AB24 3FX  
Telephone: 01224 272090/91  
<http://www.abdn.ac.uk/physics>**



## University of Aberdeen

Fraser Noble Building, Old Aberdeen AB24 3UE

Main Sites: 2      Full Time Undergraduates & Postgraduates: 10600  
% of Undergraduates reading Science and Engineering: 32  
Accommodation (% in Hall in 1st year): 70

Department of Physics

Academic Staff: 12

(Tel: 01224-272518)

**Teaching Content & Philosophy:** Our Honours Physics degree covers the principles that underlie the fundamental physical phenomena of nature and demonstrates how these principles are relevant to the world about us and to modern applications of physics in industry and research. We also offer Joint Honours degrees with mathematics, geology, philosophy and education and a range of combined honours degrees. These include Physics with a choice of modern languages, Physics with Geology, Physics with Chemistry and Physics with Philosophy.

**Special Facilities/Resources:** We have been teaching Physics at Aberdeen for 500 years. Our Honours course is broadened by input from the Departments of Mathematics, Engineering, Chemistry, Biomedical Physics and Plant & Soil Science.

**Special Features of Courses:** Entry is for BSc or MA and not solely physics, allowing great flexibility of subject choice. Students can select courses from the wide range on offer and confirm their final honours subject after two years in the University. An ordinary BSc is also available and a three-year Designated BSc in all options for which Hons BSc can be taken.

**Regulations on Transfer between Courses:** Transfer is readily available in the early part of a course. Advisers of Studies assist students in decisions.

**Further Information:** Dr J M S Skakle  
email: [j.skakle@abdn.ac.uk](mailto:j.skakle@abdn.ac.uk)

## Aberystwyth University

Penglais, Aberystwyth, SY23 3BZ

Main Sites: 1      Full Time Undergraduates: 7500  
% of Undergraduates reading Science and Engineering: 27  
Accommodation (% in Hall in 1st year): 100

Department of Physics      Academic Staff: 30  
(Tel: 01970 622802)

**Teaching Content & Philosophy:** The modular courses offered provide the core material that is expected in a physics degree along with specialist modules that complement the research strengths of the Institute. This includes specialist research-led modules in space science and materials physics. There is a strong emphasis on small-group, laboratory-based teaching and project work designed to provide the problem-solving and communication skills essential to the working physicist. The Institute prides itself on its friendly, informal atmosphere, and students have excellent access to teaching staff.

**Special Facilities/Resources:** The department occupies a purpose-built building on a beautiful coastal campus. This houses large teaching laboratories along with lecture theatres, computing facilities, research laboratories, 3D visualisation equipment, supercomputers, and a planetary terrain laboratory for testing Mars rovers.

**Special Features of Courses:** Individual and group projects often involve working with leading research groups and can include analysis of the latest data from space probes or international research facilities. Scholarships and awards worth up to £1700 per year are available. MPhys Physics with Planetary and Space Science students have the opportunity to spend a semester studying space physics on the island of Svalbard in the high Arctic.

**Regulation on Transfer between Courses:** Transfer between courses is possible up to the start of year two.

**Further Information:** Dr D Brown  
Email: [maps@aber.ac.uk](mailto:maps@aber.ac.uk)  
<http://www.aber.ac.uk/maps>

## University of Bath

Claverton Down, Bath, BA2 7AY

Main Sites: 1      Full Time Undergraduates: 8945  
% of Undergraduates reading Science and Engineering: 60  
Accommodation (% in Hall in 1st year): 100

Department of Physics      Academic Staff: 27  
(Tel: 01225-386837)

**Teaching Content & Philosophy:** Our courses are designed to give students insight into the most exciting areas of contemporary physics and also to equip them with the professional skills needed to apply their knowledge after graduation. Considerable importance is attached to project, group and laboratory and computing work. All students have a personal academic tutor and weekly tutorials in groups of four or five. The teaching is rated as excellent (24/24) by the QAA.

**Special Facilities/Resources:** There are well-resourced and newly refurbished undergraduate laboratories with a purpose-built MPhys laboratory. The computing facilities on campus include 460 networked PCs (24 hour, 7 day access) and a UNIX cluster, with parallel supercomputers. Students also undertake project work in state-of-the-art research laboratories.

**Special Features of Courses:** A wide range of student choice is possible due to the modular course structure. Both MPhys and BSc programmes allow study abroad or a salaried placement during the 3rd or 4th years. Placements are usually in government or industrial research laboratories in the UK or overseas. Many optional modules are based on research specialisms.

**The University of Bath:** The University is on a campus site close to the centre of the World Heritage City of Bath. The city is famous for its Roman and Georgian buildings and for its musical, artistic and literary life. Students form a significant fraction of the population and are well catered for in the city.

**Further Information:** Dr G Mathlin  
Email: [ugphys.admissions@bath.ac.uk](mailto:ugphys.admissions@bath.ac.uk)  
<http://www.bath.ac.uk/physics>



## Physics at Aberystwyth

A degree in physics at Aberystwyth will introduce students to the most fundamental and wide ranging of all sciences in an Institute which has a 125 year history of excellence in teaching and research.

MPhys and BSc degrees are offered in:

**Physics**

**Space Science & Robotics**

**Joint Honours schemes**

**Physics with Planetary & Space Physics**

**Physics with Foundation Year**

The Institute is known for its friendly, informal atmosphere and its commitment to small-group and laboratory based teaching. A strong emphasis is placed on undergraduate project work which is linked to active research interests. Students may find themselves using the latest data from space probes or international research facilities.

Other degree features:

**Planetary and Space Physics students can spend a semester in the Arctic  
Institute houses 3D visualisation facilities**

**Scholarships available worth up to £1700 pa**

Further information is available from the admissions tutor:

Email: [maps@aber.ac.uk](mailto:maps@aber.ac.uk)

Tel: 01970 622802

Or visit: [www.aber.ac.uk/maps](http://www.aber.ac.uk/maps)

**Promoting Excellence in Teaching and Research**

UNIVERSITY OF  
BIRMINGHAM

The School of Physics and Astronomy

U

Study Physics in one of the UK's largest  
Departments with a long tradition of  
excellence in teaching and research.

B

We offer a wide range of BSc (three-year) and MSci (four-year) undergraduate degree courses in the following areas:

- **Physics**
- **Theoretical Physics**
- **Astrophysics**
- **Theoretical Physics and Applied Mathematics**
- **Particle Physics and Cosmology**
- **Business Management**
- **International Studies**
- **Nanoscale Physics**

We carry out internationally leading research ranging from Particle, Nuclear and Theoretical Physics through to Astrophysics.

- Students are supported by lectures, tutorials, small group teaching, example classes, workshops, projects and well-equipped practical and computing laboratories.
- We provide students with a broad knowledge and skills base for a wide range of careers.
- Specialised courses and projects supported by staff doing active research in the subject they teach.
- Scholarships are available.

- The University is situated on an attractive parkland Campus.
- The vibrant city centre is just a ten-minute bus or train journey away.
- We encourage applications from students with disabilities.

#### **Learn more**

Dr Gron Tudor Jones  
School of Physics and Astronomy  
University of Birmingham  
Edgbaston  
Birmingham  
B15 2TT

Telephone: 0121 414 4563  
Email: [physics-adms@bham.ac.uk](mailto:physics-adms@bham.ac.uk)  
[www.ph.bham.ac.uk](http://www.ph.bham.ac.uk)



## University of Birmingham

Edgbaston, Birmingham B15 2TT

Main Sites: 1 Full Time Undergraduates: 13200  
% of Undergraduates reading Science and Engineering: 45  
Accommodation (% in Hall in 1st year): 100

School of Physics and Astronomy Academic Staff: 40  
(Tel: 0121 414 4563 email: physics-adms@bham.ac.uk)

### ● The Department and Our Courses:

Perhaps you are asking: How can we offer such a large number of courses ranging from Space Research to Theoretical Physics? The answer lies in our being one of the largest departments in the country with internationally recognised research groups working on all length scales from the smallest fundamental particles through nanotechnology and biomedical science to the astrophysics of the whole Universe.

Our courses are available as either BSc or MSci entry - apart from Theoretical Physics and Applied Mathematics for which entry is joint. Much of the essential core material is taught in the first year thereby facilitating changes between specialisations in later years.

### ● Special Facilities & Resources

Your experimental work takes place in modern well-equipped laboratories and should you select our astrophysics course you will have the use of our own astronomical observatory. If you choose the MSci route you will undertake a research project within one of our research groups in your final year. We have state of the art well equipped practical and computing laboratories to enable you to develop a full range of skills.

### ● Teaching Methods

In addition to lectures and laboratories there are mathematics example classes and physics workshops. The latter are designed to emphasise the universality of physics in explaining seemingly unrelated phenomena with the same concepts and laws; and to improve your teamwork and communication skills. You have a personal tutor in all years - with a maximum tutorial size of four.

### ● Careers

Our graduates are successful in many fields – from academia and research through to software engineering and occasionally as airline pilots. For further information, including career profiles, please see our web site: <http://www.ph.bham.ac.uk/prospective/undergrad>

**Or contact:** Dr Gron Tudor Jones, Undergraduate Admissions Tutor

## University of Bristol

H.H. Wills Physics Laboratory, Royal Fort,  
Tyndall Avenue, Bristol BS8 1TL

Main Sites: 1 Full Time Undergraduates: 9800  
% of Undergraduates reading Science and Engineering: 40  
Accommodation is guaranteed for all non-local applicants  
(see below for details)

Department of Physics Academic Staff: 50  
(Tel: +44 (0)117-928 8733  
email: physics-admissions@bristol.ac.uk)

**Teaching Content & Philosophy:** Central to the life of the Department is undergraduate teaching where our students learn and develop in a research atmosphere, draw on our rich scientific and intellectual heritage, and contribute to the future. The Physics Department at Bristol has more than 100 teaching and research staff. Alongside lectures, we strongly favour the use of tutorials, in which four or five students get together with a tutor to explore problems informally and in depth. We also use problems classes to further develop problem-solving skills. Experimental skills are developed throughout your degree, and culminate in a research project, undertaken alone or with a partner – this project is a key element in all our programmes and is highly valued by both students and academic staff. Core areas of physics are covered in years one and two allowing the maximum choice of options in years three and four. Communication skills, computing modules and other transferable skills are features of the courses. We offer Joint Honours courses in Physics and Philosophy, Physics with Mathematics, and courses in Chemical Physics. The Physics and Philosophy Joint Honours course is one of very few explicitly dealing with the Philosophy of Physics as opposed to the Philosophy of Science. There is also the option to spend a year studying in continental Europe or working in a Physics-based Industry or Company. All our programmes are accredited by the Institute of Physics, and have been rated as “Excellent” in the National Teaching Assessment.

**Special Facilities/Resources:** A new £5 million-plus teaching block for Physics lab classes was opened in October 2007 as part of ongoing investment of £45 million. Extra to this, a new £12 million Nanoscience and Quantum Information Centre was opened in September 2008. Alongside these new facilities, 19 new lecturers have been appointed in the last 3 years. There is a Department-wide network of over 200 PCs, and most importantly, a dedicated Physics library situated in the Department, with wireless connectivity. The Department has achieved a grade 5A in all national Research Assessments since 1992 – one effect of this is that you will be taught by world-leading experts in their research fields. We have a wide range of research facilities and equipment for undergraduate and postgraduate projects; these include high magnetic field/low temperature





# physics

## AT BRISTOL

- ▶▶ Live and study in one of the most dynamic and exciting cities in the UK
- ▶▶ Enjoy excellent teaching with world-class researchers and facilities - new £5 million teaching labs opened in October 2007 and 16 new lecturers in last 2 years
- ▶▶ Flexible learning - choose from MSci and BSc programmes in Physics, Physics & Astrophysics, Mathematics & Physics, Physics & Philosophy, and Physics with a Preliminary Year - most offer a year in Europe or a year with industrial experience



equipment for Superconductivity research, state-of-the-art Atomic Force Microscopes for Nanoscience research, electron microscopes, X-ray diffractometers, modern telescopes for both optical and radio Astronomy, and extensive links with international facilities, particularly in Particle Physics and Astrophysics. The University has an Access Unit that works closely with Physics and other support services to provide appropriate and accessible support to students with special needs.

**Special Features of Courses:** Excellence, flexibility and choice are keywords for Physics at Bristol. A very broad range of degree programmes has been carefully designed to be flexible and to meet the needs of both students and future employers. Starting out, you will have a 3-subject 1st year, with Physics and Maths as staples, and a wide choice for your 3rd subject. Some of these choices are Astronomy, extra Maths, Chemistry, and Philosophy. This structure allows transfer between Physics courses and Joint Honours degrees and the opportunity to study an unrelated subject at University level. A wide range of options, currently including Nanoscience, Fluid Dynamics, Relativistic Cosmology, Seismology, Current Topics in Particle Physics and Current Topics in Astrophysics, Biophysics, High Energy Astrophysics, Stellar Structure, and Quantum Chaos, is available in the 3rd and 4th years, reflecting the full spread of research interests in the Department.

In the final year you will do a Research Project or Dissertation in one of our Research Groups, under the direct supervision of an academic, an excellent way to get a feeling for Physics research. Each year some of the projects will be published in a Physics Journal.

One special aspect of Bristol's character is the location of the Department right at the heart of the University, but also totally integrated in the city and all the buzz of city life. This "city feel" combined with the Physics Department, Student Union, and University Accommodation all within easy walking distance gives Bristol a special atmosphere.

**Accommodation:** The University guarantees to provide accommodation for new undergraduate students during their first year of study in Bristol, according to set and published criteria. Please check the website: <http://www.bris.ac.uk/accommodation/ugs/>

**Regulations on Transfer between Courses:** Transfer between courses is normally possible at any point if appropriate options have been taken. Students make their final choice between the BSc and MSci courses at the end of the second year.

**Further Information:** The Departmental Admissions Coordinator  
(email: [physics-admissions@bristol.ac.uk](mailto:physics-admissions@bristol.ac.uk))  
<http://www.phy.bris.ac.uk/ugadmissions/home.html>



# Physics and Astronomy at Cardiff

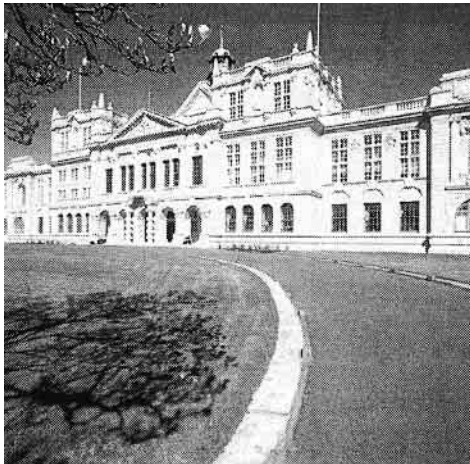
We are an expanding school with excellence in research and a strong commitment to providing high quality teaching and student support. Our staff are internationally recognised for their research in fields such as photonics, quantum electronics and biophysics. We also have one of the largest astronomy groups within the U.K. with approximately 100 dedicated researchers covering a diverse range of topics such as stellar physics, gravitational waves, observational astronomy and astronomical instrumentation.

For further details contact -

Dr Carole Tucker, Admissions Tutor, School of Physics and Astronomy, Cardiff University, Queens Buildings, The Parade, Cardiff, CF24 3AA

Tel. 02920 874785, e-mail - [Admissions@astro.cf.ac.uk](mailto:Admissions@astro.cf.ac.uk)

or visit our website - [www.astro.cf.ac.uk](http://www.astro.cf.ac.uk)



Cardiff offers BSc and MPhys degrees in

- Physics
- Physics with Astronomy
- Astrophysics
- Physics with Medical Physics
- Physics with a Professional Placement

and joint courses with  
Chemistry, Computing,  
Mathematics and Music

## University of Cambridge

Cavendish Laboratory, J J Thomson Avenue,  
Cambridge CB3 0HE

Main Sites: 7      Full Time Undergraduates: 11160  
% of Undergraduates reading Science and Engineering: 40  
Accommodation (% in Hall in 1st year): 100

Department of Physics      Academic Staff: 70  
(Tel: 01223-337420)

**Teaching Content & Philosophy:** Theoretical and Experimental Physics within the Natural Sciences Tripos. Lectures, example classes, practical classes and projects. The majority of students progress to research degrees and we aim to provide the best possible foundation for further study.

All students follow a common core for the first two and a half years, and may then choose courses that reflect the Department's main research interests, in Astrophysics, High Energy Physics, Quantum Condensed Matter, and Soft Condensed Matter & Biophysics. The fourth year offers high-level exposure to a wide variety of topics of current interest. All fourth year students conduct major research projects, many of which result in publications.

Core courses are theoretically-biased and mathematically-demanding: all students take Mathematics in their first year, and most also take Mathematics in the second year.

**Special Facilities/Resources:** Individual tuition in colleges for undergraduates. Excellent research facilities for undergraduate projects and postgraduate research.

**Special Features of Courses:** Final year students may take courses borrowed from Mathematics, Earth Sciences, Management Studies and Medical Physics. Transfer to and from other science subjects at all stages, including Astrophysics in the third and fourth years.

**Regulations on Transfer between Courses:** Various - guidance by college tutors.

**Entry routes:** Normal entry is to the Natural Sciences Tripos, in which students take three different bench subjects plus Mathematics in the first year. Alternative entry is to the Computer Sciences Tripos (with Physics and Mathematics), or the Mathematics Tripos (with Physics).

### Undergraduate Degrees:

- BA (Hons) (for the three year course)
- BA (Hons) and M.Sci. (for the four-year course)

**Further Information:** <http://www.cam.ac.uk>  
<http://www.phy.cam.ac.uk/teaching>



UNIVERSITY OF  
CAMBRIDGE

Department of Physics  
Cavendish Laboratory

### Postgraduate Research

Applications are invited from potential graduates in Physics or related topics (Physical Chemistry, Materials Science, Applied Mathematics and Engineering) for places in our research groups to carry out research towards the PhD degree. Research Council studentships are available for eligible candidates and occasionally other support is obtained. Over half of our annual intake of research students comes from outside Cambridge. The main research areas are in Radio Astronomy, Astrophysics, High Energy Physics and Solid State Physics, (including atomic and mesoscopic physics, biological and soft systems, quantum matter, microelectronics and optoelectronics, nanophotonics, semiconductors, surface and shock physics, thin films and theoretical studies). The Department is currently pursuing new initiatives in the Physics of Medicine. Much of the research is carried out in conjunction with industrial applied physics research laboratories.

Further information, including details of projects and of the application procedure is available on request from the Graduate Students Secretary.

Tel: 01223 337420  
Fax: 01223 766360  
email: [admissions@phy.cam.ac.uk](mailto:admissions@phy.cam.ac.uk)

Web site:  
<http://www.phy.cam.ac.uk/research/applications/>

## University of Cardiff

Queen's Buildings, The Parade, Cardiff CF24 3AA

Main Sites: 2      Full Time Undergraduates: 22000  
 % of Undergraduates reading Science and Engineering: 45  
 Accommodation (% in Hall in 1st year): 100

School of Physics & Astronomy      Academic Staff: 36  
 (Tel: 029 2087 4785)

**Teaching Content & Philosophy:** Cardiff School of Physics & Astronomy has an international reputation for excellence and a strong commitment to innovative and supportive teaching. You will be taught in a research environment and will benefit from interaction with researchers who are working at the frontiers of science in their areas of expertise. A good balance of material is offered which covers mainstream physics and the major growth areas as well as frontier subjects such as nanostructure optoelectronics, laser physics, gravitational waves, cosmology, interstellar medium and star formation.

**Special Facilities/Resources:** Project work in the final year may be carried out in one of the Department's many research laboratories, in the undergraduate observatory or with the Faulkes telescope.

**Special Features of Courses:** Small-group tutorials; emphasis on practical training; familiarity with up-to-date devices. Possibility to study European language to diploma standard.

**Regulations on Transfer between Courses:** Degree scheme decided at end of first year; possible to transfer in certain schemes at the end of the second year. Most courses will allow transfer to four year option leading to MPhys.

**Further Information:** Dr Carole Tucker  
 Telephone: 02920 874144  
 Email: [admissions@astro.cf.ac.uk](mailto:admissions@astro.cf.ac.uk)  
 Website: [www.astro.cardiff.ac.uk/admissions](http://www.astro.cardiff.ac.uk/admissions)

## University of Central Lancashire

Preston, Lancashire PR1 2HE

Main Sites: 1      Full Time Undergraduates: 30000  
 % of Undergraduates reading Science and Engineering: 24  
 Accommodation (% in Hall in 1st year): 100

Physics & Astronomy, School of Computing,  
 Engineering & Physical Sciences  
 Academic Staff: 20  
 (Tel: 01772-893560)

**Teaching Content & Philosophy:** Courses operate within the University wide credit accumulation scheme which maximises student choice. A core of Physics and/or Astronomy units lead to specialist topics appropriate to the named degree in the final year. Emphasis is placed on the acquisition of transferable skills.

There are two undergraduate astronomical observatories with a wide range of telescopes including 1m and 0.67m reflectors. There are also extensive Physics laboratories including specialist suites for PC interfacing, optics, nuclear physics and laser physics.

**Special Features of Courses:** All students have access to studios in which lectures, tutorials, seminars, group work, project work, non-specialist laboratory work, computing and private study are all undertaken.

**Regulations on Transfer between Courses:** With few exceptions it is possible to switch between any of the courses in the BSc/MPhys suite at the end of the first year.

**Further Information:** Physics Admission Tutor  
 Email: [info4pasm@uclan.ac.uk](mailto:info4pasm@uclan.ac.uk)  
 Website: [www.uclan.ac.uk/pasm](http://www.uclan.ac.uk/pasm)



## Cork Institute of Technology

Rossa Avenue, Bishopstown, Cork, Ireland

Main Sites: 3 Full Time Undergraduates: 6400

% of Undergraduates reading Science and Engineering: 65

Accommodation (% in Hall in 1st year): 0

Department of Applied Physics and Instrumentation

Academic Staff: 20

(Tel: 353-21-4326 214/Fax: 353-21-4345 191)

**Teaching Content & Philosophy:** Lectures, laboratory classes, placement. Students are given the essential principles with a view to understanding the applications of physics within industry and applying their knowledge in a professional manner.

**Special Facilities/Resources:** The Departmental resources include specialist laboratories in instrumentation, computing and electronics. Students have access to specialist laboratories and workshops within the Institute. The Department has strong links to other European universities in France, the Netherlands, the UK, Germany and Spain and with MIT in the USA. Major research groups: astrophysics, biophysics, surface physics, scanning force microscopy, instrumentation, microelectronics, photonics.

**Special Features of Courses:** The National Certificate (two year), Diploma (+ one year) and BSc (+ one year) courses form a ladder system whereby students can progress from one stage to the next, depending on their personal motivation and academic achievements. The BSc in Applied Physics and Instrumentation is accredited by the Institute of Physics.

The honours BSc in Computerised Instrument Systems is four years ab initio.

**Regulations on Transfer between Courses:** Students must achieve an average of 50% to transfer.

**Further Information:** Dr L McDonnell (email: [liam.mcdonnell@cit.ie](mailto:liam.mcdonnell@cit.ie))  
Website: <http://www.physics.cit.ie>



UNIVERSITY  
COLLEGE  
DUBLIN

### UCD SCHOOL OF PHYSICS

#### UNDERGRADUATE COURSES

- **BSc (Hons) in Physics with Astronomy and Space Science**
- **BSc (Hons) in Physics (Four years)**
- **BSc (Hons) in Theoretical Physics (Four years)**
- **BSc (General) in Physics (Three years)**

In addition to the above Joint Honours BSc degree courses are available in:

#### Physics in combination with

- **Biochemistry**
- **Computer Science**
- **Mathematics and Mathematical Science**
- **Physiology**
- **Statistics**

#### Postgraduate Research Opportunities

##### MSc and PhD degrees by research in:

- Atomic & Molecular Physics
- BioNano Physics
- Condensed Matter Physics
- General Relativity
- High Energy Particle Physics
- High Energy Astrophysics
- Space Science & Advanced Materials
- Radiation Physics & Radioecology
- Applied Physics

**Taught courses for the degrees of MSc in NanoBio Science and MSc in Radiological Sciences are offered.**

#### Further Information From:

The Secretary  
UCD School of Physics  
UCD Science Centre – North  
University College Dublin  
Belfield, Dublin 4, Ireland.

Tel. ++ 353 1716 2210  
Website: <http://www.ucd.ie/physics>

## University College Dublin

Belfield, Stillorgan Road, Dublin 4, Ireland

Main Sites: 1      Full Time Undergraduates: 14,309  
% of Undergraduates reading Science and Engineering: 18  
Accommodation (% in Hall in 1st year): 28

UCD School of Physics      Academic Staff: 20  
(Tel: ++ 353-1-7162210/Fax: ++ 353-1-2837275)

**Teaching Content & Philosophy:** Flexibility of choice in first year with subjects to include three modules each of physics and mathematics and six other modules, four of which must include other science subjects (chemistry, biology, geology, computer science and mathematical physics). In second year four physics modules and at least one mathematics module plus other modules to total 10 science modules.

**Special Facilities/Resources:** Active research groups in astrophysics, space science, atomic and molecular physics, biophysics, relativity theory, condensed matter physics, environmental and radiation physics, particle physics and applied physics. The school is part of a large campus with expanding student village and excellent sports facilities.

**Special Features of Courses:** In line with the UCD Horizons structure, students have free choice of two modules in all years (except in Year 4).

**Regulations on Transfer between Courses:** No formal regulations, individual cases considered by Heads of Schools.

### Undergraduate degrees

- BSc (Hons) in Physics
- BSc (Hons) in Physics with Astronomy and Space Science
- BSc (Hons) in Theoretical Physics
- BSc (Joint Hons) in Physics and Biochemistry/Chemistry/Computer Science/Mathematics and Mathematical Science/Physiology/Statistics

**Further Information:** The Secretary  
UCD School of Physics  
UCD Science Centre – North  
University College Dublin  
Belfield, Dublin 4, Ireland  
Tel: ++ 353 1 716 2210  
Website: <http://www.ucd.ie/physics>

## Dublin City University

Glasnevin, Dublin 9, Ireland

Main Sites: 1      Full Time Undergraduates: 7000  
% of Undergraduates reading Science and Engineering: 40  
Accommodation (% in Hall in 1st year): 30

School of Physical Sciences      Academic Staff: 18  
(Tel: 353-1-700 5306/Fax: 353-1-700 5384)

**Teaching Content & Philosophy:** Four year honours degree programmes containing a balanced blend of lectures, tutorials, modern laboratory sessions and industrial experience, which together provide the basic understanding and develop the analytical problem-solving and laboratory skills appropriate for modern scientists and engineers.

**Special Facilities/Resources:** Excellent teaching laboratories and specialist laboratories in optoelectronics, plasmas and lasers, nanotechnology, computational physics and astronomy.

**Special Features of Courses:** Emphasis on laboratory skills development; specialisms include optoelectronics, semiconductors and computational physics; industry orientation programme including paid 8-month placement; two year part-time industry placement; undergraduate research placement; group and individual undergraduate research projects. Part of third year abroad for Physics with a Language students, and the Physics with Astronomy degree includes a field trip to a foreign observatory.

### Undergraduate degrees

- BSc in Applied Physics
- BSc in Physics with Astronomy
- BSc in Physics with Biomedical Sciences
- BSc in Physics with a Language/Science International
- BSc Science Education (teaching qualification)
- BSc Environmental Science and Health

### MSc in Plasma Science and Technology

A part-time web based taught masters programme aimed at scientists and engineers in the workplace.



## Faculty of Science and Health

### Physics at Dublin City University

Situated on an extensive campus a short distance from Dublin city centre, DCU is Ireland's most innovative university, enabling international students to pursue world-class study opportunities in the heart of Ireland's cultural capital.

**We offer the following honours 4 year BSc programmes in the physical sciences:**

- **Physics with Biomedical Sciences** - Radiation Physics, Medical Imaging, Biomaterials, Biophotonics, Lasers in Medicine
- **Physics with Astronomy** - Galactic and Observational Astronomy, Astronomical Techniques, General Relativity, Cosmology
- **Applied Physics** - Nanotechnology, Solid State Physics, Optics and Photonics, Quantum Physics, Instrumentation and Image/Signal Processing
- **Science Education** - Concurrent programme leading directly to professional teaching qualification in Physics with Chemistry or Mathematics

As a first year student at DCU you will benefit from our innovative first year experience, including a personal tutor, extended orientation, small-group tutoring, problem and project-based lectures and laboratories.

**Additionally, you can avail of the following benefits in year three of your BSc studies:**

- INTRA - Industrial placement - 8 month paid work experience
- Field trip to foreign observatory
- International university placement
- Research Centre/laboratory placement

**Our programmes offer real relevance for students and employers alike, and have helped earn us a reputation at home and abroad as Ireland's most progressive university.**

For further information, contact:

Lisa Peyton, Tel: +353 1 700 5306; E-mail: [lisa.peyton@dcu.ie](mailto:lisa.peyton@dcu.ie); Url: [www.dcu.ie](http://www.dcu.ie)



**Postgraduate Research Opportunities****M.Sc and PhD degrees by research in:**

- Optical Chemical Sensors and Biosensors
- Low Temperature and Industrial Plasmas
- Laser-Matter Interactions
- Atomic Physics
- Condensed Matter
- Surface and Interface Science
- Physics Education
- Astronomy and Astrophysics

**Regulations on Transfer between Courses:** Transfers possible - guidance by university tutors.

**Further Information:** Professor John Costello  
Website: <http://www.physics.dcu.ie>  
Email: [Lisa.Peyton@dcu.ie](mailto:Lisa.Peyton@dcu.ie)

## Dublin Institute of Technology

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Kevin Street, Dublin 8, Ireland

Main Sites: 6      Full Time Undergraduates: 12000  
% of Undergraduates reading Science and Engineering: 30  
Accommodation (% in Hall in 1st year): 0

School of Physics      Academic Staff: 29  
(Tel: 353-1-402 4560, Fax: 402 4988)

**Teaching Content & Philosophy:** We offer four year honours degree programmes in Physics Technology, Physics with Medical Physics and Bioengineering and Science with Nanotechnology. We also offer an ordinary degree in Industrial and Environmental Physics. Physics in the first and second years is delivered through the medium of problem-based learning. The emphasis throughout is on applied and experimental aspects, with laboratory work and problem solving highlighted.

**Special Facilities/Resources:** Mainframe DEC computer system, work stations, modern laboratories for optics, medical physics and clinical measurement, nanoinstrumentation, acoustics, computing and computational physics.

**Special Features of Courses:** Main topics are medical physics, nanotechnology, environmental physics, renewable energy, instrumentation and solid state physics, computational physics, digital systems, sensors,

optical and quantum technologies; options are medical imaging systems, optical communications, radiation and nuclear physics, microwaves, acoustics, materials spectroscopy, applied biophysics, statistical process control, holography and fluid dynamics. There is a major project in the final year. Professional development and key transferable skills are included in all of our programmes.

**Our Programmes are:**

- ordinary degree in Industrial and Environmental Physics, with progression to honours degree
- honours degree in Physics Technology
- honours degree in Clinical Measurement Science (with 1 year placement in 3rd year)
- honours degree in Physics with Medical Physics and Bioengineering
- honours degree in Science with Nanotechnology

Mature student applications welcome

Funded postgraduate research opportunities

**Contact our Admissions Office for details:**

telephone + 353 1 402 3304, fax 402 3392, email [vincent.ohora@dit.ie](mailto:vincent.ohora@dit.ie)

Regulations on Transfer between Courses: Advanced entry welcomed. Credit/Distinction graduates of ordinary degree may transfer to honours degree programme. Other applicants assessed individually.

**Further Information:** Dr V Toal (email: [vincent.toal@dit.ie](mailto:vincent.toal@dit.ie))  
Website: <http://www.physics.dit.ie/>

## University of Dundee

Dundee DD1 4HN

Main Sites: 2      Full Time Undergraduates: 9706  
% of Undergraduates reading Science and Engineering: 19  
Accommodation (% in Hall in 1st year): 100

Electronic Engineering and Physics Division

Academic Staff: 15 (Tel: 01382 384912)

**Teaching Content & Philosophy:** The degree programmes are designed to deliver the optimum balance of classical and modern physics in order to best prepare our graduates for entry into the broadest possible range of science and technology related jobs. Indeed the majority of our academic staff have had experience working in industry and this is reflected in the practicality of our taught courses. Course modules are designed to encourage and develop problem-solving abilities, and hands-on laboratory classes serve to reinforce the lecture material. All this is undertaken in a relatively small and friendly department where we aspire to cater for each individual student's learning needs.

**Special Facilities/Resources:** The undergraduate laboratories have been substantially refurbished and modernised in recent years. The undergraduate curriculum is broad, but has focused themes that play to the traditional research strengths of the division. We have also recently recruited new staff with expertise tailored specifically to meet the demands of the emerging technological workforce. New research groups in areas such as Renewable Energy, Next-generation Microelectronics, Laser Development & Biophotonics, Nanotechnology, and Biomedical Physics have now been established in-house. A completely unique aspect to the Dundee undergraduate experience is the opportunity, even in the first year, to actively participate with the research environment by joining the Undergraduate Research Group. The University also has a state-of-the-art virtual learning environment that uses innovative web-based resources to augment the lecture material.

**Special Features of Courses:** Options for a three year degree without honours; choice of 4 year honours courses; 5 year MSci option. Direct entry to second year possible with appropriate qualifications.

**Regulations on Transfer between Courses:** Flexibility to transfer to Engineering and other Science options at end of first year, with possibility to defer degree choice until end of second year.

**Further Information:** Dr Paul Campbell (p.a.campbell@dundee.ac.uk)  
Website: <http://www.dundee.ac.uk/elecengphysics/>

## Durham University

Rochester Building, The Science Laboratories,  
South Road, Durham DH1 3LE

Main Sites: 1      Full Time Undergraduates: 11,426  
% of Undergraduates reading Science and Engineering: 35  
Accommodation (% in Hall in 1st year): 100

Department of Physics

Academic Staff: 55

(Tel: 0191-33-43726)

**Teaching Content & Philosophy:** Our aim is to combine the pure and applied requirements of modern Physics in order to stimulate your excitement and understanding of Physics and give you the best possible start in your career. A core of basic Physics in the 1st and 2nd years is used to provide a foundation for courses in Physics, Theoretical Physics, Physics and Mathematics, and Physics and Astronomy. Students may also take Physics courses as part of a Natural Sciences degree.

**Special Facilities/Resources:** Observatory facilities are available to students. An extensive range of materials analysis equipment (electron microscopes and X-ray apparatus) is used in student projects. The department has first class research facilities in particle physics, astronomy and solid state physics, and hosts the National Research Institute for Particle Physics Phenomenology and the Institute for Computational Cosmology. Project work in the final year of the MPhys is usually carried out with one of the research groups in the department.

**Special Features of Courses:** Durham's modular course structure allows a wide range of optional subjects. The basic physics core encompasses the fundamental principles and practices of the subject, and an extensive range of options allows you to develop a specialist interest in theoretical or practical Physics, in technological applications, or in research subjects like Astronomy or Particle Physics. Throughout the course, the programme includes flexible learning and teaching styles, balancing formal teaching such as tutorials and lectures with active learning through self study, problem solving and project work.

**Regulations on Transfer between Courses:** Normally transfer between all the Physics-based honours degree courses is possible, and students are encouraged to follow their interests and needs, especially at the end of year one. Transfer (both ways) between the 3 and 4 year courses is possible.

**Further Information:** The Admissions Secretary  
email: [physics.admissions@durham.ac.uk](mailto:physics.admissions@durham.ac.uk)  
Website:  
<http://www.dur.ac.uk/physics/undergraduate>

## The University of Edinburgh

James Clerk Maxwell Building, The King's Buildings,  
Mayfield Road, Edinburgh EH9 3JZ

Main Sites: 3 Full Time Undergraduates: 16643  
% of Undergraduates reading Science and Engineering: 22

Accommodation guaranteed for all non-local applicants  
(see [www.accom.ed.ac.uk](http://www.accom.ed.ac.uk) for details)

School of Physics Academic Staff: 57  
(Tel: 0131-651-7067 email: [courseinfo@ph.ed.ac.uk](mailto:courseinfo@ph.ed.ac.uk))

**Teaching aims:** to provide a thorough grounding in the fundamental principles of physics; to provide exposure to frontier activities, capitalising on the strengths of an active research environment; to provide a balanced training in the three methodologies of modern physics (experimental, theoretical and computational), with opportunities for specialisation; to develop general transferable skills related to communication, computing and problem solving.

**Special facilities/resources include:** range of research laboratories providing opportunities for advanced project work; Institute for Astronomy, housed in the Royal Observatory alongside the UK Astronomical Technology Centre; special computational physics laboratory complementing the School's UK-leading high-performance computing facilities; collaboration with other departments to provide extended range of specialist teaching.

**Special features of courses:** broad range of degrees (BSc and MPhys, with single honours in experimental, mathematical, computational or astrophysics) sustained by wide research activity; flexible course structure allowing deferment of choice of degree to end of year one or two; fast track stream leading to 4-year MPhys and 3-year BSc.

**External ratings:** SHEFC Teaching Quality Assessment: *excellent*; UFC Research Assessment Exercise (2001): *rating 5*.

**Further Information:** Email: [courseinfo@ph.ed.ac.uk](mailto:courseinfo@ph.ed.ac.uk)  
Tel: 0131 651 7067  
Web: [www.ph.ed.ac.uk](http://www.ph.ed.ac.uk)

## Physics & Astronomy at Edinburgh



Opportunities for undergraduate and postgraduate study in one of the UK's top-rated Physics departments in the UK's most beautiful city.

### MPhys and BSc (Honours) Programmes available in:

Physics	Physics and Music
Astrophysics	Physics with Meteorology
Mathematical Physics	Chemical Physics
Computational Physics	Geophysics

Honours degrees combining Physics with Computer Science or Mathematics are also available.

### Postgraduate research

Leading to a PhD can be pursued in the specialist areas of:

Applied Optics	Fluid Dynamics & Acoustics
Astrophysics	Particle Physics
Computational Physics	Nuclear Physics
Condensed Matter	Theoretical Physics

For further details, contact:

email: [courseinfo@ph.ed.ac.uk](mailto:courseinfo@ph.ed.ac.uk)  
Web: <http://www.ph.ed.ac.uk/undergraduate>  
Teaching Secretary  
School of Physics  
The University of Edinburgh  
Edinburgh EH9 3JZ  
Tel: 0131 651 7067



## University of Exeter

Stocker Road, Exeter, Devon EX4 4QL

Main Sites: 2 Full Time Undergraduates: 8500

% of Undergraduates reading Science and Engineering: 20

Accommodation (% in Hall in 1st year): 100

School of Physics

Academic Staff: 31

(Tel: 01392-264149)

**Teaching Content & Philosophy:** All physics programmes at Exeter equip students with a sound knowledge of modern concepts and the ability to apply physics to new problems. As well as a good understanding of physics, our graduates also have well developed presentation and communication skills. Our aim is to make the study of physics both stimulating and enjoyable with emphasis on giving students individual attention through tutorials, problems classes, laboratory work and projects.

**Special Features of our Programmes:** A broad range of three-year BSc and four-year MPhys programmes are available offering a choice of options which reflect the strong research interests of the School. After the first year, students also have the opportunity to choose electives from other schools within the University. On some programmes students can spend their third year studying at universities in Sydney or Wollongong, Australia or Massey, New Zealand, in Iowa, Kansas or New Mexico in the USA or in France, Germany or Spain in Europe. On our Physics with Professional Experience programme, the third year is undertaken acquiring invaluable work experience in paid employment with companies such as British Aerospace, DERA, Hewlett Packard, Sharp and Thorn-EMI. Those MPhys students studying full-time at Exeter undertake their two-year (third and fourth years) MPhys projects as 'adopted' members of one of our high quality research groups. In the 2001 research assessment our research was rated in the highest category, 5A.

**Special Facilities/Resources:** The School is located in a modern and well equipped building on the superb Exeter campus, close to the city centre and all University facilities. We have a specialised laboratory for computing and the MPhys projects are undertaken in our extensive research laboratories. Our teaching was rated 'Excellent' in our Quality Assurance Agency review.

**Regulations on Transfer between Programmes:** In most cases, students may transfer between programmes up to the end of the second year.

**Further Information:** Website: <http://newton.ex.ac.uk/>  
Email: [physug@exeter.ac.uk](mailto:physug@exeter.ac.uk)  
Admissions tutor: (01392) 264149

## School of Physics

Accredited 3-year BSc and 4-year MPhys Physics programmes with options in:

- Astrophysics
- Medical Applications
- Professional Experience
- Quantum Science and Lasers
- Combined Honours with Mathematics
- Study in Europe, North America or Australasia

Features of the School include:

- Teaching quality rated Excellent
- Internationally recognised research (grade 5A in 2001 RAE)
- Tutorial system with a friendly, personal approach
- State of the art laboratory facilities
- Beautiful campus near city centre, beaches and national parks
- Scholarships and bursaries available

Further information:

Admissions Tutor, School of Physics  
University of Exeter, Stocker Road  
Exeter, Devon EX4 4QL

UNIVERSITY OF  
**EXETER**

Telephone: 01392 264149  
Fax: 01392 264111  
Email: [physug@exeter.ac.uk](mailto:physug@exeter.ac.uk)  
Website: <http://newton.ex.ac.uk>

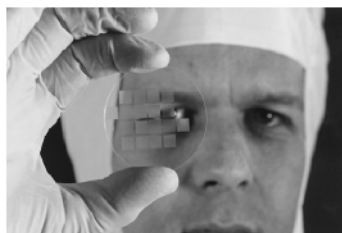
## University of Glasgow Department of Physics and Astronomy



- **Come to a vibrant city and join an expanding department rated as excellent in teaching and leading in research internationally.**
- **Start a study programme optimised for student choice, leading to a BSc degree in four years, and an M.Sci in four or five years.**
- **Open your opportunities to a future career in research, computing, engineering, finance and many other areas.**

**For further details, please visit: [www.physics.gla.ac.uk](http://www.physics.gla.ac.uk)**





## Study Physics at *in Edinburgh*



**We offer an exciting  
range of courses in:**

Physics

Mathematical Physics

Nano-science

Photonics & Lasers

Computational Physics

Environmental Science

Engineering Physics

Physics Education

Physics with Electronic Engineering (*New Course*)

Energy Science and Technology (*New Course*)

**Why Physics at  
Heriot-Watt?**

*Excellent career prospects*

*Informal friendly environment*

*Flexible entrance requirements*

- Highers and AS levels can gain you year 1 entry
- Advanced Highers and A-levels can gain you year 2 entry

Join a forward-looking innovative department and study at our attractive campus in Edinburgh's green belt.

*Enquiries to :*    **Dr Graham Crowder, Physics Department,  
Heriot-Watt University, Edinburgh EH14 4AS**

**Tel: 0131 451 3025**

**Fax: 0131 451 3473**

**e-mail: [physics@eps.hw.ac.uk](mailto:physics@eps.hw.ac.uk)**

**<http://www.hw.ac.uk>**

## Heriot-Watt University

Riccarton, Edinburgh EH14 4AS

Main Sites: 2      Full Time Undergraduates: 5700  
 % of Undergraduates reading Science and Engineering: 71  
 Accommodation (% in Hall in 1st year): 90

School of Engineering and Physical Sciences

Academic Staff: 20      (Tel: 0131-451 3025)

**Teaching Content & Philosophy:** Our courses deal with fascinating ideas about the fundamental nature of the physical world, such the mysterious quantum world of sub-atomic particles and the way the fabric of space and time is revealed by relativity theory. We also explore how these fundamental concepts form the basis of the important technological advances on which our society is based.

The relevance of our courses to today's competitive industrial needs is due in large part to our highly successful research programme covering a wide range of topics including lasers, semiconductors, optoelectronics, optical fibre sensors environmental monitoring, quantum computing and nanotechnology.

**Special Facilities/Resources:** The Department is in the forefront of innovative teaching methods including on-line teaching materials. The teaching laboratories are well-equipped and fully supported by the University wide computing network.

The courses are up-to-date and presented by staff who are conducting state-of-the-art research in the various specialisms. Final year project students gain real research experience by undertaking their final year project work as part of one of the research groups in the Department.

**Special Features of Courses:** Our courses have been designed to take account of changes in School qualifications. It is expected that increasingly students with good Advanced Higher or A level qualifications will enter at second level and then proceed to obtain a BSc honours degree in 3 years or an MPhys in 4 years.

The relatively small size of the Department allows us to take a caring interest in each individual student and so he or she can achieve their full potential.

**Regulations on Transfer between Courses:** There is considerable flexibility in transferring between courses. The final choice of physics degree need not be made until after level 3. This enables you to select a programme of study appropriate to your developing interests and career aspirations. It is possible to study a wide range of science and engineering subjects in level 1 so that other degree options are open to you at level 2.

**Further Information:** Admissions Tutor  
 email: physics@eps.hw.ac.uk  
 Website: www.phy.hw.ac.uk

## Glasgow University

The University, Glasgow G12 8QQ

Main Sites: 1      Full Time Undergraduates: 15743  
 % of Undergraduates reading Science and Engineering: 45  
 Accommodation (% in Hall in 1st year): 100

Department of Physics & Astronomy      Academic Staff: 39  
 (Tel: 0141-339 8855)

**Teaching Content & Philosophy:** The honours courses are structured so that all students study core courses and students reading honours physics alone take additional courses on applied physics. In their fourth year all students choose from a list of options which currently includes plasma physics, nuclear physics, particle physics, semiconductor physics and devices, signals noise and telecommunications, lasers, advanced quantum mechanics, gravitation and cosmology, medical imaging. MSci students have further optional courses.

**Special Facilities/Resources:** The breadth of practical work in pure and applied physics afforded by a well-equipped honours laboratory and access to the specialised equipment of the experimental research groups. Teaching was rated "Excellent" in the recent Quality Assurance exercise.

**Special Features of Courses:** Common first two years of physics and first year of mathematics for all degrees. Entry to the MSci or BSc degree course is at the start of year 3. Students meet regularly with members of staff in small groups for discussion and problem solving.

**Regulations on Transfer between Courses:** Generally possible after one or, in some cases, two years.

**Further Information:** <http://www.physics.gla.ac.uk>

## University of Hertfordshire

College Lane, Hatfield, Herts AL10 9AB

Main Sites: 2      Full Time Undergraduates: 15000  
 % of Undergraduates reading Science and Engineering: 25  
 Accommodation (% in Hall in 1st year): 100

School of Physics, Astronomy & Mathematics

Academic Staff: 28

(Tel: 01707 284605      email: physics-admissions@herts.ac.uk)

**Teaching Content & Philosophy:** Honours degree courses are available in Physics, Astrophysics as well as Physics and in Astrophysics with Scientific Computing. There are opportunities for a placement year in a university or observatory overseas. The programme places strong

emphasis on developing problem-solving techniques, nurturing independent thought and originality, and enhancing skills and physical understanding through practical work. Modern research, often from areas studied within the department, underpins the curriculum. Closely supervised project work forms a substantial element of the final year of study and is often based on research carried out locally or with international collaborators.

**Special Facilities/Resources:** The department has modern purpose-built laboratories that are well equipped with a range of excellent instrumentation. The University Observatory, which is set in a countryside location, and has received a huge financial investment, provides some of the best facilities in the UK for teaching astronomical techniques. There are eight domes, a 4.5m radio telescope, an image processing laboratory and a heated control room. Telescopes have a strong suite of instrumentation including CCD cameras, spectroscopes and a polarimeter. The School hosts one of the largest astrophysics research groups in the UK: the Centre for Astrophysics Research, with over 50 astronomers from post graduates to professors. The School was rated 8th in the 2007 Guardian League Tables, scoring highly in employability, staff/student ratio and value added. There are dedicated optoelectronics and project laboratories, an informatics laboratory for computational physics and Linux clusters for astronomical data processing. The University's Learning Resources Centre has 24 hour access during term and contains three floors of PCs and workstations as well as multimedia suites and TV studios.

**Special Features of Courses:** The courses provide a solid grounding in physics and astrophysics and allows the student to develop practical, theoretical and computational skills. The Astrophysics degree allows the student to study astronomy for all years of their degree, including a substantial final year project, the subject of which may be drawn from the department's research areas. Additional courses at this level give insights into cutting-edge problem solving skills and strategies through taught case studies. The sandwich year scheme allows students the opportunity to broaden their experience by working and studying in a placement at a research institution, university or observatory overseas. Course topics reflect areas of much current interest, e.g. Active Galactic Nuclei and Extreme Environment Astrophysics, Quantum Computing, Cosmology and Large Scale Structure, Stellar Evolution, Computational Physics. Scholarships worth £2,500 are available, based on your entry qualifications. Your scholarship will not affect your student loan as it is an award made to you by the University – you do not have to repay it. If you qualify, the money is yours to spend as you choose ....

Additional scholarships are also available from the Institute Of Physics.

**Further Information:** Dr Mark Thompson (Admissions Tutor)  
[physics-admissions@herts.ac.uk](mailto:physics-admissions@herts.ac.uk)  
 Telephone: 01707 284 605  
 Professor James Hough (Research Group Leader) [jhh@star.herts.ac.uk](mailto:jhh@star.herts.ac.uk)  
<http://www.herts.ac.uk/pam>



THE UNIVERSITY OF HULL

## Physics at Hull

Stimulating, caring and friendly environment with excellent personal supervision system.

We offer the following courses:



Applied Physics  
 Physics  
 Physics with Astrophysics  
 Physics with Laser Science  
 Physics with Nanotechnology  
 Physics and Philosophy

Features include:

- flexibility of choice within modular programmes
- excellent teaching laboratories
- development of communications and presentation skills
- final year project in research group
- teaching rated excellent

For further information please contact:

Professor M. O'Neill  
 Department of Physics  
 University of Hull  
 Hull  
 HU6 7RX

T: 01482 465246  
 F: 01482 465606  
 E: [physics@hull.ac.uk](mailto:physics@hull.ac.uk)  
 W: [www.hull.ac.uk/physics](http://www.hull.ac.uk/physics)



## Keele University

Keele, Staffordshire ST5 5BG

Main Sites: 1 Full Time Undergraduates: 5600

% of Undergraduates reading Science and Engineering: 25

Accommodation (% in Hall in 1st year): 100

School of Physical and Geographical Sciences

Academic Staff: 12

(Tel: 01782-584211)

**Special Features of Courses:** Dual honours degrees available (in which students study a second subject alongside Physics or Astrophysics). A wide range of combinations is possible, including Physics or Astrophysics with Mathematics, with other sciences, or with a modern language, with Management Science, or with Philosophy.

**Course content & Philosophy:** Modular course structure. Integrated treatment of Physics themes leading to final year option courses. Modules in Mechanics, Gravity & Relativity\*, Oscillation & Waves\*. Nature of Matter\*, Electricity & Magnetism; Quantum Physics\*, Statistical Physics\*; Optics\*; Nuclear Physics; Solid State Physics, Electromagnetic Theory, Project\* and a range of options. The Astrophysics programme uses about half the Physics modules (denoted by \*), together with modules in Stellar Structure, Stellar Astrophysics, Radiation, Cosmology and a range of options. Essential mathematics and computing taught within the course. Laboratory/Project work and dissertation assessed as course-work; assessment of lecture modules is a mix of examination and course-work. Option modules in year 3 include Polymer Physics, High Energy Astrophysics, Physics of the Interstellar Medium, Physics of Compact Objects. Astrophysics options open to students on Physics programmes and vice-versa.

**Special facilities and resources:** Good provision of local and networked computing facilities. On-campus Observatory with 0.6 m reflector equipped with a CCD may be used in connection with Astrophysics course.

**Transfer between courses:** Transfer between Physics/Astrophysics and vice-versa, possible in first year.

**Other information:** Department scored 22 out of 24 points in QAA Teaching Quality Assessment. Keele is a self-contained campus university.

**Further Information:** Professor Nye Evans  
(email: [physics@phys.keele.ac.uk](mailto:physics@phys.keele.ac.uk))  
See also our web site: <http://www.phys.keele.ac.uk>

## KEELE UNIVERSITY

### Physics and Astrophysics

Keele is the leading interdisciplinary University in the United Kingdom with over half a century of experience of offering dual honours degrees, combining Physics and Astrophysics with a wide variety of other subjects to degree level.

Teaching quality rated "excellent" by the QAA, with excellent qualities of student support.

Keele offers a safe and friendly environment on one of the most beautiful campuses in the United Kingdom.

For further information please contact:

Prof. A. Evans,

School of Physical and Geographical Sciences,

Keele University,

Keele, Staffs., ST5 5BG.

E: [physics@phys.keele.ac.uk](mailto:physics@phys.keele.ac.uk)

T: 01782-583527

F: 01782-712378



KEELE  
UNIVERSITY



## University of Hull

Cottingham Road, Hull, East Yorkshire HU6 7RX

Main Sites: 2 Full Time Undergraduates: 9520

% of Undergraduates reading Science and Engineering: 35

Accommodation (% in Hall in 1st year): 90

Department of Physics

Academic Staff: 8

(Tel: 01482-465501)

**Teaching Content & Philosophy:** Lectures, small group tutorials, practical classes which include both individual and group work and presentational skills. Emphasis on training for research and industrial employment through final year research project.

**Special Facilities/Resources:** Modern undergraduate laboratories including lasers, optoelectronics, electronics, acoustics, materials experiments and a computer suite. Well equipped research laboratories for characterisation of organo-photonics and semi-conductor materials and devices and laser development and applications. Well stocked departmental library for private study.

**Special Features of Courses:** Core courses in physics and applied physics (years one/two) with specialisms in years three and four. A wide range of modules available throughout the University as free electives. All courses have research project as part of final assessment. The final years of the MPhys courses have a strong research orientation. A particular feature of the Applied Physics BSc is that A-level Maths is not mandatory for entry, making this course particularly suitable for the more practically oriented student. A Physics BSc degree incorporating a foundation year is available to allow access for students whose background or qualifications do not permit normal entry.

The programme in Physics with Astrophysics, has the option of spending time at an observatory abroad.

**Transfer between Courses:** Transfer possible between all courses up to the end of second year.

**Further Information:** Admissions Tutor  
email: physics@hull.ac.uk

## University of Kent

The University, Canterbury, Kent CT2 7NZ

Main Sites: 1 Full Time Undergraduates: 11,550

% of Undergraduates reading Science and Engineering: 18

Accommodation (% in Hall in 1st year): 100

School of Physical Sciences

Academic Staff [Physics]: 11

(Tel: 01227-823293, Fax: 01227-827558)

*The School of Physical Sciences is joint first in the country for job prospects in the 2007 Guardian University Guide*

**Teaching Content & Philosophy:** Physics reaches from the quark out to the largest of galaxies: it carries in its grasp all the length, mass and time scales that are encompassed within these extremes. It is no surprise, then, that at the heart of the professional physicist is a fascination with, and a desire to understand, the 'how and why' of the material world around us. It is to this environment of continual discovery that the School of Physical Sciences invites you. A broad spectrum of courses is covered in your degree, starting with core units such as Mathematics and Physics, subsequently progressing into advanced courses such as Wave Mechanics and Quantum Physics and, depending on your particular degree programme, you can choose a number of specialised units including Space, Astronomy and Solar System Science. All our physics degrees are accredited by the Institute of Physics. Our aim is to provide thorough training in a stimulating learning environment, and to equip our graduates to collaborate and compete successfully with their peers throughout their subsequent careers. Our graduates have pursued their success in a variety of fields e.g. in scientific disciplines, manufacturing and service industries, computing, education, the media and the financial sector. □

**Special Features of Courses:** Teaching is via lectures, practical classes, console sessions, tutorials and workshops. We offer three year BSc and four-year MPhys courses such as Astrophysics, Physics, Physics with Space Science and Systems, and two courses on Astronomy, Space Science and Astrophysics and Physics with Forensic Science, all (and more) are listed in the Summary Table. The BSc programme offers a broad training in Physics, where you acquire the numeracy, theoretical and practical problem-solving and communication skills so highly regarded by future employers. In the MPhys programme, core Physics knowledge and skills are enhanced with further in-depth training required for a Physics-based career, including practical aspects of the research process and major projects within the School's research groups. The School of Physical Sciences has top quality research activities in Applied Optics, Forensics, Materials Research and Space Science and Astrophysics. In your final year, the combination of specialist units and an attachment to one of our

research teams will open avenues for even deeper exploration using our cutting edge research facilities. You might find yourself involved in the design of space probe instrumentation, mapping the retina of a patient's eye using fibre optics, taking the Channel Tunnel to Paris for neutron scattering work or doing light gas gun experiments to test whether life could survive meteor impact into planets. For those who do not have the formal entry requirements we offer an 'in-house' Foundation year. We also have exchange programmes with a select group of high-quality US institutions. The MPhys with a Year in the USA allows students to go to North America to spend their third year at USA universities such as the University of California at Santa Barbara, Penn State and Indiana.

**Regulations on Transfer between Courses:** All of the first year is common and this gives you maximum flexibility for transferring between the various specialisms and degrees.

**Special Facilities/Resources:** Students are offered support and guidance through an established tutorial system. We take student's views seriously in the meetings of the Learning and Teaching Committee and the Staff-Student Liaison Committee where students play a vital role in the annual review of teaching programmes. Following investment of £1.8 million in the School of Physical Sciences, we are now located in a newly refurbished building with brand new facilities, within the main University campus. The campus overlooks the beautiful city of Canterbury and its famous cathedral (in which the graduation ceremony takes place), and is within easy reach of London and Europe. Kent not only offers a great location but also first class teaching, fantastic facilities and an excellent social life.

**Further Information:** email: [spsrecruit@kent.ac.uk](mailto:spsrecruit@kent.ac.uk)  
Website: <http://www.kent.ac.uk/physical-sciences>



## Physical Sciences at Kent

**The School of Physical Sciences at Kent offers innovative programmes in Astrophysics & Astronomy, Physics and Space Science.**

- Friendly and supportive department, on a beautiful and vibrant campus close to London and Europe
- First class facilities
- Foundation year and a year abroad available
- Cutting-edge, research-led teaching enhanced by a recent £12.5 million investment
- Graduation in Canterbury Cathedral
- Excellent job prospects



**For further information:**

**T:** 01227 823783    **E:** [spsrecruit@kent.ac.uk](mailto:spsrecruit@kent.ac.uk)  
**W:** [www.kent.ac.uk/physical-sciences](http://www.kent.ac.uk/physical-sciences)

**University of  
Kent** | School of  
Physical Sciences

## Lancaster University

### Lancaster LA1 4YB

**Main Sites:** 1      **Full Time Undergraduates:** 8326  
**% of Undergraduates reading Science and Engineering:** 32  
**Accommodation (% in Hall in 1st year):** 100

**Department of Physics**                      **Academic Staff:** 33  
 (Tel: 01524-593639)

**Teaching Content & Philosophy:** Lancaster is one of the top 5 Physics departments in the UK, with excellence in both research (5\*) and teaching (full confidence). We are a medium-sized, friendly department with a range of 3 and 4 year degree courses which provide a sound basis for careers in scientific disciplines and a wide variety of other professions. Lancaster University is one of the few campus style universities in the UK. It is situated in extensive parkland only 3 km from historic Lancaster city and with easy access to the Lake District. The Department is housed in modern buildings comprising well equipped teaching laboratories, lecture theatres and full computing facilities for undergraduates, including email and internet access. Each of our degree schemes is based on a core of basic classical and modern physics leading to a choice of specialisation in later years. This enables you to tailor your degree scheme to your interests. All students have an academic tutor and are guaranteed accommodation on campus during their first year.

**Special Features of Courses:** We offer 4 year MPhys (& 3 year BSc) Hons degrees with broad specialisation into either Physics, Physics, Astrophysics and Cosmology, Physics with Space Science, Theoretical Physics, Physics with Particle Physics and Cosmology, or Physics with Medical Physics, each with a substantial amount of project work in the final year. There is also an MSci and a BSc in Theoretical Physics with Mathematics. All courses are modular with continuous assessment and timetabled seminars.

We offer a very popular 1-year study abroad option where students can spend their penultimate year studying in the USA or Canada. Lancaster has the best developed North American exchange programme of any UK University with more than 30 co-operating US and Canadian institutions. Either the second or third year may be spent in North America depending on the degree scheme. Considerable flexibility is available in the choice of university and courses are chosen in consultation with a Physics tutor to complement the Lancaster scheme, which is resumed on returning to the final year.

**Special Facilities/Resources:** The Department has leading edge research activities in Low Temperature Physics, Particle Physics, Theoretical Physics, Semiconductor Optoelectronics, and Space Sciences (in conjunction with the Department of Communication). Students benefit from involvement in

research projects associated with these first class research groups. In addition we offer a wide range of optional courses including; Low Temperature Physics, Lasers & Applications, Optoelectronics, Particle Physics, Cosmology, Relativity & Quantum Mechanics. There is also an active student-run Physics Society which newcomers are encouraged to join.

**Regulations on Transfer between Courses:** Flexible system facilitating ease of transfer.

**Further Information:** Dr Iain Bertram  
 (email: [i.bertram@lancaster.ac.uk](mailto:i.bertram@lancaster.ac.uk))  
 Website: <http://www.lancs.ac.uk/depts/physics/admiss>



# Physics at Lancaster

LANCASTER  
UNIVERSITY  
DEPARTMENT  
OF PHYSICS



One of the top UK physics departments with a reputation for high quality teaching (full confidence in the latest review) and outstanding research as one of only 5 departments to achieve the top grade of 5\*.

We offer a range of degree programmes that link with our research specialisms. Key research areas are particle physics, low temperature physics, medical physics, computational modelling, astroparticle cosmology, condensed matter experiment and theory.

- Flexible MPhys (4-year) and BSc (3-year) programmes
- Friendly and committed staff
- Opportunities for study in North America
- Training in transferable skills
- Excellent sports facilities
- Guaranteed on-campus accommodation in year 1
- Easy access to the Lake District



For further information, contact:

Dr Iain Bertram  
Admissions Tutor  
Dept of Physics  
Lancaster University  
Lancaster  
LA1 4YB

tel: 01524 593639  
email: [i.bertram@lancaster.ac.uk](mailto:i.bertram@lancaster.ac.uk)

website: <http://www.lancs.ac.uk/depts/physics>

## University of Leeds

Leeds LS2 9JT

Main Sites: 1 Full Time Undergraduates: 22175  
% of Undergraduates reading Science and Engineering: 38  
Accommodation (% in Hall in 1st year): 87 (100% of those who applied)

School of Physics & Astronomy  
(Tel: 0113-343 3881)

Academic Staff: 35

### The School

At Leeds, we incorporate our world-class research into our excellent teaching in Physics and Astronomy. In fact, we gained both a world-class grade 5A in research and the maximum 24 points for our teaching in government reviews.

### Teaching Content & Philosophy

Our courses present a comprehensive, rounded view of classical, modern and theoretical physics and astrophysics. Study methods range from traditional lectures and tutorials to example classes, student-led seminars and web-based assignments. Experimental physics is learnt through continually assessed lab work where each student has their own apparatus, leading up to a final year research project.

A wide variety of advanced, optional modules allows many topics in physics and astronomy to be studied in greater depth. Students also study core mathematics and computing. Throughout the course, they are trained in skills valued by graduate employers.

### Special Facilities/Resources

A large computer cluster in the School is for the exclusive use of our students, who are also provided with access to e-mail and wireless internet. The physics quiet study-room is located next to the physics coffee bar. Our well equipped teaching labs are supplemented by a scanning probe microscopy suite, two on site computer-controlled optical telescopes with modern CCD detectors and a spectrograph and a 3m radio telescope.

### Special Features of Courses

The School works with small tutorial groups, typically 4 students in year 1, and provides additional support for students from non-traditional backgrounds. There is ample opportunity to choose elective modules that can be selected from the many disciplines on offer at the University of Leeds.

In years 3 and 4, students have a wide choice of advanced modules, linked to the research in the School. This covers many fields in physics, ranging from the very small, studying nanoscale processes and quantum information to the largest scales observed in cosmology. Final year projects are within a research group, where students are involved with an

internationally recognised research team and use state-of-the-art equipment.

There are many possibilities to go abroad for either a semester or a year in Year 3. We have exchange schemes with Universities in France, Germany, Denmark, Spain, Canada and the United States. Students can also choose to spend their third year in industry. An optional Physics in Schools module is available for those who are interested in a future career in teaching.

The University is a 10 minute walk from the vibrant city centre and on the edge of the Yorkshire Dales.

## Regulations on Transfer between Courses

Transfer between degree programmes is normally possible at the end of the first and second years for the 3 year BSc and 4 year MPhys programmes.

**Further Information:** Dr Stella Bradbury, Admissions Tutor  
(email: [physics.admissions@leeds.ac.uk](mailto:physics.admissions@leeds.ac.uk))  
Website: <http://www.leeds.ac.uk/physics/>

workshops. All core teaching in the first year is aligned to a compendium textbook. Mathematics is taught by a self-paced method successfully developed at Leicester. IScience taught by problem-based learning. A year or semester in Europe, US or Australia possible. University Scholarships (£1,000 for all new UK physics students who achieve at least ABB at A level, including AVCE - best 3 A-levels, excluding General Studies - or 36 in the International Baccalaureate); several Institute of Physics scholarships and travel bursaries available.

**Regulations on Transfer between Courses:** Transfers possible as follows: (i) from BSc to MPhys - for the first year, at the discretion of the Department. (ii) from MPhys to BSc - for the first two years. From IScience to Physics, Chemistry, Biology or Earth Sciences after 2 years.

**Further Information:** Dr Graham Wynn  
(email: [physics\\_admissions@le.ac.uk](mailto:physics_admissions@le.ac.uk))  
Website: <http://www.le.ac.uk/physics>

## University of Leicester

University Road, LE1 7RH

Main Sites: 1 Full Time Undergraduates: 7708  
% of Undergraduates reading for Science degrees  
(inc Medicine and Biological Sciences): 48%  
Accommodation (% in Hall in 1st year): 100

Department of Physics & Astronomy Academic Staff: 38  
(Tel: 0116-252 3575)

**Teaching Content & Philosophy:** Six interlinked honours degrees (over 3 years for BSc and 4 years for MPhys) with a common core of classical and modern physics, plus a wide range of specialist options based on established strengths of the Department, in physics, astrophysics, nanoscience, planetary science, space science. Also Integrated Sciences (IScience) BSc and MSci include 1/3 physics (+ Chemistry, Biology and Earth Sciences).

**Special Facilities/Resources:** The Department is a Centre of Excellence for Teaching and Learning (CETL) - it has newly-equipped laboratories with a wide range of experimental and computational projects. State of the art teaching areas and seminar rooms; undergraduate observatories, remote sensing centre, several computer suites for students' use, media suite.

**Special Features of Courses:** Wide choice of material and flexibility of assimilation to suit individual interests and abilities. Teaching by lectures, small group seminars, tutorials, laboratory classes and problem-solving

# Astronomy and Astrophysics

**Liverpool  
John  
Moore's  
University**



'Excellent teaching' from leading researchers at the Astrophysics Research Institute.

World-class equipment and facilities.

Holder of a Queen's Anniversary Prize for outstanding achievements in Higher and Further Education.

Flexible 3-year (BSc) and 4-year (MPhys) degrees programmes 'equal to the best in the UK'.

Key areas include astronomical techniques, stellar astrophysics, relativity and cosmology, galaxies, observational and computational astrophysics, modelling astrophysical phenomena.

All degree programmes include a field trip to the Observatorio del Teide in Tenerife at the end of Year 2 to gain unrivalled practical experience.

Outstanding facilities include:

*Unique access to observations from the World's largest fully robotic telescope - The Liverpool Telescope.*

*City-centre observatory with computer-controlled optical and radio telescopes.*



For further information, contact:

Admissions Tutor  
Astrophysics Research Institute  
Twelve Quays House, Egerton Wharf  
Birkenhead, CH41 1LD

Tel: 0151 231 2909/2941

Email: [admissions@astro.livjm.ac.uk](mailto:admissions@astro.livjm.ac.uk)

[www.astro.livjm.ac.uk](http://www.astro.livjm.ac.uk)

## Liverpool John Moores University

Astrophysics Research Institute, Twelve Quays House, Egerton Wharf, Birkenhead, CH41 1LD  
(email: [admissions@astro.livjm.ac.uk](mailto:admissions@astro.livjm.ac.uk))

**Main Sites:** 4      **Full Time Undergraduates:** 12126  
**% of Undergraduates reading Science and Engineering:** 35  
**Accommodation (% in Hall in 1st year):** 98

**Academic Staff:** 12 Astrophysics/Astronomy  
(Tel: 0151-231 2909/2941)

**Teaching Content & Philosophy:** Our BSc (Hons) Physics with Astronomy, and MPhys Astrophysics degrees are taught in collaboration between Liverpool John Moores University's Astrophysics Research Institute and the Department of Physics at the University of Liverpool. The courses combine the teaching and research excellence of the two departments. In the first year students study mainly physics, mathematics and computing. Astronomy is introduced gradually until by the third or fourth year it forms the majority of the course. Lectures are supported by laboratory work and small group tutorials. The teaching on the courses was awarded the maximum score (24/24) by the QAA.

**Special Facilities/Resources:** The 2-metre robotic Liverpool Telescope is situated on La Palma in the Canary Islands and is controlled from the Astrophysics Research Institute. This is the largest robotic telescope in the world, and regularly observes explosive events (such as supernovae and gamma ray bursts), as well as monitoring stars and galaxies. Data from this telescope will be available during project work in the final year.

Students also have access to the university observatory, equipped with a computer controlled 12-inch telescope for their own observational programmes

**Special Features of Courses:** Students will be trained in the use of computers for data reduction analysis and presentation from an early stage. At the end of the second year there is a week-long field trip to the Observatorio del Teide in Tenerife, where students gain experience of making astronomical measurements at a professional observatory. Students undertake project work during their final year at the Astrophysics Research Institute. Some projects will include data from the Liverpool Telescope or the solar telescope at the Institute.

**Regulations on Transfer between Courses:** There is an opportunity to transfer between different Physics courses throughout the first year and between the BSc (Hons) Physics with Astronomy and MPhys Astrophysics courses at the end of the second year, and vice-versa.

**Further Information:** Dr Andy Newsam  
email: [admissions@astro.livjm.ac.uk](mailto:admissions@astro.livjm.ac.uk)  
Website: <http://www.astro.livjm.ac.uk/>

**Physics Honours Courses @ The University of Liverpool**

The Department of Physics achieved a 24/24 in the Teaching Quality Assessment and offers the following Honours Courses:

<b>Three Year</b>	BSc
Physics	F300
Physics with Astronomy	F3F5
Physics and Mathematics	FG31
Mathematical Physics	F326
Physics with Medical Applications	F350
Physics with New Technology	F352
Physics with Ocean and Climate Studies	F3F7
Geophysics (Physics)	F656
Combined Honours Physics with:	BGCO
Computer Science, Geology, Ocean and Earth Science or Psychology	

**Four Year**

Physics	(MPhys)	F303
Astrophysics	(MPhys)	F521
Theoretical Physics	(MPhys)	F344
Mathematical Physics	(MMath)	FGH1
Physical Sciences, four year route including a foundation year at Carmel College	(BSc)	F308

The Physics research in Particle Physics, Nuclear Physics, Condensed matter, Nanotechnology and Astronomy is all rated as of International quality and offers excellent opportunities for MSc or PhD research.

Please see the departmental website for more information and details of bursaries.

Admissions, Department of Physics      Web: [www.liv.ac.uk/physics](http://www.liv.ac.uk/physics)  
University of Liverpool                      Tel: 0151 7943416  
Liverpool L69 7ZE                              Email: [Physics@liv.ac.uk](mailto:Physics@liv.ac.uk)

**University of Liverpool**

Liverpool, L69 7ZE

Main Sites: 1      Full Time Undergraduates: 8800

% of Undergraduates reading Science and Engineering: 40

Accommodation (% in Hall in 1st year): 100

Department of Physics

Academic Staff: 30

(Tel: 0151-794 3416)

**Top Quality Teaching and Research:** The Department achieved the maximum 24/24 in the Teaching Quality Assessment, and Grade 5 in the Research Assessment Exercise, and this corresponds to "international excellence".

**Teaching Content & Philosophy:** The first year has a core of basic physics and leads to greater specialisation in subsequent years. There is considerable choice of optional courses in the second and third years.

**Special Facilities/Resources:** There is emphasis on the use of computing facilities, with access to the University system from the first year onwards. Computer-based data analysis is an integral part of the practical work.

**Special Features of Courses:** Small tutorial classes enhance student learning in each year. The Physics MPhys includes a 3-month fully-funded project overseas.

**Regulations on Transfer between Courses:** Considerable flexibility for transfer between courses on successful completion of the first or second year. Transfer between the BSc and MPhys is possible during the first two years.

**Further Information:** Dr David Hutchcroft (email: [DHcroft@liv.ac.uk](mailto:DHcroft@liv.ac.uk))



## Imperial College London

The Blackett Laboratory, Prince Consort Road,  
London SW7 2AZ

Main Sites: 1      Full Time Undergraduates: 8500

Physics Undergraduates: 700

Accommodation (% in Hall in 1st year): 100%

Department of Physics      Academic Staff: 100

(Tel: 020 7594 7513)

**Teaching Content & Philosophy:** The courses cover both the fundamental aspects of physics and its modern applications. Special emphasis is given to research results and to preparing students for international careers. The first two years concentrate on providing a strong foundation in modern and classical physics, mathematics and experimental techniques but include some options. Years three and four complete core physics but are largely devoted to a wide range of advanced physics and mathematical options plus a major research project. Options are also available in humanities and management. Students can choose to emphasise mathematics and theoretical physics or to emphasise experimental physics or to choose a balanced mixture.

**Special Facilities/Resources:** Wide range of research facilities available for use in student projects. Almost all areas of current physics research covered in options. Extensive computing facilities including large cluster of PCs.

**Special Feature of Courses:** Wide range of 26 advanced options plus 19 Humanities/Management options. Small group tutorials and a wide range of opportunities for individual help. Joint course available with the adjacent Royal College of Music "Physics with Studies in Musical Performance" and also a course with a year spent at a top university in another European country (France, Germany, Italy, Spain, Switzerland). The whole degree programme benefits from our very strong international, particularly European, connections which results in wide recognition.

**Regulations on Transfer between Courses:** Flexible system of transfers between courses.

**Further Information:** Professor Gareth Parry  
(email: [ph.admissions@imperial.ac.uk](mailto:ph.admissions@imperial.ac.uk))  
<http://www.imperial.ac.uk>

## University of London: King's College London

Strand, London WC2R 2LS

Main Sites: 4      Full Time Undergraduates: 13,700

% of Undergraduates reading Science and Engineering: 15

Accommodation (% in Hall in 1st year): 100

Department of Physics

Academic Staff: 18

(Tel: 020 7848 2155)

**Teaching Content & Philosophy:** A sound training in the fundamentals of physics together with the flexibility to accommodate various interests. The course structure, as well as the course contents, have been completely revised in view of changes introduced in schools.

**Special Facilities/Resources:** Special facilities for advanced training in astrophysics, x-ray microscopy, nanotechnology, biological physics, solid state physics, optical physics, semi-conductors, spectroscopy, theoretical physics and medical physics. Fourth year MSci students choose from a broad inter-collegiate course. Physics students have their own dedicated computer facilities.

**Special Features of Courses:** All degree options provide a 'core' physics with a variety of optional courses to meet various interests from astrophysics to computing and business management. The course unit system provides the necessary flexibility for this.

**Regulations on Transfer between Courses:** There are no administrative difficulties in such transfers provided academic requirements can be satisfied.

**Further Information:** Undergraduate Admissions Secretary  
email: [physics-secretary@kcl.ac.uk](mailto:physics-secretary@kcl.ac.uk)  
Website: <http://www.kcl.ac.uk/physics>

## Physics at King's

- A long history of excellence in teaching and research
- Three-year BSc and four-year MSci degree programmes with flexibility and choice provided by a modular system – a considerable range of fourth year courses offered
- Extensive and innovative third and fourth year project work
- A friendly, caring department with a small-group tutorial system
- Situated in the heart of London – convenient for many major attractions

### **MSci** *Master in Science*

Physics

Mathematics and Physics

### **BSc** *Single Honours*

Physics

Physics with Astrophysics

Physics with Computer Science

Physics with a Year Abroad

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Mathematics and Physics

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A postgraduate one year taught MRes in Physics at the Nanoscale

Opportunities for postgraduate research leading to MPhil and PhD degrees in biological physics, astrophysics, nanotechnology, solid state physics, optical microscopy, ab initio modelling, theoretical physics and x-ray physics

### *Contact us for prospectuses about the Physics Department:*

Admissions Secretary:

Undergraduate Admissions Tutor:

Postgraduate Admissions Tutor:

Fax: 020 7848 2420

WWW pages: <http://www.kcl.ac.uk/physics>

Postal address: Physics Department, King's College London, Strand, London WC2R 2LS

Dr Mark Green

Dr Jean Alexandre:

tel: 020 7848 2155, email: [physics-secretary@kcl.ac.uk](mailto:physics-secretary@kcl.ac.uk)

tel: 020 7848 2121, email: [mark.a.green@kcl.ac.uk](mailto:mark.a.green@kcl.ac.uk)

tel: 020 7848 2429, email: [jean.alexandre@kcl.ac.uk](mailto:jean.alexandre@kcl.ac.uk)

*Equality of opportunity is College policy*

# QUEEN MARY, UNIVERSITY OF LONDON

## Department of Physics

3 year BSc Honours\* and  
4 year MSci Degree Courses in:

- Physics • Astronomy • Astrophysics
- Theoretical Physics • Natural Sciences
- Physics with Study Abroad
- Nanoscience and Nanotechnology

and physics combined with a range of subjects including:

- Finance • Computing

\* a 4-year course with a foundation year is available to candidates lacking A-levels in Physics and/or Mathematics.

Our modular degree allows great flexibility, enabling easy transfers between UCAS codes during your studies.

Queen Mary is internationally recognised for research in:

- High Energy Physics • Astronomy
- Theoretical Physics • Astrophysics
- Molecular & Materials Physics

Dr Mark Baxendale (Admissions Tutor)  
Department of Physics  
Queen Mary, University of London  
Mile End Road, London E1 4NS  
020 7882 5030 (24 hours)  
aurora@qmul.ac.uk

[www.ph.qmul.ac.uk](http://www.ph.qmul.ac.uk)



## University of London: Queen Mary

Mile End Road, London E1 4NS

Main Sites: 1      Full Time Undergraduates: 7800

% of Undergraduates reading Science and Engineering: 33

Accommodation (% in Hall in 1st year): 100

Department of Physics

Academic Staff: 25

(Tel:020-7882 5030, Fax: 020-8981 9465)

**Teaching Content & Philosophy:** We have designed all our course programs to provide a sound foundation in the basic physics core as a launching point for the introduction of modern developments in astronomy and pure and applied physics, which make our courses both exciting and relevant to your future career. Special attention is paid to integrating into our courses the teaching of career-enhancing skills in IT and computing, writing, working in groups and verbal communication. In-built flexibility enables students to choose courses that suit their own developing interests from a range of options both within and outside the Physics Department.

**Special Facilities/Resources:** Well-equipped undergraduate laboratories with advanced computing facilities; new library adjacent to Physics Department. The Department's strong research base provides advanced facilities in elementary particle physics, nanotechnology and solid state physics which are also used by undergraduates, especially for final-year projects where students work in one of our research groups.

**Special Features of Courses:** Our modular course-unit system, based on more than 30 years' experience, allows students to tailor their own study programme within and even outside the programmes listed in this book. Manageable class sizes enable us to carry out small group teaching and to use flexible learning and teaching techniques, such as self study, problem solving and project work, in addition to lectures and tutorials. Most courses are assessed by a combination of course work and written examination. 4th year of the MSci draws from many options taught in collaboration with other Colleges of London University. A Science and Engineering Foundation Programme is available as a 3 + 1 year BSc course for students lacking appropriate Maths and Physics entry qualifications. We also offer a more broadly based course in natural sciences and computer-based programmes – see our website.

**Regulations on Transfer between Courses:** Transfers are possible between all course programmes during the first year and between most until commencement of the third year.

**Further Information:** Dr Eram Rizvi (Admissions Tutor)  
e-mail: [aurora@qmul.ac.uk](mailto:aurora@qmul.ac.uk)  
Website: <http://www.ph.qmul.ac.uk>

## University of London: University College London

Gower Street, London WC1E 6BT

Main Sites: 1 Full Time Undergraduates: 11000

% of Undergraduates reading Science and Engineering: 40

Accommodation (% in Hall in 1st year): 100

Department of Physics & Astronomy Academic Staff: 60  
(Tel: 020 7679 7246)

**Teaching Content & Philosophy:** The courses aim to provide a flexible education both for those graduates planning careers in science, and those entering some other field, by studying in depth a subject which provides insights into the universe in which we live. All courses are built around the IOP core and most are available either as a 3 year BSc or a 4 year MSci.

**Special Facilities/Resources:** The Department's extensive research interests in both physics and astronomy provide a wide range of topics for final year projects: research groups include Atomic, Molecular, Optical and Positron Physics; Condensed Matter and Materials Physics (including the new London Centre for Nanotechnology); High Energy Physics; Astronomy, Astrophysics and Atmospheric Physics. Astronomy students use a superbly equipped and recently refurbished Observatory with two 24" and several smaller telescopes. Students have access to the expertise of the Mullard Space Science Laboratory; Physics with Medical Physics students to the large UC Medical Physics group. All students are provided with access to e-mail and the internet, and are welcome to join the active student-run Physics Society.

**Special Features of Courses:** Modular course unit system permits great flexibility; small-group tutorials; problem-solving classes; emphasis on project and group project work, particularly in the third and fourth years; astronomy field trip to professional observatory; fully integrated communications skills programme. Fourth-year MSci options from a wide-ranging programme taught in collaboration with other London Colleges

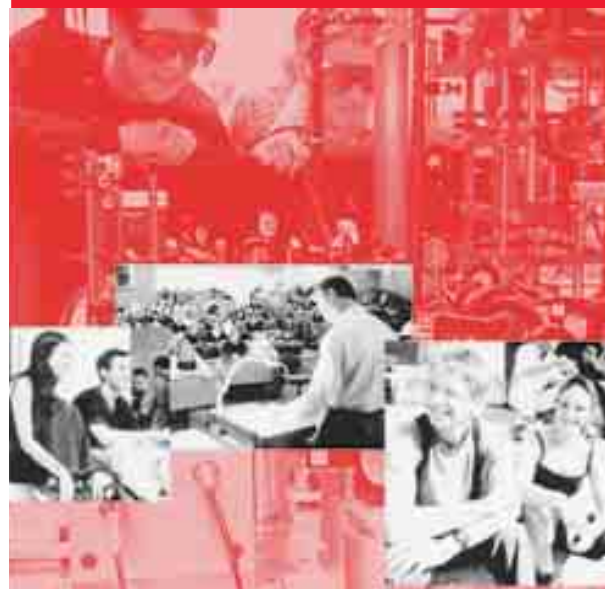
**Regulations on Transfer between Courses:** : Transfers are possible between all courses during the first year and between many courses during the second and third years.

**Further Information:** Miss Trea Saint  
(email: [t.saint@ucl.ac.uk](mailto:t.saint@ucl.ac.uk))  
Website: <http://www.phys.ucl.ac.uk>  
Tel: 020 7679 7246



University College London

## Physics and Astronomy



### BSc (3 year) and MSci degree courses in:-

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- Astronomy • Medical Physics

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**1st** to admit students regardless of race, class and religion

**1st** to admit women students on equal terms with men

For more information and contact details see the main UCL listing or [www.phys.ucl.ac.uk/admissions](http://www.phys.ucl.ac.uk/admissions)

# Physics for the 21st Century



The Department of Physics at Royal Holloway is internationally recognised for teaching and research excellence in a wide range of areas including: nanophysics and nanotechnology, quantum matter, high-energy and particle physics, superconducting/superfluid physics, experimental quantum computing and theoretical physics.

- 4 year MSci and 3 year BSc Honours degrees, including Physics, Astrophysics; Physics with minor subjects such as Philosophy and Music; Joint Honours programmes such as Physics with Mathematics or Computer Science
- Beautiful 135 acre parkland campus near Windsor, 40 minutes by train from central London
- State-of-the-art teaching and research facilities with high quality campus based student accommodation

Royal Holloway has pioneered teaching and research in Physics since the 1880s.

For further information, please call 01784 443448 or email [physics@rhul.ac.uk](mailto:physics@rhul.ac.uk)



Royal Holloway  
University of London

[www.rhul.ac.uk/Physics/](http://www.rhul.ac.uk/Physics/)



## University of London: Royal Holloway

Egham Hill, Egham, Surrey TW20 0EX

Main Sites: 1      Full Time Undergraduates: 6300  
% of Undergraduates reading Science and Engineering: 30  
Accommodation (% in Hall in 1st year): 100

Department of Physics      Academic Staff: 24  
(Tel: 01784-443448)

**Teaching Content & Philosophy:** We provide traditional high quality teaching within a modern context, such that the study of Physics is fun, enjoyable and deeply satisfying. We aim to develop flexible and analytical thinking, transferable skills and deep conceptual understanding. The first two years provide a sound foundation in core physics. In later years you may choose from a range of options and longer projects. The MSci 4th Year is taught in collaboration with other University of London Colleges providing an exceptional range of options. Known for our research quality, we aim to keep an excellent staff-student ratio. This allows an informal atmosphere within the department, an open-door approach and an emphasis on individual attention and small group teaching. Teaching proceeds mostly through lectures, tutorials, problem solving classes and laboratory work. The MSci Physics degree (F303) is the most popular degree programme and the range of programmes allows for other subjects, such as Music and Philosophy to be studied.

**Special Facilities/Resources:** Our modern teaching laboratories are well equipped with extensive computing facilities and a campus-wide network of open access computing. A rooftop astronomical observatory is dedicated to teaching. Final year projects are usually embedded within the research groups, providing the best possible training and access to state-of-the-art equipment. Extensive nanophysics, quantum matter, particle and high-energy physics, cryogenic (superfluid and superconductor) and other experimental facilities provide emphasis in our teaching. The Bedford Library and Student Union are < 50 m from the Department and the Halls of Residence are a short walk away. The heart of the department is the common room where staff and students mingle informally for tea and study.

**Special Features of Courses:** The degree programmes are based on a modular system, permitting great flexibility. Students normally acquire eight half-course units per year. Up to two half-course units may be taken in non-physics subjects where the timetable allows. RHUL operates an extensive student exchange programme with Universities across the world, including Europe, North America and the Far East. These exchange programmes are applied for after admission.

**Regulations on Transfer between Courses:** We admit to all courses on the same basis and maintain flexibility to transfer between courses insofar as appropriate options and prerequisites allow. The final choice between MSci and BSc programmes is usually taken by the end of the 2nd year.

**Further Information:** Dr Phil Meeson  
Admissions Tutor  
01784-443448 or [physics@rhul.ac.uk](mailto:physics@rhul.ac.uk)  
Website: [www.rhul.ac.uk/physics](http://www.rhul.ac.uk/physics)

## Loughborough University

Loughborough LE11 3TU

Main Sites: 1      Full Time Undergraduates: 8700  
 % of Undergraduates reading Science and Engineering: 50  
 Accommodation (% in Hall in 1st year): 100

Department of Physics      Academic Staff: 20  
 (Tel: 01509-223306)

We were awarded 23 out of 24 in the 1999 QAA Review of Physics and Astronomy Teaching. The National Student Survey (2005) rated Physical Science at Loughborough the best in the country.

**Teaching Content & Philosophy:** The Department's programmes aim to teach physics both as a fascinating subject worthy of study for its own sake, and as a training for employment in industry and academic research. To this end, most programmes give students the option (taken by 40% of students) of a year of paid employment in industry in the UK or abroad, and this is perhaps partly responsible for the high employment rate of our graduates. The MPhys Physics programme includes a 60 credit (50% of years credits) experimental or theoretical research project which may be performed at Loughborough or at an outside research institution or employer.

**Special Facilities/Resources:** Project work allows students to become involved in the Department's experimental and theoretical research, which is mainly focussed in quantum physics, solid-state physics and in applied physics. The University's library and computing facilities are particularly good as are the student accommodation, the sporting facilities and the attractive campus.

**Special Features of Programmes:** The Engineering Physics programme allows students to spend most of the final year in one of several engineering disciplines, making use of one of the strongest engineering faculties in the UK. The Sports Science and Physics programme may be particularly attractive to those considering a career in teaching. All programmes permit students to take a year in industry or study abroad. A one-year programme Physics with a Foundation Year allows entry for applicants with non-standard qualifications.

**Regulations on Transfer between Programmes:** Most programmes include transfer possibilities at the end of the 1st year, depending on options chosen. Transfer between Physics and Engineering Physics is possible up to the end of the 2nd year. A portfolio of Bursaries and Scholarships are available.

**Further Information:** Mrs M McKenzie  
 (01509-223343 or [Physics@lboro.ac.uk](mailto:Physics@lboro.ac.uk))  
 Website: <http://www.lboro.ac.uk/departments/ph>

## The University of Manchester

Manchester M13 9PL

Main Sites: 1      Full Time Undergraduates: 26500  
 % of Undergraduates reading Science and Engineering: 40  
 Accommodation (% in Hall in 1st year): 100

School of Physics & Astronomy      Academic Staff: 80  
 (Tel: 0161-275 4210)

**The Department:** The School of Physics and Astronomy at The University of Manchester, which includes the Jodrell Bank Observatory, is one of the UK's largest, with over 700 students. The School, which has just had a major £10M refurbishment, and a £60M additional building, has extensive and well-equipped teaching laboratories, a student mechanical workshop, a large library and full computing facilities for undergraduates, including email and internet access. We are a grade 5A research department and were awarded a maximum 24 points in the Teaching Subject Review.

**Degree Programmes:** Many of our different degrees are normally available either as 3-year BSc or 4-year MPhys programmes. For each honours school, the courses are the same for the first two years, with the students choosing between the 3 and 4-year programmes at the start of their third year. Transfer to Honours Physics from any of our other degree programmes can normally be made up to the end of the second year. A limited number of students may spend one year of their course studying at either the University of California or the University of Toronto, or one semester studying at the University of Melbourne or at the Australian National University in Canberra.

**Lecture Courses:** The depth and breadth of the research at Manchester, which covers almost every field of modern physics and astronomy, is reflected in the wide range and the flexibility of our honours degree programmes. The core lectures in modern and classical physics are complemented by a wide range of physics and astronomy option courses and experimental projects. Additional options are available in other subject areas as diverse as modern languages, maths, chemistry, computing, electronics, geology, biophysics, history and philosophy of science, economics and music.

**Tutorials:** Our favourable staff-student ratio allows us to teach in small group tutorials, with first-year students having two tutors, one for physics and the other for mathematics. The tutorials are an essential part of the teaching experience at Manchester, giving students the opportunity to consult closely with the staff and to develop physical intuition together with problem solving and communication skills. We also have a 'Physics Help Service' which offers students one-to-one tuition.

**Departmental Student Societies:** With so many students in the Department, there are plenty of opportunities for sporting and social



events, organised for example by the football, hockey and cricket teams or by the student-run Physical and Musical Societies.

**Further Information:** To obtain a prospectus for our courses, write to Prof Fred Loebinger at the above address or telephone the admissions secretary on 0161-275 4210. We can also be reached by email at [ug-physics@manchester.ac.uk](mailto:ug-physics@manchester.ac.uk), and there are more details about the department and our degree programmes at [www.manchester.ac.uk/physics](http://www.manchester.ac.uk/physics)

## National University of Ireland, Cork

Western Road, Cork, Ireland

Main Sites: 1      Full Time Undergraduates: 9000  
% of Undergraduates reading Science and Engineering: 25  
Accommodation (% in Hall in 1st year): 5

Department of Physics      Academic Staff: 12  
(Tel: 353-21-490-2468      Fax: 353-21-427-6949)

**Teaching Content & Philosophy:** Courses are taught through lectures and laboratory classes supplemented by tutorials, problem-solving sessions and seminars. Laboratory classes vary from classic experiments to open-ended research projects. Fourth year students do a 3-month research project and write a minor thesis.

**Special Facilities/Resources:** Optoelectronics and nonlinear optics laboratory including extensive ultrafast diagnostics, pulsed and CW Ti : sapphire lasers. A laser spectroscopy laboratory based on the tunable vacuum ultraviolet laser, has recently been installed. Major research groups: optoelectronics, laser spectroscopy, nuclear physics, cosmic ray astrophysics, general relativity and gravitation, solid state physics, observational astronomy.

**Special Features of Courses:** A strong emphasis on fundamental physics at the beginning of the BSc degree programme ensures a secure foundation for modern physics later on. Physics majors may choose from a wide range of subsidiary subjects including pure or applied mathematics and computer science.

**Regulations on Transfer between Courses:** Not applicable.

**Further Information:** Professor John McNerney, Head of Department  
Telephone: 353 21 490 2327  
email: [j.mcinerney@ucc.ie](mailto:j.mcinerney@ucc.ie)

## National University of Ireland, Maynooth

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Maynooth, Co. Kildare, Ireland

Main Sites: 1      Full Time Undergraduates: 4600  
 % of Undergraduates reading Science and Engineering: 25  
 Accommodation (% in Hall in 1st year): 10

Department of Experimental Physics    Academic Staff: 8  
 (Tel: 353-1-708 3641)

**Teaching Content & Philosophy:** Lectures, laboratory classes, problem solving tutorials. Students are introduced to a broad range of topics, including astronomy. Honours class sizes are small, and individual and group projects are offered to students in their final year. Computational Physics and interfacing to PC's are emphasised in the curriculum.

**Special Facilities/Resources:** The Department is well stocked with a broad range of modern equipment in new and purpose-built undergraduate and postgraduate laboratories, opened in the summer of 1998. Honours students at 3rd and 4th level have their own group rooms with full computer and study facilities.

**Special Features of Courses:** The programme offers Single Honours in Experimental Physics and in Physics with Astrophysics as well as combined honours in Experimental and Mathematical Physics (or in combination with Biology, Chemistry, Computer Science and Mathematics). The Department has a policy of special emphasis on individual attention at all levels to help the student attain his/her full potential.

**Regulations on Transfer between Courses:** None

**Further Information:** Professor J Anthony Murphy

## Nottingham Trent University

Clifton, Nottingham NG11 8NS

Main Sites: 3      Full Time Undergraduates: 18 000  
 % of Undergraduates reading Science and Technology: 18  
 Accommodation (% in Hall in 1st year): 100

Physics Division      Academic Staff: 20  
 (Tel: 0115 8486656)

**Teaching Content & Philosophy:** Our focus is on developing people as individuals and on providing a flexible range of options to enable you to follow your interests and to study subjects as varied as the big-bang, superconductivity or fingerprint analysis. You will develop core subject knowledge and the skills needed to secure your chosen career. This philosophy places great emphasis on a balanced range of assessments including problem solving and laboratory skills, team working and individual projects. We have an open-door policy so that staff are approachable and accessible.

**Special Facilities/Resources:** Facilities are modern, purpose-built and located on the Clifton campus close to Nottingham's vibrant city-centre. Laboratories are well-equipped with specialist provision for teaching including; 3-D biomechanical motion analysis, electron microscopy, radio-isotope analysis, fingerprint analysis, a crime scene house, a radio-telescope and telescope loan for project use. IT facilities include 24-hour access, we also have an on-campus observatory. All year 1 students, under age 23, selecting us as their first choice are guaranteed University-owned accommodation.

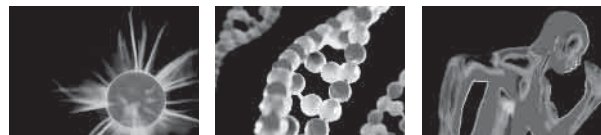
**Special Features of Courses:** MSci/BSc (Hons) Physics has optional specialisms in Astrophysics and Forensic Applications. MSci/BSc (Hons) Quantum & Cosmological Physics is more theoretical whilst BSc (Hons) Technological Physics is more applied and less mathematical. BSc (Hons) Astronomy & Physics is part of a joint honours programme. The Foundation Degree in Physics is a two-year qualification in its own right with options for a one calendar year top-up degree in Technological Physics or entry to year 2 of a BSc (Hons). A sandwich year in industry in the UK or overseas is an option on all BSc (Hons) courses. 97.5% of Nottingham Trent students gain employment within six months of graduating.

Physics at Nottingham Trent was awarded a maximum 24 points in the latest teaching quality assessment by the Quality Assurance Agency and is part of a nationally funded Centre of Excellence in Teaching and Learning for developing effective learning in Science.

**Regulations on Transfer between Courses:** Transfer between BSc (Hons) Physics courses is possible up to the start of year 2 and for the MSci up to the start of year 3.

**Further Information:** Tel: 0115-8486638  
<http://www.ntu.ac.uk/sat>  
 email: [sat.enquiries@ntu.ac.uk](mailto:sat.enquiries@ntu.ac.uk)

NOTTINGHAM<sup>TM</sup>  
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School of Science and Technology

### Physics and Astronomy courses

#### Are you fascinated by the world around you?

Nottingham Trent University offers BSc (Hons) and Masters degree courses in subjects ranging from the large scale of cosmology to the small scale of the quantum world:

- Physics
- Physics and Astrophysics
- Technological Physics
- Quantum and Cosmological Physics
- Astronomy
- Astronomy and Physics
- Forensic Science (Physical)
- Physics with Forensic Applications

All undergraduate courses offer you the option of a year's work placement in the UK or abroad.

Whatever your interest, Nottingham Trent University will help you develop the skills you need to succeed in your chosen career.

The Quality Assurance Agency has awarded Nottingham Trent University the maximum 24 points for its Physics courses.

For further information, please contact us:

Tel: +44(0)115 848 6638

Email: [sat.enquiries@ntu.ac.uk](mailto:sat.enquiries@ntu.ac.uk)

[www.ntu.ac.uk/sat](http://www.ntu.ac.uk/sat)

4179/02/08

# School of Physics & Astronomy



The University of  
Nottingham

[www.nottingham.ac.uk/physics](http://www.nottingham.ac.uk/physics)

**Learn about Physics at the frontiers through project work and a wide range of specialised options. We offer four year MSci and three-year BSc courses in:**

- Physics
- Physics with Astronomy
- Physics with Medical Physics
- Physics with Nanoscience
- Physics with Theoretical Physics
- Physics with Theoretical Astrophysics
- Physics with European Language
- Physics and Philosophy
- Mathematical Physics
- Physics with a Foundation Year

**For further details contact:**

**Email:** [Julie.kenney@nottingham.ac.uk](mailto:Julie.kenney@nottingham.ac.uk)

**Tel:** +44 (0) 115 951 5165

**Web:** [www.nottingham.ac.uk/physics](http://www.nottingham.ac.uk/physics)

## The University of Nottingham

University Park, Nottingham NG7 2RD

Main Sites: 3      Full Time Undergraduates: 20000  
 % of Undergraduates reading Science and Engineering: 37  
 Accommodation (% in Hall in 1st year): 100

School of Physics and Astronomy      Academic Staff: 42  
 (Tel: 0115 951 5165)

**Teaching Content & Philosophy:** All University courses are modularised, allowing students to develop their own interests around prescribed core physics modules. Lectures taught by friendly, approachable staff are supplemented by coursework, laboratory experiments, research projects, and small tutorial groups, which all form part of continuous assessment. Synoptic elements, bringing together the concepts taught in the core physics syllabus, form an important part of the course, and also greatly enhance students' transferable skills. Nottingham graduates are highly sought after in the job market; our university is in the top three targeted by the major employers.

**Special Facilities/Resources:** Students are guaranteed a place in University-regulated accommodation in their first year. Over £52 million has been awarded in the last five years to support world-class research and teaching programmes in astronomy, magnetic resonance imaging (MRI), semiconductor physics, nanotechnology, quantum physics, etc. Advanced courses and projects are offered to undergraduates in these and other areas of expertise. The School's excellence in MRI was further recognised by the award of the 2003 Nobel Prize for Medicine.

**Special Features of Courses:** Computing is taught using the fully integrated MATLAB environment, which enables students to progress from basic programming to sophisticated numerical analysis and the computer control of experiments. Options are available from most faculties, including modules in languages, management skills, music, etc. Various opportunities exist for study overseas as part of the courses offered, including a year in Europe in the Physics with European Language degree, a year at the University of Toronto or a term spent on a physics project in China. Communications and problem solving skills are actively developed in all years. Original research plays an important role in all courses: in the final MSci year, for example, students apply the skills that they have acquired by undertaking a major research project as a professional consultant in either industry or academia.

**Regulations on Transfer between Courses:** Transfer between courses is straightforward as long as appropriate modules have been taken.

**Further Information:** Professor A J Horsewill  
 email: [julie.kenney@nottingham.ac.uk](mailto:julie.kenney@nottingham.ac.uk)  
 Website: <http://www.nottingham.ac.uk/physics/>

## The Open University

Walton Hall, Milton Keynes MK7 6AA

Main Sites: 1 (plus 13 regional offices)  
 Full Time Undergraduates: See below  
 % of Undergraduates reading Science and Engineering: 30  
 Accommodation (% in Hall in 1st year): See below

Department of Physics and Astronomy  
 Academic Staff: 30 (+ hundreds of part-time tutors)  
 (Tel: 01908 653229)

**Teaching Content & Philosophy:** The Open University has no formal academic entrance requirements. By studying appropriate combinations of course modules, students can obtain BSc (Hons) Physical Science. Students can also obtain an honours BSc by combining modules from different subject areas, to match their interests or career objectives. Possibilities include combining physics with computing, electronics, other sciences or a language.

**Special Facilities/Resources:** The University has an open access policy which offers enhanced support and assistance to less well-qualified students. Advice on academic and personal matters is available and special facilities and back-up are provided for disabled students. Students can access our main computer system and various internet facilities.

**Special Features of Courses:** An honours degree requires at least 360 CATS points (typically 10-12 modules). Study is generally undertaken on a part-time basis and typically lasts for 6 years. However, it is possible to complete the degree in a shorter time with a more concentrated study rate. Teaching is conducted through a very wide range of media, including student-active texts, DVDs and the internet. Although students study mainly at home, support and tutorials are provided by local tutors and some modules include a residential school based on experimental work and projects, as well as tutorials and lectures.

**Regulations on Transfer between Courses:** Students are free to choose any combination of course modules, but named degrees require completion of specific combinations. Credit transfer from other institutions is possible.

**General Information:** All Open University undergraduates are regarded as part-time students: there are about 140 000. Accommodation is not provided as Open University undergraduates study at home.

**Further Information:** Dr Joy Manners, Director of Teaching  
 email: [j.manners@open.ac.uk](mailto:j.manners@open.ac.uk)  
 Website:  
<http://www.open.ac.uk/science/physics/home.php>

## Oxford University

Clarendon Laboratory, Parks Road, Oxford OX1 3PU

Main Sites: 1 Full Time Undergraduates: 11000

% of Undergraduates reading Science and Engineering: 42

Accommodation (% in Hall in 1st year): 100

Department of Physics

Academic Staff: 75

(Tel: 01865-272200)

**Teaching Content & Philosophy:** The Department places a strong emphasis on the provision of a broad and sound training in the fundamentals of physics. Equal importance is attached to developing physical understanding and analytical skills. Our courses are regularly reviewed and modernised to remain in touch with current research frontiers. A particular feature of the course is the provision of regular tutorials in the Colleges, usually given by a senior staff member to one or two undergraduates. Lectures and practical work are organised by the Department.

**Special Facilities/Resources:** The Department offers new teaching laboratories which include substantial computing facilities. Extensive library resources exist both within the University and in the Colleges. There are opportunities for work in the vacation with research groups.

**Special Features of Courses:** Both the three- and four-year courses provide an excellent training in physics. The four-year course offers more advanced subjects in the final year, at a level appropriate to those intending to do research. Project work with a research group gives experience of solving real problems, and may result in publication in a scientific journal. An option involving language training is available. The Physics and Philosophy course covers the more theoretically based aspects of physics.

**Regulations on Transfer between Courses:** It is possible to change to Earth Sciences or Materials Science at the end of the first year. In suitable cases, transfer may be permitted to the degree of Physics and Philosophy. Other transfers are decided individually.

**Further Information:** The Physics Teaching Faculty,  
Clarendon Laboratory  
Website: <http://www.physics.ox.ac.uk/>



**UNIVERSITY OF OXFORD**

Undergraduate and Postgraduate degree courses at one of the largest Physics Departments in the UK, with 5\* rating for Physics Research.

Advanced undergraduate options and postgraduate research are in the following broad areas:

- astrophysics
- atmospheric physics
- atomic physics
- modern optics and laser physics
- condensed matter physics
- nuclear and particle physics
- theoretical physics
- biological physics

A joint degree course in Physics and Philosophy is also available

Details are available from:  
Physics Teaching Faculty  
Clarendon Laboratory  
Parks Road, Oxford, OX1 3PU  
tel: 01865 272200  
email: [enquiries@physics.ox.ac.uk](mailto:enquiries@physics.ox.ac.uk)  
<http://www.physics.ox.ac.uk/>

Undergraduate and Postgraduate courses in Physics





#### Degree courses in:

Physics  
Physics with Astrophysics  
Theoretical Physics  
Applied Maths and Physics  
Computer Science with Physics  
Physics with extended studies in Europe

are available at Department of Physics and Astronomy, which has been awarded excellent grades for teaching (excellent) and research (5)

#### Postgraduate PhD places and advanced undergraduate work are in the areas of

Atomic and molecular physics  
Plasma and laser interaction physics  
Astronomy and planetary science  
Nanostructured media  
Atomistic simulation

#### Further information from:

Dr Tom Field  
Department of Physics and Astronomy  
Queen's University Belfast  
Belfast BT7 1NN  
[www.physics.qub.ac.uk](http://www.physics.qub.ac.uk)

## The Queen's University of Belfast

Belfast BT7 1NN

Main Sites: 1 Full Time Undergraduates: 7200  
% of Undergraduates reading Science and Engineering: 38  
Accommodation (% in Hall in 1st year): 70

Department of Physics and Astronomy

Academic Staff: 31

(Tel: 028 9097 3941)

**Teaching Content & Philosophy:** Students may choose from a range of degree courses designed to meet the skills and scholarship needs, and to facilitate the career aspirations of most physics graduates. Our courses also exploit the academic strengths and skills of staff across the breadth of the School of Maths and Physics. Computing and transferable skills are taught as integral components of all physics courses and are also available as specialist options. Teaching methods comprise lectures, laboratories, tutorials and problem/analysis classes; these initially provide a broad introduction to fundamental aspects of Physics and subsequently, in final years, facilitate a critical and in-depth study of many of its modern developments.

**Special Facilities/Resources:** Extensive PC facilities are available to students. Where possible, final year students are assigned to join one of our active research groups so as to perfect their laboratory skills and taste the flavour of postgraduate work. For relaxation, students have a choice of several superb local sporting facilities, or they may indulge themselves in the vibrant university environment of theatres, pubs and bistros. 70% of first year students (nearly all the student from outside the Belfast area) are accommodated in Halls.

**Special Features of Courses:** Students are taught in small groups and special student needs are therefore more easily identified and readily catered for. In addition to defined core material, specialist options are available which reflect the extensive research (grade 5) interests of the Department.

**Regulations on Transfer between Courses:** The modular structure allows students to leave decisions on degree options until the end of year one. In-course transfer between BSc and MSci degree courses is possible, if other attendant conditions are met. Entry is to the Faculty of Science, and is into level 1 for a 3 year honours BSc or a 4 year honours MSci degree.

**Further Information:** Dr Tom Field  
(email: [physics@qub.ac.uk](mailto:physics@qub.ac.uk))  
or [www.physics.qub.ac.uk](http://www.physics.qub.ac.uk)



## University of St Andrews

North Haugh, St Andrews, Fife KY16 9SS

Main Sites: 1 Full Time Undergraduates: 5408  
% of Undergraduates reading Science and Engineering: 34  
Accommodation (% in Hall in 1st year): 100

School of Physics and Astronomy Academic Staff: 30  
(Tel: 01334-463103)


This modern School of Physics and Astronomy is part of the ancient and well-respected University of St Andrews, which is Scotland's first university. Choice and flexibility are features of the BSc and MPhys honours degree programme. Well qualified entrants can choose to enter in year-two and complete an honours Bsc degree in three years or an MPhys degree in four. Those entering directly from Highers and those wishing to take advantage of the traditional broad Scottish first year may enter at year-one.

We aim to stimulate our students' interest in their subjects and to develop a thorough understanding of physics (and where appropriate astronomy). This is aided by relatively small class sizes, and weekly tutorials which from year-two onwards consist of only four or five students with a tutor. Lectures develop both the pure and applied aspects of physics, building up from the introductory lectures in year-one to the modules in the final years which prepare students to appreciate the research literature. Appropriate laboratory work illuminates and extends the understanding of topics covered in lectures, as well as developing important practical skills. Problem solving and communication skills are actively developed.

The most recent teaching quality assessment exercise rated our physics teaching as "excellent", the highest category. The same report commented on the "outstanding environment" in which we teach. The University observatory has, amongst other telescopes, the largest operational optical telescope in the British Isles. This is used in student astrophysics projects, and all students can make use of the observatory. There is substantial provision of networked computers for student use on site, and the teaching laboratories are well equipped.

St Andrews is a University town of only 16,000 people, located in a beautiful location on the Fife coast. Students coming from across the UK and further afield form a major part of the community, and student-organised activities abound. Students are admitted to the faculty of science, and by appropriate choice of modules they can postpone their choice of degree subject (within or outside this School) until the start of the year-three.

With 30 teaching staff the School is large enough to provide comprehensive coverage at undergraduate level. With another 80




**Physics & Astronomy at  
St Andrews**  
*Scotland's First University*

Flexible course provision in theoretical physics, astrophysics, physics and photonics.

*"Excellent" physics teaching*  
*"Outstanding" facilities, including the largest operational optical telescope in the UK.*  
*Beautiful university town on the Fife coast, also the "Home of Golf"*

**For further information, contact:**  
Dr Bruce Sinclair,  
01334 463103,  
[physics@st-andrews.ac.uk](mailto:physics@st-andrews.ac.uk),  
[www.st-andrews.ac.uk/physics](http://www.st-andrews.ac.uk/physics)



**University of St Andrews  
Physics & Astronomy**



research staff and students it is lively enough to produce internationally recognised (Grade 5 in RAE) research in astronomy and astrophysics, laser physics and technology, optoelectronics, magnetism and superconductivity, terahertz technologies and quantum theory. Yet the School remains small enough that students and staff can interact closely. Students comment on the enthusiastic and student-friendly nature of the teaching-staff. The final year projects carried out individually by all students are normally undertaken with one of the research groups under the supervision of a member of the teaching staff. The active researchers bring their particular expertise to their teaching, with specialist degrees being offered in the areas of astrophysics, photonics and theoretical physics. Exchange links allow the third year to be spent at certain universities in Canada or the USA.

**Further Information:** Dr Bruce Sinclair  
(email: [physics@st-andrews.ac.uk](mailto:physics@st-andrews.ac.uk))

## University of Salford

Joule Physics Laboratory, Salford, M5 4WT

Main Sites: 1 Full Time Undergraduates: 14829

% of Undergraduates reading Science and Engineering: 15

Accommodation (% in Hall in 1st year): All who want it

Joule Physics Laboratory  
(Tel: 0161-295 5670/3223)

Academic Staff: 17

**Teaching Content & Philosophy:** The objective of the Joule Physics Laboratory, which is within the School of Computing, Science and Engineering, is to offer degree programmes that combine the excitement and rigour of fundamental physics with the particular skills needed by the teaching, business and industrial sectors. We have a long tradition of links with Industry through research collaborations and through the organisation of industrial "years out" - for those students choosing this option. Our excellent outside contacts are reflected in the fine record for graduate employment. It is also reflected in our ability to give Joule Scholarships to many applicants.

**Other information:** The Laboratory scored 23 out of 24 points in QAA and its research has a RAE grade of 4.

**North America:** The option is available to spend the third year of the MPhys degree at one of the several North American Universities in the USA and Canada.

**Special Facilities /Resources:** We have a well equipped PC laboratory where programming and use of software packages are taught and where physics and mathematics understanding are backed up by means of computer-aided learning packages, many developed in the Joule Physics Laboratory. We are also commended for being able to offer extensive research projects in the final year involving the latest research facilities and, where appropriate, relevant to the specialised courses being taken. A special feature is our Space Technology Laboratory, led by the well-known Steve Bennett ([www.starchaser.co.uk](http://www.starchaser.co.uk)).

**Special Features of Courses:** We teach all BSc and MPhys programmes in a modular format. All courses can be integrated with professional practice that is separately certificated. There is a major, open-ended project in the final year with specialisation in optics, laser and space technology, computational physics, magnetism, acoustics, environmental physics or other areas if you have a special request.

**Regulations on Transfer between Courses:** For Physics students, choice of modules is from a menu of options. Students can transfer to other options at various stages. A change between MPhys and BSc courses of study is also possible.

**Further Information:** Dr Neil Boag (Tel: 0161 295 5239 or 3070  
Email: [n.m.boag@salford.ac.uk](mailto:n.m.boag@salford.ac.uk)  
Website: <http://www.salford.ac.uk>)

# STUDY PHYSICS *at* Salford

## BSc and MPhys Degrees

**Honours in Physics.**

**Honours in Physics with Space Technology.**

**Honours in Physics with Acoustics.**

**Honours in Physics with Additional Studies in North America.**

**Honours in Physics with Aviation Studies.**

**Honours in Physics with Pilot Studies.**

**Honours in Physics with a Foundation Year.**

**Honours in Pure & Applied Physics.**

It is the technologically orientated physicist who competes most effectively for leadership roles in modern industry. Study Physics at Salford and this puts you into one of the most popular Physics departments in the UK. It is not only a high technology area but one which is dedicated to education for capability. Our undergraduate BSc degree programmes may be taken either as three-year programmes or as four year integrated programmes with one year of professional practice based in industry, research or commerce. All undergraduate programmes provide a significant amount of information technology and computing and a final-year project often associated with the University's physics research interests. The MPhys degrees provide a more advanced fourth year with a substantial open-ended research project. There is also an option of studying for a year in North America.



A GREATER Manchester University  
Help every step of the way

The degrees Physics with Aviation Studies and Physics with Pilot Studies cater for those with an interest in flying, possibly as a career. The Foundation Year provides access to a high quality Physics degree programme for those who, for one reason or another, lack the conventional A-levels. Moreover, our Pure & Applied Physics degree is specifically designed for those that have underachieved in mathematics but who still wish to take a standard length physics degree programme. A broad range of additional maths support is also available for widening participation to those with only AS level mathematics.

## MSc degrees

### Master of Enterprise (Technology)

Some financial support for students is available.

### Vacuum Engineering and Applications (one year, full-time)

An EPSRC Masters Training Programme with financial support for studentships.

## Research Areas

- ♦ Transmission electron microscopy of radiation damage
- ♦ Photonics of nano-wire array systems & nano electronics
- ♦ Ultra low energy ion implantation & surface modification
- ♦ Smart magnetic materials, thin films & nanotechnology
- ♦ Neutron scattering
- ♦ Photonics theory & simulation
- ♦ Photonic band-gap materials
- ♦ Hydrogen storage materials
- ♦ Materials modelling

**For further information please contact: Dr N. Boag, Joule Physics Laboratory,  
School of Computing, Science and Engineering University of Salford, Salford, M5 4WT.**

**Telephone: 0161 295 5162 or 5239 or 3070**

**Visit our website <http://cse.salford.ac.uk/>**

## University of Sheffield

Hounsfield Road, Sheffield S3 7RH

Main Sites: 2 Full Time Undergraduates: 16826

% of Undergraduates reading Science and Engineering: 39

Accommodation (% in Hall in 1st year): 47

Department of Physics & Astronomy Academic Staff: 32

(Tel: 0114-222 4362

email: [physics.ucas@sheffield.ac.uk](mailto:physics.ucas@sheffield.ac.uk))

**Teaching Content & Philosophy:** Whilst the principal mode of teaching is the traditional lecture, the Sheffield course also emphasises small-group work in weekly tutorials, continuously assessed laboratory work, independent study and extended experimental, theoretical or computational projects.

**Special Facilities/Resources:** The Department has strong research groups in astronomy and astrophysics, particle physics and particle astrophysics, astro-particle theory and cosmology, semiconductor physics and molecular and macromolecular materials. The research groups provide a wide selection of projects for year four MPhys students, and many year three projects also involve work with a research group. As well as our extensive research laboratories, we have well equipped teaching laboratories, a media room for presentations by staff and students, a study room for third and fourth year students, and an IT suite with networked computers. We also have two astronomical laboratories for student use – one, equipped with a 36cm reflecting telescope, is on the roof of the department, the other, in the nearby Peak District, has a 0.6m computer-controlled optical telescope.

**Special Features of Courses:** A wide range of option courses including astronomy, computing science and medical physics, plus the opportunity to spend year 3 of a 4 year course in Europe, North America, Australasia or, for astronomy students, at the astronomical observatory on La Palma in the Canary Islands. Third year astronomy students may also spend a week on Tenerife doing an observational project. Both the BSc and MPhys courses include project work developing skills in research and communication, the extended MPhys project normally involving close collaboration with a research group in the department. Links to departmental research are emphasised throughout the course, and students are encouraged to attend a wide-ranging programme of seminars and colloquia.

**Regulations on Transfer between Courses:** Transfers between single and dual honours are possible up to the end of Year 1 (Year 2 for some programmes); transfer between MPhys and BSc up to the end of Year 2.

**Accommodation:** The University guarantees to make a place available in University owned housing (which will be either Hall of Residence or University self-catering property) to all single first year undergraduates who have firmly accepted an offer of a place at the University by early July.

**Further Information:** Dr Lee Thompson / Mrs Ann Davis



The  
University  
Of  
Sheffield.

Department  
Of  
Physics &  
Astronomy.

# The Achievement Of Excellence.

We offer three-year BSc and four-year MPhys courses in:

- Physics
- Theoretical Physics
- Physics and Astrophysics
- Physics with study in Europe
- Physics with study in North America
- Physics with study in Australasia
- Physics with Medical Physics
- Physics with Computer Science
- Physics with Enterprise Management
- Physics with Philosophy
- Mathematics and Physics
- Mathematics and Astronomy

To find out more email:  
[Physics.UCAS@sheffield.ac.uk](mailto:Physics.UCAS@sheffield.ac.uk)  
Telephone: 0114 222 4362  
or

visit our website at:  
[www.sheffield.ac.uk/physics](http://www.sheffield.ac.uk/physics)



## The School of Physics and Astronomy



**The School was one of only five UK departments to achieve the highest rating of 5\* in the last Research Assessment Exercise.**

- Exceptionally wide range of research interests of staff allows all courses to be taught by international experts.
- Flexible 3 year (BSc) and 4 year (MPhys) degrees offered in:

Particle Physics (with a year abroad)

Physics with Astronomy

Physics with Astronomy (with a year abroad)

Physics with Mathematics

Physics with Nanotechnology

Physics with Photonics

Physics with Space Science

Physics with Foundation Year

- Physics with Astronomy and Space Science courses include a field trip to a professional laboratory in Tenerife.
- Particle Physics (with a year abroad) course includes a year of research spent at CERN in Geneva
- Physics with Astronomy (with a year abroad) course includes a year of research at Harvard in the USA.
- World-Class Teaching Facilities

### Includes:

- Two roof top observatories equipped with high quality telescopes and CCD detectors
- Several computer suites with free access to the internet and e-mail
- State-of-the-art lecture theatres with stereo video equipment
- Modern, purpose-built laboratories with the latest computer controlled equipment
- Specialist photonics laboratory with research-grade laser equipment
- Dedicated physics reading room/ library for independent study.

Enthusiastic Physics Society (Physoc)

Guaranteed Hall accommodation in first year

Excellent campus facilities and a lively student oriented city with good transport links

For further information please visit our website and/or contact:

The Admissions Tutor, School of Physics and Astronomy, University of Southampton, Southampton SO17 1BJ

Tel: (023) 8059 2068 E-mail: [entry@phys.soton.ac.uk](mailto:entry@phys.soton.ac.uk) Web: [www.southampton.ac.uk/phys](http://www.southampton.ac.uk/phys)

## University of Southampton

Southampton SO17 1BJ

Main Sites: 2      Full Time Undergraduates: 12500  
% of Undergraduates reading Science and Engineering: 30  
Accommodation (% in Hall in 1st year): 100

School of Physics and Astronomy      Academic Staff: 50  
(Tel: 023 8059 2068)

**Teaching Content and Philosophy:** The School was one of only five UK departments to achieve the highest rating of 5\* in the last Research Assessment Exercise. Our world class researchers provide high quality, cutting edge and dynamic teaching. Our degree programmes are modular with a wide range of optional courses, all taught by experts in the field. Teaching is based on lectures and student-centred course work, including tutorials and problem classes, lab work, projects, dissertations and seminars. Care is taken to develop skills employers require. Success rates are high, and students go on to a wide range of interesting and rewarding careers.

**Special Facilities/Resources:** The School is situated on the main campus of the University, in close proximity to the library and sporting and social facilities, and 10-15 minutes walk from student residences. Our teaching labs are large and comprehensively equipped, with computers much in evidence. There is a specialist photonics lab equipped with research grade lasers, and also two roof top observatories, each housing a high quality telescope with a CCD detector. Students have access to a dedicated reading room, and also a computer suite with free access to the internet and email. Most final year projects are conducted in research labs alongside professional research staff

**Special Feature of Courses:** Students studying Physics with Astronomy or Space Science have the opportunity to undertake a field trip to the University of Laguna in Tenerife. Top astronomy students can spend their final year doing research work at the Harvard Smithsonian Institute in the US. Particle Physics students can spend their final year undertaking research at CERN in Geneva. Students studying Physics with Photonics benefit from the expertise and facilities of our world famous Optoelectronics Research Centre.

**Regulations on Transfer between courses:** Transfers between BSc and MPhys degrees and from single to joint honours are possible up to the end of the first semester of second year.

**Further Information:** Prof Nick Evans (Admissions Tutor)  
E-mail: [entry@phys.soton.ac.uk](mailto:entry@phys.soton.ac.uk)  
Web: [www.southampton.ac.uk/physics](http://www.southampton.ac.uk/physics)

## University of Strathclyde

John Anderson Building, 107 Rottenrow,  
Glasgow G4 0NG

Main Sites: 2      Full Time Undergraduates: 11000  
% of Undergraduates reading Science and Engineering: 50  
Accommodation (% in Hall in 1st year): 40

Department of Physics      Academic Staff: 33  
(Tel: 0141-548 3378)

**Teaching Content & Philosophy:** The degree courses have a modular structure and each year consists of a mixture of compulsory, optional and elective classes. This provides great flexibility by giving students freedom to pick the selection of classes most suited to their interests and ambitions. The degree programmes are designed to provide a sound knowledge and understanding of the laws and methods of physics and their application to technological and multidisciplinary problems. Core topics are common to all courses and the later years contain a large element of project work. Furthermore, by suitable choice of optional classes a student can opt to specialise in a given area of physics.

**Special Facilities/Resources:** Workshop-based tutorials in first year onwards. There are extensive departmental computing and instrumentation laboratories with topic specific experiments. Final year students undertake projects with research groups in the department in areas such as lasers and optoelectronics, computational non-linear and quantum optics, relativistic electron beams and cyclotron masers, spectroscopy and optical oceanography. Teaching in the department was rated as "Excellent" in the Teaching Quality Assessment.

**Special Features of Courses:** Direct entry to second year of the MPhys degree is possible for students with Advanced Higher qualifications or A-Levels. Students on the MPhys degree can opt to take an industrial placement. In the final two years of the MPhys degree a student can specialise in a given area of physics and graduate with a degree indicating that specialisation. The BSc Physics with Teaching course is a Joint Honours degree which combines a full Physics degree with a professionally recognised teaching qualification. The Mathematics and Physics degree is a Joint Honours degree offered by both the Mathematics and Physics Departments.

**Regulations on Transfer between Courses:** Transfer between BSc degrees is possible up until the start of third year. Transfer from BSc to MPhys is possible up until the start of the second semester of the second year.

**Further Information:** Dr N Langford or Dr R Brown  
([n.langford@phys.strath.ac.uk](mailto:n.langford@phys.strath.ac.uk)  
or [ronal.brown@strath.ac.uk](mailto:ronal.brown@strath.ac.uk)  
or [study@phys.strath.ac.uk](mailto:study@phys.strath.ac.uk)  
Website: <http://phys.strath.ac.uk>)

## University of Surrey

Department of Physics, Guildford, Surrey GU2 7XH

Main Sites: 1 Full Time Undergraduates: 7000

% of Undergraduates reading Science and Engineering: 65

Accommodation (% in Hall in 1st year): 100

Academic Staff: 26

(Tel: 01483 689247; Fax: 01483 686781)

### Study Physics at Surrey because ...

- Our unique MPhys degree will let you do research with the world's top scientists;
- The Surrey Professional Training Year will give you the best possible start in the job market;
- Our range of specialist degree programmes will give you the edge in high-tech fields from brain scanning to launching satellites;
- We are good at teaching physics as well as doing it;
- Our outstanding research will give you access to state of the art facilities;
- We are a friendly department, where students can really talk to their lecturers;
- Our degrees are flexible and you are not 'locked into' the programme you put on your UCAS form.

### Outstanding degree programmes

The Surrey Physics degrees all come in both MPhys and BSc 'flavours' and we offer the following general and specialist programmes:

'Straight Physics': Maximum flexibility maximum choice

Physics with Nuclear Astrophysics: find out why we are all made of stardust!

Physics with Satellite Technology: Surrey Satellite Technology Limited, a University spin-off company, designs and builds satellites on campus

Physics with Finance: Understand why the big banks are hiring 'rocket scientists' in the City

### Bonuses of Campus Life

- First-year students are guaranteed University accommodation.
- Our pleasant campus is only 15 minutes walk from the centre of the historic, cathedral city of Guildford and only 35 minutes by train from the heart of London.
- All student rooms are fitted with a telephone providing free on-campus calls and a voice-mail service.
- All students have 24-hour access to well-equipped computing facilities with free internet access.
- Excellent social facilities with over 120 clubs and societies supported by the Students' Union.

**Further Information:** Dr Paul Stevenson, Admissions Tutor  
(e-mail: [p.stevenson@surrey.ac.uk](mailto:p.stevenson@surrey.ac.uk))  
Website: [www.ph.surrey.ac.uk](http://www.ph.surrey.ac.uk)



## University of Sussex

Brighton BN1 9QH

Main Sites: 1      Full Time Undergraduates: 7,000  
 % of Undergraduates reading Science and Engineering: 34  
 Accommodation (% in Hall in 1st year): 100

Physics and Astronomy Department

Academic Staff: 20 (Tel: 01273 678557)

### Teaching Content & Philosophy:

- Our teaching was rated 'Excellent' in the most recent assessment of teaching quality. Our research was rated internationally excellent in the latest research assessment.
- You will learn through a variety of methods, including workshops, practical laboratory work, lectures and tutorials.
- We offer a huge variety of courses and provide a flexible option scheme allowing you to customise your degree.
- We offer degrees in Physics, Astrophysics and Theoretical Physics and Minors in Astrophysics.

### Facilities and Resources:

- We have well equipped teaching laboratories, an on-campus rooftop observatory and a computer-controlled 0.5m reflecting telescope.
- IT training is integrated into all our courses, and you will have 24 hour access to an extensive range of computing facilities.
- Campus facilities are excellent, and include shops, banks, restaurants and coffee bars, a health centre, dentist, optician and pharmacy. A variety of pubs and bars, a theatre and cinema, art gallery, excellent sporting facilities and numerous clubs and societies mean that you are never stuck for entertainment.

### Special Features:

- Scholarships of £1,000 for students who obtain AA in Maths and Physics at A level and firmly accept our conditional offer.
- The final year of the MPhys degree has a research orientation with most of the courses on specialised topics.
- We offer a four-year BSc programme to students without the usual background in physics and maths. This includes an initial foundation year, and can lead into any of the BSc degrees we offer.
- Students can choose to spend six months studying in an English speaking University in Canada or Sweden.
- The unique Research Placement degrees offer paid summer project work in a world-leading research group.
- Some degree programmes are available for part-time study.

**Further Information:** Dr Kathy Romer  
 01273 678741  
[ug.admissions@physics.sussex.ac.uk](mailto:ug.admissions@physics.sussex.ac.uk)  
[www.sussex.ac.uk/physics](http://www.sussex.ac.uk/physics)

## Swansea University

Singleton Park, Swansea SA2 8PP

Main Sites: 1      Full Time Undergraduates: 7800  
 % of Undergraduates reading Science and Engineering: 33  
 Accommodation (% in Hall in 1st year): 100

Department of Physics

Academic Staff: 20

(Tel: 01792 295849)

### Why choose Swansea Physics?

- Swansea offers internationally recognised research in both theoretical and experimental physics in a small, friendly department
- Excellent Teaching - we received the government's highest grade in the most recent Teaching Quality Assessment (the only Physics Department in Wales receiving this award)
- 5A Research Rating in the UK's Research Assessment Exercise ranking us equal 6th Department in the UK
- Beautiful beach-side location in single campus set between parkland and sea with the Gower Peninsular's surfing beaches and coastal cliff walks a stone's throw away
- Over £5million worth of research grants awarded to Department in last 3 years for antimatter research, nanotechnology, particle physics and supercomputer facilities
- Young, friendly teaching staff ensuring you are taught by approachable lecturers at the forefront of their area of expertise

### Teaching Ethos

- Friendly "small" Department with "open-door" policy
- Since we are a relatively small Department we can offer individual, targeted tuition to students which is not always possible in large department
- We closely supervise our students' projects maximising the learning experience
- Course structure is flexible and modular allowing for transfers between different schemes (e.g. transfer between BSc and MPhys is possible at the start of the 2nd year).

### Key Skills Taught

Our teaching strategy combines a mixture of lecture and laboratory modules with project work, residential trips and tutorials ensuring that the key skills: *Communication; Numeracy; Team Working* and *Problem Solving* are taught making our graduates highly sought-after by employers.

### Degree Schemes

Our courses offer a balance between a command of fundamental concepts together with a wide range of modern applications.

- Our MPhys final project is uniquely dedicated to an entire semester, with no lecture modules being taught, thus giving you the opportunity to concentrate on your project work. The MPhys projects are set within a research group using state-of-the-art equipment.
- The highly successful Foundation Year programme gives those with inappropriate A-levels an opportunity to study and graduate with a BSc degree.
- We offer Physics with a Year Abroad in European or American Universities.
- Our very popular "Physics with ..." schemes reflect the research strengths and expertise of our lecturing staff.

**Additional Features:**

- First-year students who choose Swansea in their UCAS application are guaranteed University accommodation
- Every student room fitted with a telephone, voice mail, internet access and free calls within campus (including to other students rooms!)
- 100 clubs, societies and sporting organisations run by our active Students' Union and Sports Union
- Major new Sports Village including an Olympic 50metre pool (with a 25metre warm-up pool alongside!), brand-new gym (with multiple TV screens), all-weather playing fields, etc.
- 5th cheapest University accommodation in the UK (Sunday Times University Guide)
- An extensive range of Scholarships on offer including University Scholarships for Sporting Excellence (£1,000 p.a.), Excellence Bursaries (£3000), IOP Bursaries (£1000 p.a.), and Departmental Scholarships (£500 p.a.). See [www.swansea.ac.uk/scholarships](http://www.swansea.ac.uk/scholarships)

**To request a brochure, or for any further information contact:**

Dr. Warren Perkins (01792) 602065  
email: [physics@swansea.ac.uk](mailto:physics@swansea.ac.uk)  
Website: <http://www.swansea.ac.uk/physics>

## University of Teesside

Borough Road, Middlesbrough, Cleveland TS1 3BA

Main Sites: 1 Full Time Undergraduates: 8000

% of Undergraduates reading Science and Engineering: 25

Accommodation (% in Hall in 1st year): 90

School of Science and Technology Academic Staff: 82  
(Tel: 01642-218121/342518)

**Teaching Content & Philosophy:** The course comprises modules of scientific fundamentals, instrumentation and applicable legal topics to provide a background for work in calibration, testing, quality assurance, trading standards and measurement for forensic purposes.

**Special Facilities/Resources:** The University has within the School of Science and Technology a wide range of analytical equipment for undertaking specific physical, chemical and biological measurements. In addition, there is expertise in trading standards, metrology and forensic science.

**Special Features of Courses:** Forensic investigation courses combine fundamental science modules with appropriate law modules, with a wide range of applications in areas of forensic science.

**Regulations on Transfer between Courses:** Transfer may be possible to other science courses such as chemistry, microbiology etc., or to engineering courses in instrumentation.

**Further Information:** Dr Andrew Campbell





## University of Dublin Trinity College

Trinity College, founded in 1592, is at the centre of Ireland's vibrant capital city. Physics has been studied in College since 1724.

The School of Physics provides four-year honours degree programmes in: **Physics, Physics and Astronomy, Physics and Computer Simulation, Theoretical Physics, and Physics and Chemistry of Advanced Materials.**

### Features:

Courses accredited by the Institute of Physics.

Final year research project in Dublin, European or US laboratory or observatory.

Several recent winners from school of Institute of Physics undergraduate prizes.

In 2007 CRANN, a new institute for nanoscience, with significant involvement by the School of Physics has opened its state-of-the-art laboratories.

College scholarships and accommodation available.

80 College societies including the Physical Society, and 50 College sports clubs.

The College library – over 4 million volumes.

Opportunities to interact with the school's large research programmes and for postgraduate research, funded by the EU, Science Foundation Ireland, and elsewhere.

### Further information from:

School Administrator, School of Physics, Trinity College, Dublin 2, Ireland.

Telephone: 00353-1-8962019. E-mail: [physics@tcd.ie](mailto:physics@tcd.ie)

<http://www.tcd.ie/Physics/>

### Information on admissions:

Admissions Office, Trinity College, Dublin 2, Ireland.

<http://www.tcd.ie/Admissions/>

## Trinity College, University of Dublin

Dublin 2, Ireland

Main Sites: 1 Full Time Undergraduates: 11000

% of Undergraduates reading Science and Engineering: 30

Accommodation (% in Hall in 1st year): 25

School of Physics

Academic Staff: 28

(Tel: + 353-1-896 2019)

**Teaching Content & Philosophy:** The school offers four year courses leading to degrees in Physics, Physics and Astrophysics, Physics and Computer Simulation, Theoretical Physics, and Physics and Chemistry of Advanced Materials. Structured teaching through lectures, tutorials and laboratory and project work provides a firm grounding in all branches of physics, and brings students into contact with the forefront of international research as practised in the school. About 45 students graduate each year from the school.

**Special Facilities/Resources:** Large and active research groups; areas include surface and interface physics, magnetic materials, molecular electronics, lasers and optoelectronics, foam physics, environmental radiation, nanotechnology, astrophysics, and computational and theoretical physics. The school is closely integrated with an adjoining centre for nanoscience (opened in 2007). It is on a historic city-centre campus, which provides a wide range of student facilities.

**Special Features of Courses:** A broad base first two years; specialist options (including Physics and Astrophysics or Computer Simulation, Physics and Chemistry of Advanced Materials) and project in final year; some projects are undertaken at laboratories/observatories outside Ireland. College scholarships are available.

**Regulations on Transfer between Courses:** Flexible between all courses in first two years (exception: no transfers are allowed into Theoretical Physics) - college tutors give advice.

**Further Information:** The School Administrator  
email: [physics@tcd.ie](mailto:physics@tcd.ie)  
Website: <http://www.tcd.ie/Physics/>

## University of Warwick

Coventry CV4 7AL

Main Sites: 1      Full Time Undergraduates: 11,500  
 % of Undergraduates reading Science and Engineering: 33  
 Accommodation (% in Hall in 1st year): 100

Department of Physics      Academic Staff: 54  
 (Tel: 024 7652 3376)

**Teaching Content & Philosophy:** The main 'Physics' and 'Mathematics and Physics' degrees are designed to offer a broad and flexible education. They lead to a BSc after three years or an MPhys/MMathPhys after four.

**Special Facilities and Resources:** Warwick is strong in research. In their final year students benefit from interaction with the research community when they can undertake a small research project of their own.

**Special Features of Courses:** At Warwick all departments aim to keep as many courses as possible open to students from other disciplines and students are actively encouraged to take outside courses. These help students to see physics in the context of science and education generally.

**Regulations on Transfer between Courses:** Transfers are possible after the first year. In the third term of the first year students register for the three year (BSc) or four year (MPhys or MMathPhys).

**Further Information:** Nicholas d'Ambrumenil  
 Website: <http://go.warwick.ac.uk/physics>

## University of the West of Scotland

High Street, Paisley, Scotland PA1 2BE

Main Sites: 4      Full Time Undergraduates: 6085  
 % of Undergraduates reading Science and Engineering: 33  
 Accommodation (% in Hall in 1st year): 20

School of Engineering and Science  
 Academic Staff: 70  
 (Tel: 0141-848 3630)

**Teaching Content & Philosophy:** Teaching is achieved by approachable, dedicated staff in a friendly atmosphere through a mix of lectures, laboratory classes, computer based learning, and tutorials. First year teaching includes study skills and small group tutorials. The courses cover the full range of physics and its applications. Later years include seminars and extensive project work.

**Special Facilities/Resources:** Physics at UWS has access to a wide range of equipment for use in laboratories and projects. The undergraduate laboratories have recently been relocated adjacent to research labs and refurbished and include access for X-ray Diffraction and Scanning Electron Microscopy. For their projects, undergraduates have access to the three Paisley research groups that are part of the Scottish Universities Physics Alliance. Experimental Nuclear Physics has extensive computing facilities and develops electronics and experimental equipment. The Thin Film Centre has large scale experimental facilities for research into thin film properties and applications. Microscale Sensors has equipment and software for design, fabrication and characterisation of ultrasonic, magnetic and optical devices. These groups also offer opportunities for postgraduate study.

**Special Features of Courses:** There is flexibility of choice between degrees in the School of Engineering and Science. The Physics course has recently been revised to include modern presentations of topics such as nanotechnology, advanced optics, ultrasonics, and medical technologies, taught by specialised staff. The Honours project is emphasised, including opportunities for practical, theoretical and computational work as well as project management. The course on Physics with Medical Technology is run in partnership with the NHS and is the only undergraduate course of its kind in Scotland. Classes are taught by university and NHS staff and project work is carried out in both organisations.

**Regulations on Transfer between Courses:** The first two years are organised within a flexible Science Degrees Scheme, with specialisation in Physics in years 3 and 4.

**Further Information:** Dr Judith Steven-Setchell (0141 848 3630)  
[judith.setchell@uws.ac.uk](mailto:judith.setchell@uws.ac.uk)  
[www.uws.ac.uk](http://www.uws.ac.uk)

## University of York

Heslington, York YO10 5DD

Main Sites: 1 Full Time Undergraduates: 8267  
% of Undergraduates reading Science and Engineering: 36  
Accommodation (% in Hall in 1st year): 100

Department of Physics Academic Staff: 30  
(Tel: 01904-430000/432241)

**Teaching Content & Philosophy:** The aim is to provide a coherently structured, broad-based set of courses, within a modular framework, most of which can be taken as a four year MPhys course. Importance is attached to project work, personal study and communications skills.

**Special Facilities/Resources:** There are excellent facilities for undergraduates, including workshops, computing services, observatory and 3m dish radio telescope. Student exchange schemes (SOCRATES and ERASMUS) exist with German, French and Italian universities. It is possible to spend an additional year in Europe on MPhys courses as an integral part of the course; for BSc courses, the third year is spent abroad. A wide range of research activities, of international standing, are pursued.

**Special Features of Courses:** There is considerable flexibility to change courses during the first year. Transfer between BSc and MPhys courses is normally possible in the first two years. Particular emphasis is put on tutorial teaching in the first two years. A range of options and projects is available in the third year and fourth year (MPhys students). A Foundation Year is available which enables entry to courses without the normal A level (or equivalent) requirements.

**Regulations on Transfer between Courses:** At discretion of the relevant Boards of Studies, applications normally accepted if in good academic standing.

**Further Information:** Dr M I J Probert, Senior Admissions Tutor  
Website: <http://www.york.ac.uk/physics>

## THE UNIVERSITY *of York*

### Department of Physics

The University of York has established a national and international reputation for the quality of its courses and its research. The high quality of the teaching and learning environment was confirmed by the official Subject Review which awarded the Department of Physics the maximum score of 24 points.

### Undergraduate Programmes

Our **BSc degree** programmes aim to provide a thorough grounding in Physics knowledge, scientific principles, and methods combined with communication and problem-solving skills, for a wide variety of careers including research and those which do not necessarily involve physics directly.

Our **MPhys degree** programmes aim to provide a rigorous scientific education which will meet the needs of students who intend to become professional physicists.

**Flexibility** is an important feature of the courses offered at York. Transfer from the MPhys to the BSc programmes can be delayed up to the end of the second year. Furthermore, the first year is common to most of our Physics courses (listed below) allowing you to transfer between these courses any time up to the end of the first year.

Physics	Maths and Physics
Theoretical Physics	Maths with Physics
Physics with Astrophysics	Physics with Philosophy
Physics with Business Management	
Physics with a Foundation Year	

Year in Europe is available with most of these courses.

### Postgraduate Programmes

One year MSc by research, two year MPhil and three year PhD courses available in the following fields:

Plasmas and X-ray Lasers	X-ray Crystallography and Biophysics
Surface Physics	Condensed Matter Theory
Magnetic Materials	Nuclear Physics
Nuclear Astrophysics	

**For more information on any of the above please contact:**

Dr M I J Probert, Senior Admissions Tutor, Department of Physics,  
University of York, Heslington, York, YO10 5DD, UK.

email: [physics-undergraduate-admissions@york.ac.uk](mailto:physics-undergraduate-admissions@york.ac.uk)

web: <http://www.york.ac.uk/depts/physics>

Tel: (+44) (0)1904 432241

Fax: (+44) (0)1904 432214

# INDEX TO ENTRIES

Entries below are indexed alphabetically by location. The first page number refers to the tables of courses and the second to the departmental information entry. Please note that the names of some of these institutions may have changed since last year.

		• advertiser	page	page
Aberdeen	• University of Aberdeen		30	72
Aberystwyth	• Aberystwyth University		31	73
Bath	University of Bath		32	73
Belfast	• The Queen's University of Belfast		60	115
Birmingham	• University of Birmingham		33	76
Brighton	University of Sussex		67	123
Bristol	• University of Bristol		34	76
Cambridge	• University of Cambridge		35	80
Canterbury	• University of Kent at Canterbury		45	94
Cardiff	• Cardiff University		35	81
Cork	National University of Ireland, Cork		56	109
	Cork Institute of Technology		36	82
Coventry	University of Warwick		69	126
Dublin	• Dublin City University		37	83
	Dublin Institute of Technology		37	85
	• University College Dublin		38	83
	• Trinity College, University of Dublin		69	125
Dundee	University of Dundee		39	86
Durham	University of Durham		39	86
Edinburgh	• University of Edinburgh		40	87
	• Heriot-Watt University		43	91
Epsom, Surrey	NESCOT		57	
Exeter	• University of Exeter		41	88
Galway	National University of Ireland, Galway		56	
Glasgow	• University of Glasgow		42	91
	University of Strathclyde		65	121
Guildford	University of Surrey		66	122

		page	page
Hatfield	University of Hertfordshire	43	91
Hull	• University of Hull	44	94
Keele	• University of Keele	44	93
Lancaster	• University of Lancaster	46	96
Leeds	University of Leeds	47	97
Leicester	University of Leicester	48	98
Liverpool	• Liverpool John Moores University	49	99
	• University of Liverpool	49	100
London	University of London: Imperial College of Science, Technology and Medicine	50	101
	• University of London: King's College	52	101
	• University of London: Queen Mary	51	104
	• University of London: Royal Holloway	53	107
	• University of London: University College London	50	105
Loughborough	Loughborough University	54	108
Manchester	University of Manchester	55	108
Maynooth	National University of Ireland, Maynooth	56	110
Middlesbrough	University of Teesside	68	124
Milton Keynes	• The Open University	60	113
Nottingham	• The Nottingham Trent University	59	111
	• University of Nottingham	58	113
Oxford	• University of Oxford	60	114
Paisley	University of the West of Scotland	70	126
Preston	University of Central Lancashire	36	81
St Andrews	• University of St Andrews	61	116
Salford	• University of Salford	62	117
Sheffield	• University of Sheffield	63	119
Southampton	• University of Southampton	64	121
Swansea	• Swansea University	68	123
York	• University of York	70	127

Physics is a most exciting subject but when you're studying it for an exam you may not always find it so, because of work pressures. Nevertheless, try to extend your understanding and put back some of the excitement by watching relevant TV programmes (such as Tomorrow's World and Horizon).

Try also to make time to read New Scientist each week, and perhaps Scientific American each month. Physics Review published by Philip Allan 6 times a year, is written with post-16 students in mind and is available by ordering direct through schools. There are also lots of books that will show the exciting nature of physics; here are just some.

## **Arrow of Time, The**

Peter Coveney & Roger Highfield  
1991  
Flamingo – Harper Collins

## **Asimov's New Guide to Science**

Isaac Asimov  
1987  
Penguin Books

## **Atomic Scientists, The**

(A Biographical History)  
H A Boorse, L Motz & J H Weaver  
1989  
John Wiley & Sons

## **Before the Beginning**

Martin Rees  
1997  
Simon & Schuster

## **Black Holes**

Jean-Pierre Luminet  
1992  
Cambridge University Press

## **Black Holes and the Universe**

Igor Novikov  
1995  
Cambridge University Press

## **Black Holes, Wormholes & Time Machines**

Jim Al-Khalili  
1999  
Institute of Physics Publishing

## **Brief History of Time, A**

Stephen Hawking  
1988  
Bantam Press

## **Brighter Than a Thousand Suns**

Robert Jungt  
1970  
Harvest

## **Building the Universe**

Christine Sutton  
1985  
Blackwell

## **Carrying the Fire**

Michael Collins  
1998  
Farrar Straus & Giroux Inc

## **Cartoon Guide to Physics, The**

Larry Gonick & Art Huffman  
1991  
Harper Perennial

## **Cartoon History of Time, The**

Kate Charlesworth & John Gribbin  
1990  
Cardinal - MacDonald  
& Company Publishers

## **Chaos**

James Gleick  
1987  
Cardinal - Sphere Books

## **Character of Physical Law, The**

Richard Feynman  
1992  
Penguin

## **Coming of Age in the Milky Way**

Timothy Ferris  
1991  
Vintage

## **Computers, Pattern, Chaos and Beauty**

Clifford Pickover  
1990  
Alan Sutton Publishing

## **Cosmic Blueprint, The**

Paul Davies  
1987  
Heinemann

## **Cosmos**

Carl Sagan  
1995  
Abacus

## **Discovering the Universe**

William J Kaufmann III  
1987  
W H Freeman & Company

## **Discovery of Subatomic Particles, The**

Steven Weinberg  
1993  
Penguin

**Does God Play Dice?**

The Mathematics of Chaos  
Ian Stewart  
1989  
Blackwell

**Dreams of a Final Theory**

Steven Weinberg  
1993  
Vintage

**Einstein for Beginners**

J Schwartz & M McGuinness  
1992  
Icon

**Elegant Universe, The**

Brian Greene  
1999  
Jonathan Cape

**Emperor's New Mind , The**

Roger Penrose  
1989  
Oxford University Press

**Eureka!** Physics of Particles, Matter  
and the Universe

Roger Blin-Stoyle  
1997  
Institute of Physics Publishing

**Fear of Physics**

Lawrence Krauss  
1996  
Vintage

**Fermat's Last Theorem**

Simon Singh  
1998  
Fourth Estate

**First Three Minutes, The**

Steven Weinberg  
1983  
Fontana

**Five Ages of the Universe, The**

Fred Adams and Greg Laughlin  
1999  
Free Press

**Flying Circus of Physics, The**

Jearl Walker  
1977  
John Wiley & Sons

**Frozen Star**

George Greenstein  
1984  
Futura - MacDonald & Company  
Publishers Limited

**General Relativity from A to B**

Robert Geroch  
1978  
University of Chicago Press

**Genius - Richard Feynman  
and Modern Physics**

James Gleick  
1992  
Little, Brown & Company

**Ghost in the Atom, The**

editors: Paul Davies & Julian Brown  
1991  
Cambridge University Press

**God, the Big Bang  
and Stephen Hawking**

David Wilkinson  
1993  
Monarch Publications

**Guide to the Material World**

Rodney Cotteril  
1987  
Cambridge University Press

**Images of the Cosmos**

Barrie W Jones, Robert J A Lambourne  
& David A Rothery  
1994  
Hodder & Stoughton

**In Search of Lost Time**

Derek York  
1997  
Institute of Physics Publishing

**In Search of Schrödinger's Cat**

Quantum Physics and Reality  
John Gribbin  
1984  
Corgi

**In Search of the Big Bang**

John Gribbin  
1987  
Corgi

**In Search of the Edge of Time**

John Gribbin  
1993  
Bantam

**Journeys to the End of the Universe**

C R Kitchin  
1990  
Adam Hilger –  
Institute of Physics Publishing

**Life of Isaac Newton, The**

Richard Westfall  
1993  
Canto



**Longitude**

Dava Sobel  
1998  
Fourth Estate

**Lucifer's Legacy**

Frank Close  
2000  
Oxford University Press

**Matter Myth, The**

Paul Davies & John Gribbin  
1991  
Viking Penguin

**Metals in the Service of Man**

W Alexander & A Street  
1998  
Penguin

**Mr Tompkins in Paperback**

George Gamov  
1993  
Canto

**Mystery of the Quantum World, The**

Euan Squires  
1986  
Adam Hilger

**New Physics, The**

editor: Paul Davies  
1992  
Cambridge University Press

**New Quantum Universe, The**

Tony Hey & Patrick Walters  
2003  
Cambridge University Press

**New Science of Strong Materials, The**

J B Gordon  
1988  
Penguin

**New Scientist Guide to Chaos, The**

editor: Nina Hall  
1992  
Penguin

**New Scientist Inside Science, The**

editor: Richard Fifeild  
1992  
Penguin

**Our Cosmic Habitat**

Martin Rees  
2003  
Phoenix

**Out of Sight! From Quarks to Living Cells**

Sven Kullander  
1993  
Canto

**Particle Explosion, The**

Christine Sutton & Frank Close  
1987  
Oxford University Press

**Prisoner's Dilemma**

William Poundstone  
1993  
Oxford University Press

**Problems of Physics, The**

Anthony Leggett  
1987  
Oxford University Press

**QED The Strange Theory of Light and Matter**

Richard Feynman  
1985  
Princeton University Press

**Quantum: A Guide for the Perplexed**

Jim Al-Khalili  
2003  
Weidenfeld Nicolson

**Quantum Physics: Illusion or Reality?**

Alistair Rae  
1994  
Canto

**Quantum Universe, The**

Tony Hey & Patrick Walters  
1987  
Cambridge University Press

**Quarks, Leptons and the Big Bang**

Jonathan Allday  
1997  
Institute of Physics Publishing

**Random Walks in Science, More**

R L Weber  
1982  
Institute of Physics Publishing

**Redshift**

Stuart Clark  
1997  
University of Hertfordshire Press

**Relativity for the Layman**

J A Coleman  
1990  
Penguin

**Ripples in the Cosmos**

Michael Rowan Robinson  
1993  
W. H. Freeman & Co. Ltd.

**Search for Infinity, The**

Gordon Fraser, Egil Lillestøl  
& Inge Sellevag  
1994  
Mitchell Beazley

**Short History of  
Nearly Everything, A**

Bill Bryson  
2003  
Doubleday

**Six Easy Pieces: Fundamentals of  
Physics Explained**

Richard Feynman  
1998  
Penguin Books

**States of Matter, States of Mind**

Allan Barton  
1997  
Institute of Physics Publishing

**Story of Measurement, The**

Andrew Robinson  
2007  
Thames & Hudson

**Superforce**

Paul Davies  
1984  
Heinemann

**Surely You're Joking, Mr Feynman**

Richard Feynman  
1992  
Vintage

**Suspended in Language:** Niels Bohr's  
Life, Discoveries, and the Century He Shaped  
Jim Ottaviani  
2004  
G T Labs

**Taming the Atom**

Hans Christian Van Baeyer  
1993  
Viking Penguin

**Theories of Everything**

John Barrow  
1991  
Oxford University Press

**Time, Space and Things**

B K Ridley  
1995  
Cambridge University Press

**What Do You Care What  
Other People Think**

Richard Feynman  
1993  
HarperCollins

**What Little I Remember**

Otto Frisch  
1991  
Canto

**Who Got Einstein's Office?**

Ed Regis  
1988  
Perseus

**Wrinkles in Time**

George Smoot & Keay Davidson  
1993  
Little, Brown & Company

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