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The physicist's guide to getting the most from a physics degree

A series of booklets to help you in your career

The physicist's guide series

The physicist's guides are written to assist anyone with a background in physics regardless of what stage they are at in their career – this could be in education or employment.

These guides are unique because the writers have taken into account the skills and abilities that someone with a physics training or background has, so they are specific and relevant to physicists.

We hope that these booklets will be of assistance when you consider your career-development plan.

The IOP wishes you the best of luck in your career. If you require any further information or advice, e-mail **members.careers@iop.org**.

Other careers guides in this series can be found at **www.iop.org/careers**.

“A degree by itself is not enough.”

Have you already heard this phrase from a careers adviser, from your tutor or in the press? Are you worried about what it actually means?

This guide, along with others in this series, is designed to explain the process of moving from your degree into employment or further study, and to help you to achieve your full potential in your career.

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Why isn't a degree enough any more?

Employers expect and want more than just a degree. Recent research suggests that they want graduates to make the transition from course to career not only successfully but also smoothly. Alongside degree qualifications, extracurricular activities reveal which students have developed skills that are likely to make them more employable.

So what are these additional skills?

They can be broadly categorised as self-reliance, people, general employment and technical skills. The more of these skills that you can gain while you're studying, the easier it will be when you come to tackle those abstract questions on application forms, when drafting your CV or during interviews. For example:

“When was the last time you led a team?”

Team? What team? Don't they know you've been doing a degree? Next they'll be asking what skills you used to lead the team. So how do you respond? The skills that they're seeking with questions like these are simply the ones that you have used throughout your degree, just without noticing. The trick is to be able to identify them.

So, when have you led a team? You may have an easy answer to this, thanks to your gap year leading a team up the north face of Mount Kenya. But what happens if you can't immediately think of a time when you led a team? Let's face it, we can't all be in charge of the lab group. However, with a little thought, helped by the table overleaf, which shows a range of suitable qualities within each of the main skills sets, you should be able to answer this and similar questions.

Do a skills audit

Using the skills table overall will help you to figure out what additional skills you have based on the activities that you've taken part in outside your university course.

Leadership, a good example to begin with, comes under “people skills” in the table. Think about any activities that you've been involved in that fit into the categories listed on the left side of the table. For example, if you've played for a sports team while at university or done voluntary work during your vacations, you're very likely to have gained leadership skills. If so, tick the appropriate box and move on.

This skills audit helps you to identify the skills that you have used and also establishes when and how you used them. For most of the skills you will be able to think of more than one occasion when you have developed those skills. Don't use the same one every time but choose examples that best fit the job that you're applying for.

How else can you set yourself up for a dazzling career?

Our best tip would be to invest some time as early as possible while you're at university to plan your next step.

Tailor your degree

If you have a career objective, try to reflect this in the modules that you select. If you want to move out of physics after your degree, some departments may allow you to take a few non-physics modules, or you could consider an industrial placement or spending some time working overseas.

Join student societies

Get involved in student societies and develop your skills in organising events, recruiting members and managing finances. Nexus, the student wing of the Institute of the Physics, might be just up your street.

Help the department to promote physics

Most physics departments run an active recruitment programme. As part of this initiative, you could volunteer to see potential students during open days. Become involved by running tours or being available to talk about your experiences as a student. This will help you to develop a range of skills.

Don't forget work opportunities during your vacations

Internships

At the start of the penultimate year of your degree, ask your careers service about summer work experience. Many large firms and organisations (in the UK and beyond) run internships targeted at this stage. They may even lead to permanent job offers. Alternatively, the Shell STEP programme places undergraduates with smaller employers who are looking for specific skills or knowledge over an eight-week programme. Visit www.shellstep.org.uk for more details.

Vacation employment

The university careers service can advise you about less formal work opportunities during any of the long summer breaks. Many of them produce directories of local employers and publish holiday vacancies. Alternatively, you can contact relevant companies directly or search the vacancies on <http://www.work-experience.org/>. Your tutors may be able to help if they know of former students working in physics-related occupations. And many universities have funding available for summer research projects in their own departments, which could give you a taste of academic research.

...or don't work during your vacations

Travelling

Speak positively about how the skills that you developed to cope with the logistics, the language and organising your trip, and most employers will also view your time spent travelling as both productive and valuable.

Take a year out

Get industrial experience

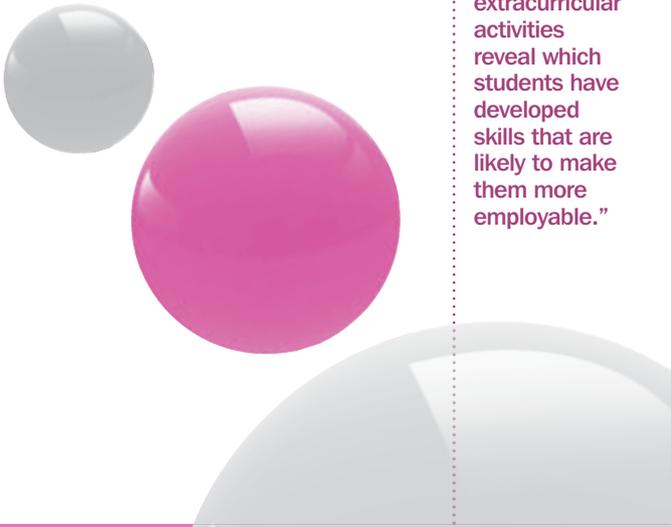
Completing a placement in a company could give you the chance to make a real contribution and to learn about the culture and challenges that are offered by that organisation. Some physics departments will already have developed relationships with employers and may be able to arrange a placement for you.

Develop language skills

If your department doesn't offer the chance to work abroad, you may be able to organise this yourself. Your careers service and academic tutor should be able to help you to investigate your options.

Get involved in broader issues

You could also look into opportunities to work with charities and voluntary organisations. Again, your careers service should be able to help. For example, the Global Xchange programme takes teams of under 25s from the UK and developing countries to work on practical, challenging projects for three months overseas and three months in the UK. For further information, visit <http://www.vso.org.uk/globalxchange/>.



“Alongside degree qualifications, extracurricular activities reveal which students have developed skills that are likely to make them more employable.”

Balance your studies with other activities

Voluntary work

Although unpaid, voluntary work is highly valued by employers and will give you a chance to work with others and to develop your communication skills. It can also be very rewarding. All universities have a student community action office (or something similar) to coordinate and manage contact with local community groups. They also increasingly offer training and usually have strong links with the careers service, which means more help in identifying the skills that your experiences have developed and that you can include in your CV, job application and interview.

Sports

Involvement in sports helps you to develop a range of personal qualities, including tenacity, teamworking and motivating others. Employers will want evidence of your contribution, whether as a team captain or fixtures organiser. University Athletics Unions are a good starting point to find out about sporting clubs and societies.

Promoting physics and science

Engage the public in physics and science while helping to promote a more accurate view of what scientists do and how normal they are. Many universities run visits to schools or you can get involved in the *Lab in a Lorry* scheme through the Institute. Visit www.labinalorry.org.uk for information. There are also many other organisations that are keen to work with enthusiastic scientists. The Institute's website at www.iop.org contains links to many of these. Click on engaging the public to find out more.

Why do employers want all of this as well as physics?

A few years ago Sir Digby Jones, director-general of the CBI, wrote in an introduction to a directory of graduate jobs:

“A degree alone is not enough. Employers...particularly value skills such as communication, teamworking and problem solving. Applicants who can demonstrate that they've developed these skills will have a real advantage.”

If you're looking for a job in physics, employers will still be most interested in your degree, your technical skills and your scientific experience, but even these recruiters will want to see evidence of a wider range of skills. People skills are essential; flexibility and working under pressure are important when projects change or are cancelled; and, as your career progresses, you'll need those leadership skills to manage others.

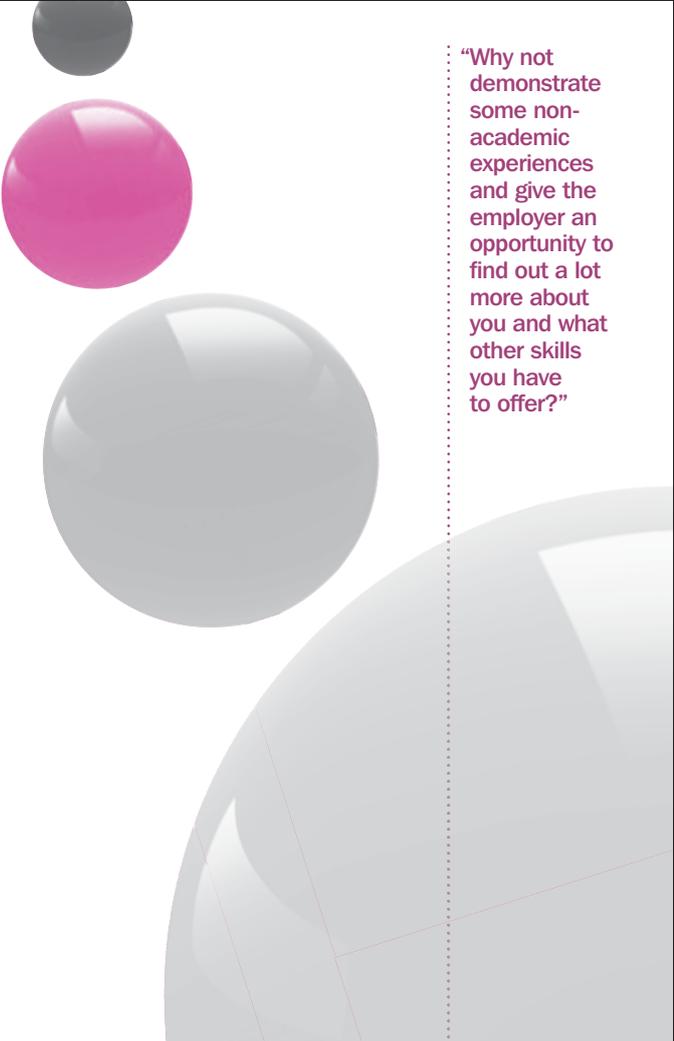
In particular, it's your ability to solve problems and show initiative that will help you to get your career started. If you focus solely on your degree, you are likely to struggle to compete with those candidates who have taken advantage of all of the opportunities outside the lab and lecture theatre that are offered by a university education in physics.

Top tips

- Visit the careers service early. They will have an abundance of information to give you about everything that's discussed in this leaflet and more.
- The careers service can advise you from your first year onwards about work experience, skills-development opportunities from employers, and other activities. They can also help you to get on the right track to work out what you want to do when your degree is completed.
- Do the things that you are passionate about and enjoy your time at university, so that you feel happy and motivated while you're developing the skills that you need to kick start a successful career.

Good luck!

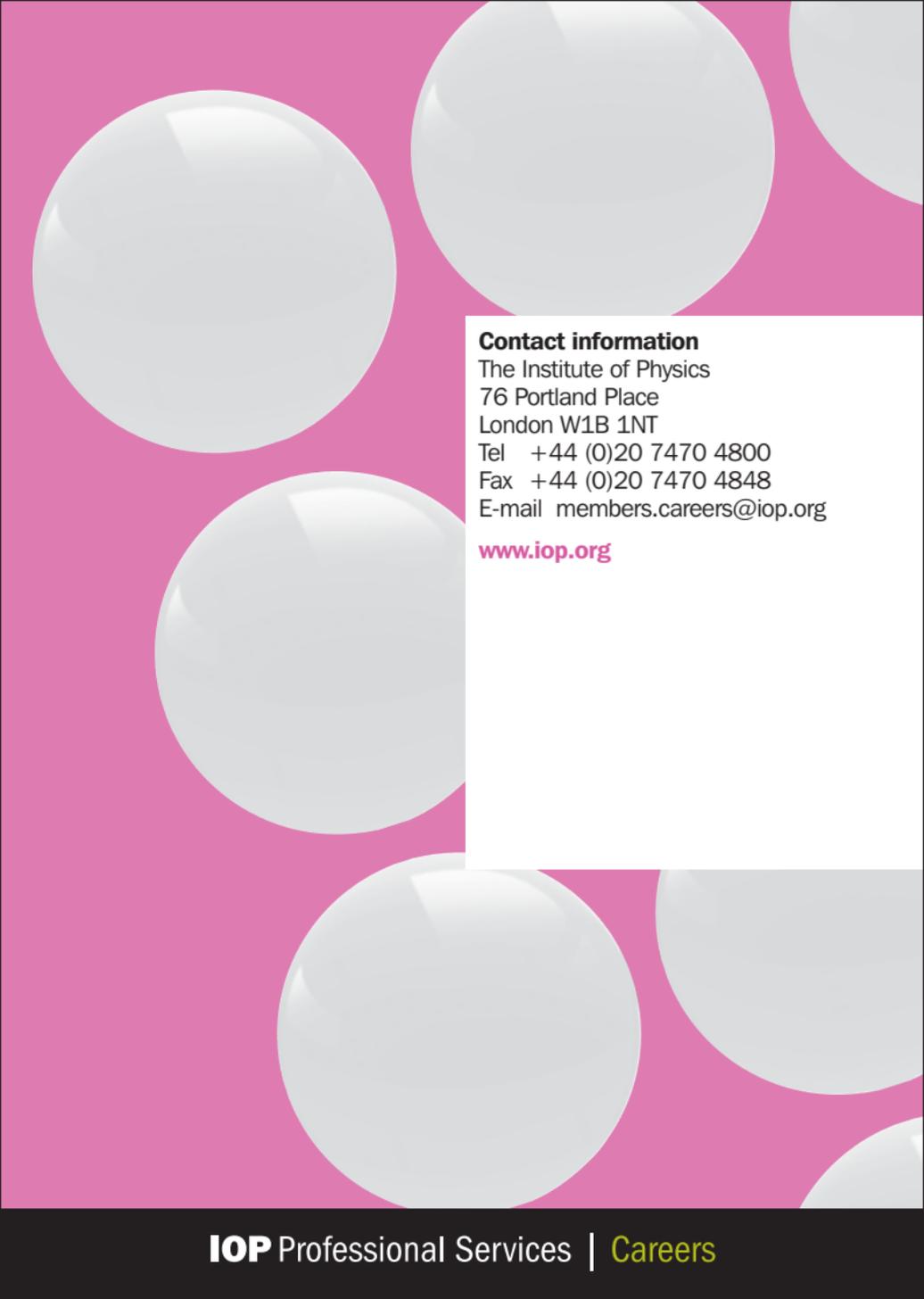
Written by Dr Sara Shinton.



“Why not demonstrate some non-academic experiences and give the employer an opportunity to find out a lot more about you and what other skills you have to offer?”

Find out more...

More information can be found
at www.iop.org/careers.

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