Options with physics

Your skills

Studying physics gives you a range of technical skills that relate to different areas such as astrophysics, particle physics, electromagnetism, quantum and classical mechanics, statistical physics and thermodynamics, wave phenomena and the properties of matter.

Physics courses also allow you to develop numerous transferable skills that are valued by employers. These include:

- a practical approach to problem solving, often using mathematical formulation and solution;
- the ability to reason clearly and to communicate complex ideas;
- IT and self-study skills;
- investigative and experimental skills.

Many employers are attracted to recruiting physics graduates because they have a good mix of technical skills, such as a high level of numeracy and mathematical modelling, together with research-related skills and good problem-solving and analytical skills, including data analysis and critical appraisal.

If you work on joint projects during your degree, emphasise your teamworking and presentation skills (including technical results) and report writing.

Also think about any other transferable skills you may gain outside your studies, e.g. during work experience or pursuing hobbies and interests.

Consider the skills developed on your course as well as through your other activities, such as paid work, volunteering, family responsibilities, sport, membership of societies, leadership roles, etc. Think about how these can be used as evidence of your skills and personal attributes. Then you can start to market and sell who you *really* are, identify what you may be lacking and consider how to improve your profile. Take a look at applications, CVs and interviews for some useful tips.

Job options

Jobs directly related to your degree

- Research scientist (physical sciences) - organises and carries out systematic investigations into physical properties and behaviour with the aim of developing or improving products or processes.
- Medical physicist - provides scientific support to medical staff in the accurate, effective and safe diagnosis and treatment of patients. Researches and develops new techniques.
- Radiation protection practitioner - gives advice about possible hazards from radiation such as radioactive materials and waste, laser radio frequency and electric and magnetic fields.
- Scientific laboratory technician - assists scientists and others who are engaged in research, development, analysis or scientific investigations by carrying out a variety of technical and experimental tasks.
- Secondary school teacher - teaches physics and/or balanced science. A Postgraduate Certificate in Education (PGCE) is necessary for teaching posts in state schools.

Jobs where your degree would be useful

- Electronics engineer - develops and designs an electronic product, process or device from the initial brief through a tested prototype up to manufacture.
- Electrical engineer - designs and develops electrical systems and/or components to high specifications, focusing on economy, safety and reliability. Involved in projects from the design concept through to implementation, acceptance testing and handover.
- Materials engineer - works on the manufacture, development and use of a wide range of materials, e.g. glass and ceramics.
- Meteorologist - interprets observations from the land surface, oceans and from the upper atmosphere to forecast weather both in the short and long term.
- Geoscientist - collects, analyses and appraises physical data about the earth in order to discover commercially exploitable mineral and hydrocarbon reserves.
- Software engineer - designs, tests, implements and maintains software systems to meet client or employer needs.
- Technical sales engineer - provides the major link between the company producing technical goods and services and its customers, negotiating sales, orders, price and quality.
- Oceanographer - uses science and mathematics to explain the complex interactions between seawater, fresh water, polar ice caps, the atmosphere and the biosphere.

Although some of the jobs listed here might not be first jobs for many graduates, they are among the many realistic possibilities with your degree, provided you can demonstrate you have the attributes employers are looking for. Bear in mind that it's not just your degree discipline that determines your options. Remember that many graduate vacancies don't specify particular degree disciplines, so don't restrict your thinking to the jobs listed here. Look at your degree... what next? for informed advice on career planning and graduate employment, or take a look at what jobs would suit me?, a helpful starting point for self-analysis.

Explore types of jobs to find out more about the above options and related jobs.

Career areas

In 2008, six months after graduation, just over half of new physics graduates were in either full-time or part-time paid employment. Of these, nearly 20% were in the business and finance sectors, 10% were in IT professions, 8% went into scientfic research and development, 7% into various management roles, 6% into engineering, 5% into teaching and 7% into various other professions. Almost 20% of physics graduates who went straight into employment worked first in clerical or secretarial jobs in retail or catering, but many of these will have been gaining experience and working to pay the bills while deciding which career path to follow.

Physics graduates often consider careers that are directly related to physics, in either a research or commercial capacity. However, the technical nature of their degree also makes them attractive to employers in related technical areas like engineering, IT and science. They also work in areas that do not require specific scientific knowledge but where both technical and transferable skills are valued.

Where are the jobs?

Typical employers of physics graduates include:

- universities and government research institutions;
- commercial research organisations;
- the defence industry;
- the nuclear industry;
- The National Health Service (NHS) (http://www.nhs.uk);
- engineering, information technology and manufacturing

companies.

For more potential roles and information take a look at the following:

- Engineering - one of the largest and most diverse sectors in the UK, with most areas thriving.
- Information technology - doesn't just encompass the traditional roles, such as programming, but also includes other areas like technology development that are popular with physics graduates.
- Science - includes applied science, research and areas such as pharmaceutical and chemical, food and drink, and the NHS.

See industry insights for further information on possibilities in other employment areas.

Statistics are collected every year by the Higher Education Statistics Agency (HESA) (http://www.hesa.ac.uk) to show what HE students do immediately after graduation. These can be a useful guide but, in reality, with the data being collected within just six months of graduation, many graduates are travelling, waiting to start a course, paying off debts, getting work experience or still deciding what they want to do. For further information about some of the areas of employment commonly entered by graduates of any degree discipline, check out what do graduates do? and your degree...what next?

Further study

In 2008, six months after graduation, over a third of physics graduates had taken up full-time postgraduate study and a further 10% were combining further study with work. If you choose to continue studying, you may want to specialise in an area within a subject that interested you during your degree. Some of the most popular areas at postgraduate level include:

- astrophysics;
- quantum physics;
- particle physics;
- mathematical physics;
- thermodynamics;
- nanotechnology.

There are also many courses available that take graduates from any subject. These courses will help you to gain further skills in alternative career areas and include marketing, finance, business, law, IT and journalism. Another option is to take the Postgraduate Certificate in Education (PGCE), or the Scottish Professional Graduate Diploma in Education (PGDE), in preparation for a teaching career.

These trends show only what previous graduates in your subject did immediately upon graduating. Over the course of their career - the first few years in particular - many others will opt for some form of further study, either part time or full time. If further study interests you, start by thinking about postgrad study. Find courses and research of interest to you; you can also apply for courses online.

Look at funding my further study for details relating to finance and the application process.

What next?

This should have started you thinking about your future. Whether you are in the early stages of career planning, or you have definite ideas about what you want to do, you will find further information to help you in the following sections:

- Analyse your skills, interests and motivations to find out what jobs would suit me?
- Explore types of jobs to find out about entry requirements, salaries and working conditions.
- See industry insights for hints on breaking into various industries.
- Find graduate employers and see what they have to offer.
- You may want to investigate self-employment or flexible working.
- Look at the advice on applications, CVs and interviews.
- Get work experience through vacation work or a work placement.
- Find courses and research and investigate postgraduate study opportunities.
- If you are thinking about taking time out, volunteering or travelling consider a gap year or explore working and studying abroad.
- If you have already graduated, get online interactive advice.
- Visit your university careers service for a wealth of advice and resources to help with your career planning.

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