

Physics *What Next?*

Physics at UCC

Physics is concerned with the observation, understanding and prediction of natural phenomena and the behaviour of man-made systems. It deals with profound questions about the universe and important practical, environmental and technological issues. It involves mathematics and theory, experiment and observations, computing, technology, materials and information theory. Ideas and techniques from physics drive developments in chemistry, computing, engineering, materials science, mathematics, medicine and the life sciences, meteorology and statistics.



What can Physics Graduates offer employers?

A graduate of physics will have developed the ability to:

- Solve problems in physics by identifying the appropriate principles, using scientific techniques such as special and limiting cases and order-of-magnitude estimates.
- Plan, carry out, analyse and report the results of an experiment or investigation.
- Analyse data, evaluate the level of uncertainty in experimental investigations and draw valid conclusions.
- Understand mathematical modelling and the role of approximation.
- Manipulate numerically and present and interpret information graphically.
- Produce clear and accurate scientific reports and use laboratory apparatus and techniques soundly.
- Communicate well, listen carefully, read demanding texts, and present complex information clearly.
- Pay attention to detail and manipulate precise and intricate ideas, construct logical arguments and use technical language correctly.
- Develop computing and IT skills, including using programming languages and applications.
- Work independently, using initiative to meet deadlines, and interact constructively with other people.



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First destinations of Physics Graduates

Each year, UCC Career Services produces a First Destination Report (FDR) based on an annual survey of graduates **six months** after graduation. The following table represents the five year trend for graduates of the BSc Physics (Single Honours), and BSc Physics & Mathematical Sciences.

Course		2007	2008	2009	2010	2011
BSc Physics	In Employment	25%	38%	0%	33%	29%
	In Further Study or Training	75%	62%	100%	67%	71%
BSc Physics and Mathematical Sciences	In Employment	0%	33%	0%	17%	0%
	In Further Study or Training	83%	67%	100%	83%	60%

The number of people who graduate with a physics degree from UCC each year is relatively low which reflects the challenging nature of the degree and its reputation as a robust foundation to further study in this field. These graduates are highly numerate, articulate and suitable for employment in a wide range of sectors. The majority of physics graduates go on to pursue postgraduate study.

Who Employs Physics Graduates?

The minority of physics graduates who chose to enter employment immediately after graduation were successful in securing some interesting roles. The following table displays a sample of the jobs secured by physics graduates within **six months** of graduation. These roles have been extracted from FDR surveys returned to the UCC Career Services:

Role	Employer
Physics (Single & Joint Honors) IT (Graduate Role) Teacher Game Master Trainee Actuary Financial Consultant Exam Corrector (Junior Cert.)	Google St. Joseph's Convent Blizzard Entertainment Mercer Murex State Exams Commission
Physical and Mathematical Sciences (Joint Honours) Financial Software Censor Fund Accountant Computer Game Programmer Software Engineer	Murat Advanced Technology Dublin Bank of New York Mellon Stainless Games Digisoft

What Postgraduate Courses do Physics Graduates Choose?

Of those who progressed directly to postgraduate study, some chose courses that relate directly to the study of physics. Others chose courses that 'convert' their degree to a new area that will make good use of their existing knowledge and skills. The following list provides a sample of the postgraduate courses that are listed by physics graduates on FDRs returned to UCC Career Services.

BSc Physics (Single & Joint Honors)	BSc Physics & Mathematical Science
MSc Mathematical Modelling and Scientific Computing, UCC MEng Sustainable Energy UCC, UCC MBS E-Business, UCC MSc Physics, UCC PhD, UCC PhD, UCD	MSc Mathematical Modelling and Scientific Computing PGDip Applied Mathematics, Abroad MSc Cognitive Science, UCD MEng (Civil), UCC PhD Bioinformatics, UCD PhD Modelling Biological Complexity, Abroad MSc Race Car Aerodynamics, Abroad

Graduate career paths 3-5 years after graduation

Traditional Career Path



Non Traditional Career Path



Long term prospects for Physics Graduates

Graduates of physics have many attractive career options in addition to the more obvious outlets of basic physics research. The following is just a sample of the many areas in which physicists work:

Research: Graduates of physics in UCC can apply for funding to undertake postgraduate research in a range of exciting topics including astrophysics, optics, atomic physics, quantum optics and photonics.

Medical physics is an interesting option for some graduates. Medical physicists use a variety of physics and computing skills in diagnosis and treatment of illness including such techniques as radiography and ultrasound.

Science and Engineering: Physics is an excellent foundation for further study and/or research in a range of related scientific fields which lead to very rewarding careers, such as meteorology, materials, aeronautics, energy engineering, microelectronic engineering, nanotechnology, energy engineering and software engineering.

IT: Physics graduates are also ideal candidates for roles in the IT sector which they may access on graduation or through a postgraduate IT “conversion” postgraduate course.

Finance: Some physics graduates will apply their highly developed quantitative skills to roles in the financial services industry requiring a high level of numeracy such as actuary, accountancy, risk analysis or financial engineering.

Patent Law: Patent law is area of law that may have particular appeal and relevance to a physics graduate. Patent attorneys usually have an educational background in science and engineering, some industrial experience and recognised qualifications.

Teaching: Physics graduates who wish to train as secondary teachers may be interested to know that physics is regarded as a “priority” subject in the recruitment of trainee secondary school teachers the UK.

The following sectors employ physics graduates:

- Electronics
- Telecommunications
- Aerospace
- Electro-optics
- Electricity Generation
- Medical Physics
- Meteorology
- Geophysics
- Renewable Energy
- Engineering
- Finance
- Transport
- Research
- Information Technology
- Patent Law
- Teaching



Where can I find out more?

Association	Website
Careers from Physics "Bright Recruits" – IOP site which offers a range of opportunities for jobseekers with a background in physics or engineering; IOP Ireland - Careers Information for Irish Context – 28 Profiles ScienceCareers National Scheme for Training Clinical Scientists Institute of Physics and Engineering in Medicine Society of Radiographers Audiological Scientists Association of British Healthcare Industries (ABHI) Finance Jobs, Ireland Accountancy Jobs, Ireland Earthworks Job (Oil, Gas, Geo and Renewables) New Scientist Jobs Royal Astronomy Society: Careers Report RAS Jobs List GradIreland (National Irish Graduate Recruitment website)	www.physics.org/careers.asp?contentid=381 http://brightrecruits.com www.iopireland.org/careers/index.html http://sciencecareers.sciencemag.org/career_development/europe www.nhsclinicalscientists.info www.ipem.ac.uk www.sor.org www.baaudiology.org www.abhi.org.uk www.financejobs.ie/ www.accountantjobs.ie/ www.earthworks-jobs.com/ http://jobs.newscientist.com/en-gb/ www.ras.org.uk/images/stories/ras_pdfs/careers_v12.pdf www.ras.org.uk/education-and-careers/175/221-ras-job-advertisement-email-distribution-list www.gradireland.com

8 ways to put your degree to work

Employers want graduates with a healthy balance between study, work and extra-curricular interests. A three-dimensional CV is evidence of maturity, life skills and active citizenship, indicating that you will be a sociable, committed and reliable colleague. You can boost your job prospects greatly by taking the following steps throughout your degree years:

- Get involved in the Students' Union or a club/society that interests you.
- Gain relevant paid/voluntary work experience during holidays.
- Sign up for training courses that will strengthen your skillset, e.g. languages, ECDL.
- Set up a LinkedIn profile and start building your network.
- Go to the UCC Careers Services for careers advice and assistance with regard to CV and interview preparation, job search strategies, and postgraduate options.
- Attend careers events organised on campus and advertised on www.ucc.ie/careers
- Use careers events to initiate relationships with potential employers.
- Check job vacancies regularly on www.ucc.ie/careers and www.gradireland.com

Did you know?

Membership to the Institute of Physics is free throughout your degree and is highly recommended. See the IOP website at www.iop.ie

Contact Us

While this resource provides you with an overview of the career options available with your degree, each person carves their own career path based on their personal values and interests. Your college years are an ideal time to explore career options while gaining new experience and learning new skills. Why not speak to a careers adviser to help you get started?

As a student of UCC, you are entitled to book a free personal consultation with a careers adviser at UCC Career Services. You can return as many times as needed because we understand that it makes sense to begin planning your career from first year onwards – don't wait until final year! We look forward to meeting you, no matter what your year of study. For your convenience, we now have a web-based booking system. Book your appointment online via our website – www.ucc.ie/careers - in the Meet an Advisor section.

Location

3-4 Brighton Villas, Western Road, Cork.

Open 9.30am - 5 pm Monday to Thursday, 9.30am - 4 pm on Fridays

Keep in Touch

www.ucc.ie/en/careers

[www.twitter.com/careersUCC](https://twitter.com/careersUCC)

www.facebook.com/ucc.careers