

Research Careers Outside Academia

This sheet is aimed at PhD or post-doctoral researchers considering careers in research outside universities or academic institutions. It will still be useful, however, for those considering postgraduate research and who are interested in their long-term career options.

Although many PhD students opt for further careers in higher education, there are plenty of other options for pursuing research *outside* academia. This sheet will outline some of these options and provide further resources to enable you to find out more - your careers service will also have more information if you wish to explore these ideas in greater depth.

THE NATURE OF RESEARCH WORK

The research environment outside academia may differ in many ways from what you are used to within academia. Projects will tend to have much faster turn-around times, requiring a very different pace of work, and have an emphasis on 'practical' application of knowledge. This will also necessitate a different attitude to research, as you may be forced to sacrifice some of the purity of academic research in order to meet project deadlines. On the plus side, this also means that you are likely to see your results more swiftly, enjoy a greater range of research projects - perhaps managing more than one at a time - and research in a more varied and changing environment.

SEARCHING FOR RESEARCH JOBS

It is important to recognise that not all relevant jobs will advertise a PhD as an essential requirement; many entry points into research careers will be open to all graduates, with the emphasis placed on the skills and abilities gained, rather than the level of the qualification obtained. The key is to show the relevance of your PhD, the skills you have gained, and how this makes you a strong candidate. Be open-minded about what you are looking for - don't just look for what you perceive to be a PhD-level job - and read job descriptions carefully to see what is really involved. Once you've secured a position, your PhD may well allow you to advance to senior positions more quickly.

This sheet is broadly divided into two principal areas of research: those relevant to science and engineering PhDs, and those relevant to social science, arts and humanities PhDs. More general options relevant to both are covered at the end. There is however a degree of cross-over between the two, with scientific research skills potentially applicable outside the laboratory in policy research areas, for example.

For some perspectives on the experiences of researchers moving out of academia, have a look at the 'case studies' developed from a research project by Leeds University Careers Centre <http://careerweb.leeds.ac.uk>. Search 'case studies' from the homepage.

OPPORTUNITIES FOR SCIENTISTS AND ENGINEERS

COMMERCIAL RESEARCH AND DEVELOPMENT

A range of industries require researchers to lead the

development of new substances or products, generally with a specific commercial application in mind. PhDs are often recruited to junior management positions and a doctorate is often needed to progress, although this is not the case in all industries.

A good starting point for careers in all areas of science is www.sciencecareers.org. In addition to vacancies it carries useful articles and profiles, and has separate sections for postdocs as well as different sectors and scientific disciplines. For opportunities in industry see Applied Industrial Research Trading Organisations (www.airto.co.uk), a network of scientists and engineers engaged in research and consultancy. Their members' directory is a useful way of identifying relevant firms.

Pharmaceuticals

The pharmaceutical sector is a major UK industry and represents a significant opportunity for high quality research and development careers for biochemists, pharmacologists, pharmacists, clinical scientists and other related life-scientists to work in drug discovery, development and testing. PhD or postdoc scientists are usually employed in more specialised roles based on specific skills and knowledge, with the potential for early responsibility. Commercial awareness is very important, and it is a good idea to establish contact with firms during your PhD, as this will help you to understand the differences between academic and industry research. A directory of pharmaceutical firms is available at www.abpi-careers.org.uk. See also the British Pharmacological Society (www.bps.ac.uk) for their schedule of events. Another aspect of pharmaceutical research is at the testing and trials stage. This work is undertaken by private clinical research organisations by clinical research associates. See the Institute of Clinical Research (www.instituteofclinicalresearch.org) for more information - you can also download a copy of their publication *To Be a CRA*. See also the Prospects occupational profile for clinical research associates: www.prospects.ac.uk/links/ClinResAss.

Biotechnology

This involves applying biological knowledge of organisms or their attributes to the needs of industry. Most biotech firms are smaller hi-tech enterprises (often known as 'SMEs' or Small-to-Medium-sized Enterprises), and often start out as university spin-off companies. A project team in this environment may include researchers from a variety of scientific disciplines to provide all the necessary functions for research and development. The professional bodies relevant to your research area may be able to direct you towards potential companies operating in a particular research field, or check the UK Science Park Associations listings at www.ukspa.org.uk. See also the BioIndustry Association www.bioindustry.org and the London Biotechnology Network (www.londonbiotechnology.co.uk) which represents organisations and related companies within the M25 orbital.

Other manufacturing companies

Industries ranging from aerospace to textiles, chemicals to food and drink employ researchers in product design and development roles. Opportunities will differ depending on the company, but to get an idea of the major firms see the Manufacturing Sector Briefing at www.prospects.ac.uk/links/ManufacturingSB. Some large firms run introductory courses to give you an insight into their own research career opportunities; Procter and Gamble, for example, run a three day event with expenses met by the company, open to penultimate and final year PhD students.

Consultancy

Some specialist consultancies in the science and technology sector offer scope for research, working on behalf of private or public sector clients, and with opportunities depending on your particular background and skills. Some firms may combine expertise in a number of disciplines - for example engineers may work with environmental scientists, physical geographers and IT specialists. To identify potential firms contact relevant professional bodies or check their websites for member directories. You should also try the Consultant Engineers and Technologists 500 - an online database of UK and European firms (www.cet500.com). See also the engineering research and development briefing from Prospects: www.prospects.ac.uk/links/EnginEngRd.

SCIENTIFIC RESEARCH INSTITUTES

There are a significant number of research institutes and centres within the UK. Many are funded by one of the seven research councils, and offer research careers similar to those in academia, but without the teaching element. Some centres, such as those of the Medical Research Council (MRC), are attached to universities, but others are more distinct from the higher education environment. You should find lists of all institutes on the relevant research council website. Unfortunately, as in university research, entry level post-doctoral positions are often short-term contracts, although with more research experience it is possible to secure permanent positions. A Joint Recruitment Unit for Research Council-funded jobs can be found at <http://jru.rcuk.ac.uk>, and full details of the research councils are available at www.rcuk.ac.uk.

In addition to research council-funded institutes there are other significant centres funded by charitable, public or private sector organisations. One example is the large UK health charity, Cancer Research UK, which operates specialist research institutes in London and Cambridge. See <http://science.cancerresearchuk.org> for details of opportunities. Private sector research institutes include, for example, the Building Research Establishment (www.bre.co.uk) and the Motor Industries Research Association (www.mira.co.uk). See also the Prospects occupational briefings for scientific research and development.

GOVERNMENT AND PUBLIC SECTOR

Healthcare

The NHS is a major employer of clinical scientists (although for PhDs or postdocs to become qualified in this field a period of conversion training will still be required). Specialists in fields such as microbiology, haematology and biochemistry work in diagnostic laboratories or pathology departments of major hospitals, advising clinicians on diagnoses and approaches to treatment. For profiles of the different roles see www.nhscareers.nhs.uk/nhs-knowledge_base/data/5710.html. For more information on NHS-led research see the National Institute for Health Research (www.nihr.ac.uk). Research opportunities for clinical scientists also exist in the independent Health Protection Agency (www.hpa.org.uk), working on a range of public health issues including infectious disease control, chemical and environmental hazards, and

preparation for potential health-related incidents. See also the Prospects briefings for medical-related scientific services: www.prospects.ac.uk/links/SciMedServices.

Civil Service

The Civil Service (www.careers.civil-service.gov.uk) employs scientists in a range of functions, departments and agencies involved in or responsible for scientific research, from food to wildlife to defence. Although many graduate civil service jobs - including the Fast Stream - are policy or operations focused, research opportunities do exist. Opportunities for PhDs include the Defence Science and Technology Laboratories (www.dstl.gov.uk) and the Central Science Laboratory (www.csl.gov.uk). As well as better known departments such as Defra (Department for Environment, Food and Rural Affairs - www.defra.gov.uk), there are also smaller specialist agencies such as the UK Astronomy Technology Centre (www.roe.ac.uk/ukatec), the Met Office (www.metoffice.gov.uk) and Cefas (Centre for Environment, Fisheries and Aquaculture Science - www.cefas.co.uk). For full listings see the specialisations pages of the main civil service careers site given above.

SCIENCE POLICY

The level of investment in scientific research and the links between research and related policy issues and regulation are heavily influenced by government policy. The Office of Science and Innovation, part of the DTI (www.dti.gov.uk/science/), is responsible for guiding this, in collaboration with other departments and advisory groups. Businesses, think tanks and policy research institutes, charities and other lobbyists can be very influential in shaping the debate over various issues. Working in science policy requires a strong background in science, and is an opportunity for scientists to connect research with important public debates. The Royal Society (www.royalsoc.co.uk) employs a science policy team covering bioscience and health, energy and the environment, international security, postgraduate science education and research, and innovation. Other institutes representing subject areas - such as the Royal Society of Chemistry (www.rsc.org) - are also active in science policy, and there are specialist policy research groups such as Sussex's Science Policy Research Unit (SPRU - www.sussex.ac.uk/spru). For information on other research organisations see the section on Think Tanks in the Social Science and Humanities section of this sheet.

SCIENCE COMMUNICATION AND WRITING

Organisations who need to communicate scientific knowledge or ideas to the wider public require scientists with good communication skills. Some draw a distinction between communication - conveying complex ideas to non-scientists, and writing - applying a critical journalistic approach to scientific news. If the latter route appeals, then see the Journalism and the Media section below. Straddling the two areas is The British Association for the Advancement of Science (www.the-ba.net). In addition to education and communication projects across the UK, aimed at encouraging public involvement and interest in science, it also offers fellowships to aspiring science journalists. Scientists are also required by specialist or trade publications such as *Nature* and *New Scientist*, or as science and technology reporters for the broadsheets or media channels. The Association of British Science Writers (www.absw.org.uk) has further information, and has produced the very useful 'So You Want to Be a Science Writer?' (free to download from their website). Vacancies in this area are advertised on www.newscientistjobs.com. There are also opportunities in medical writing: producing regulatory, marketing or general documents for pharmaceutical firms, contract research organisations, medical communication firms or government agencies. See www.abpi-careers.org.uk for more information on this area.

KNOWLEDGE TRANSFER PARTNERSHIPS

Knowledge Transfer Partnerships (KTPs) are collaborative

research projects enabling research organisations or academic institutions to work with private companies to apply research directly to business problems, and for private companies to benefit from the expertise of experienced researchers. They are funded jointly by the Department for Trade and Industry (DTI) and the partner company. Graduates are recruited as KTP Associates to manage projects and opportunities exist in a variety of fields, particularly in engineering and science across the country. See www.ktponline.org.uk for more information.

ENTREPRENEURIAL START-UPS

It may be that the work you've done as part of your PhD has a commercial value, in which case setting up your own business might be something you're thinking about. University research regularly generates spin-off companies, so this may be a very real possibility. There's a range of support for entrepreneurs; specifically for scientists is *Nature's Bioentrepreneur* website (www.nature.com/bioent). It has a wealth of information on starting a business from intellectual property to managing risk, and profiles of existing start-ups. You may also find that your university has a business unit which helps researchers turn new technologies developed through research into commercial ventures. For more general advice see the National Council for Graduate Entrepreneurship (www.ncge.org.uk), set up explicitly to support graduate start-ups; the Prospects self-employment community (www.prospects.ac.uk/startup); and Shell's Live Wire initiative (www.shell-livewire.org), a programme designed to help 16 - 30 year olds start and develop their own business. Business Link (www.businesslink.gov.uk) provides general business advice.

OPPORTUNITIES FOR SOCIAL SCIENTISTS AND HUMANITIES RESEARCHERS

A recent study by the Economic and Social Research Council (ESRC) entitled *'The Employment of Social Science PhDs in Academic and Non-academic Jobs'* (www.esrc.ac.uk) demonstrated that a large number of social science PhDs go on to work in research capacities outside academia. It also demonstrated that there was a real demand for the skills developed through a social science PhD, and that most PhDs felt satisfied with the type of work in which they were involved. However, whilst there are good prospects for social research employment, employers themselves often do not explicitly recognise the importance of a PhD. It is therefore up to you to explain and demonstrate your research skills clearly.

UK GOVERNMENT AND PARLIAMENT

Civil Service

Social scientists are employed in a range of roles across government departments and agencies. In some cases researchers are directly employed within particular departments, while other central research services will provide experienced researchers to work on projects across the departments of the Civil Service. The majority of positions will be London-based, but there are substantial regional offices, such as the Department for Work and Pensions (DWP) in Sheffield and Leeds. The Government Social Research Service (www.gsr.gov.uk/recruitment) conducts research to inform the design and delivery of government policy, and to evaluate its impact - eg a longitudinal study on refugee experiences in the UK (Home Office), or 'Welfare to Work' programmes for the DWP. The Government Statistical Service (www.statistics.gov.uk/recruitment/GSS) provides the official statistics about the economy, society, population and environment used by government policy makers such as the 10 year census, calculating inflation and GDP, and analysing NHS targets. The Government Economic Service (www.ges.gov.uk) provides economic analysis across departments and projects - from education to diplomatic service support. The Government Operational Research

Service (www.operational-research.gov.uk) is concerned with evidence-based policy making, applying scientific methods to management problems in order to improve a department's operations ranging from assessing drug smuggling risks to planning public health strategies. See also the following Prospects occupational briefings:

- Government Research Officer www.prospects.ac.uk/links/GovResOff
- Statistician www.prospects.ac.uk/links/ITStats
- Economist www.prospects.ac.uk/links/ITEconomist
- Operational Researcher www.prospects.ac.uk/links/OpsResearch

Parliament

There are also opportunities for social researchers in Parliament. Parliamentary Clerks are responsible for servicing Select Committees which scrutinise the work of government departments. The work can involve a significant research element, although some roles will focus more on procedural work in Parliament. Although not part of the Civil Service, Clerks are recruited through the Fast Stream (around three a year), which provides scope for movement to other government functions. Library Clerks, based in the House of Commons or Lords libraries are not librarians, as the name might suggest, but specialists who provide research services to MPs and Select Committees, producing briefing papers on current policy or legislative issues. For more information on both these roles see the jobs section of the UK parliament website (www.parliament.uk) and look at the Fast Stream appointments information.

THINK TANKS AND SOCIAL RESEARCH

Think tanks conduct research and analysis on a range of domestic or international policy issues, some specialising in particular areas. There are many think tanks in the UK and abroad: good starting points are <http://politics.guardian.co.uk/thinktanks> for a profile of the major UK think tanks and the Policy Library World Think Tank Directory (www.policyjobs.net/World_Think_Tanks) for a global perspective; and the NIRA World Directory of Think Tanks (www.nira.go.jp).

The majority of research positions will be open to researchers from a range of disciplines, but economists or those with very strong economic backgrounds will find specialist roles in this area of research. Opportunities exist in financial institutions and consultancies, or in specialist research organisations such as the Institute for Fiscal Studies (www.ifs.org.uk) or National Institute of Economic and Social Research (www.niesr.ac.uk). Organisations focusing on public policy often have strong links to academia, and the most prominent think tanks play an important role in advising and appraising contemporary politics. Some have a particular political leaning and some are explicitly affiliated to a political party. Funding will also have a bearing on direction - some may be charities with a portfolio of funding from public and private sector partners, whereas others may receive all their funding from one major foundation. Vacancies for skilled researchers at various levels are advertised on individual websites, but www.w4mp.org (general policy and politics-related positions, as well as jobs with MPs) and www.policyjobs.net (subscription charge payable) are useful places to start. See also Policy Hub for links to non-governmental social and economic research organisations within the UK (www.policyhub.gov.uk).

NGOS, CHARITIES AND CAMPAIGN GROUPS

NGOs and charities often produce their own research to inform advocacy and campaigning work, and to lobby government. This form of social research can be more politically or socially engaged than academic research. Whilst still based on rigorous research, it will generally result in the publication of briefer reports, and be designed to offer a

more in-depth analysis than most journalism whilst being more accessible than an academic paper. As well as being used as a lobbying tool, research is also used to develop internal strategies, to gauge the most appropriate response within a given area, and to ensure that analysis and implementation can be performed within an organisation, instead of relying entirely on outside information sources. Increasingly there are also collaborations between NGOs and academics, with some academics employed as consultants by large charities, and with short-term research opportunities more common. Such positions, depending on the issues concerned, can be very competitive, and this is particularly true in development-focused organisations. Considerable practical experience as well as research expertise may be required for researcher positions in such organisations, but there may also be openings lower down the ladder within research, policy or advocacy teams. For information on opportunities in development see The Careers Group, University of London's 'Getting into Development' website (www.careers.lon.ac.uk/development) and the Development Studies Association (www.devstud.org.uk).

Market research

Commercial and public sector organisations use social researchers to generate information on which to base business and operational strategies. Typical work would involve designing surveys and questionnaires, analysing the information gained, running focus groups, directly observing people through 'field-research' and liaising with clients. There are opportunities for those who want to work in quantitative research, generating and analysing statistical data, and those who want to work in qualitative roles, concerned with investigating and communicating public understandings of particular issues. Useful sources of further information include the Association for Qualitative Research (AQR) (www.aqr.org.uk) where a directory of members is available online, and the Market Research Society (www.mrs.org.uk) which works on behalf of its members to support best practice. AQR also offer a Grad Pack for graduates interested in qualitative work. One of the most well known organisations is Ipsos MORI (www.mori.co.uk), whose work is divided into 5 specialist areas: advertising, loyalty, marketing, media and public affairs. They are also home to the Ipsos MORI Social Research Institute which works with government, public sector and non-profit organisations, and has a wide range of research specialisms. Graduates (including postgraduates) can apply for their New Researcher Trainee Programme, or those with more experience could consider so-called 'executive' positions. Additional resources in this area include the National Centre for Social Research www.natcen.ac.uk, the largest independent social research institute in Britain, the Operational Research Society www.theorsociety.com, who provide training, conferences, publications and information to operational researchers in 53 countries and the British Market Research Bureau www.bmrb.co.uk, one of the UK's leading market research agencies. See also the Prospects occupational profile for market research at www.prospects.ac.uk/links/ResStats.

OTHER RESEARCH OPPORTUNITIES

JOURNALISM AND THE MEDIA

Journalism

Journalism requires researchers and writers who are able to pick up a story or issue, research it and produce copy for the publication, in a short period of time. Longer, more in-depth features are usually the work of freelancers. Journalists work across TV, radio, online news and print newspapers, and for regional, national or international services. As news technologies develop, the distinctions between print and online

newspapers is blurring to some extent. Major newspapers will have an online service, with online facilities either providing an alternative medium for the same news, or expanding the range of news and opinion that a publication can offer each day. As online media develops there is also more opportunity for specialists or experts to contribute comment or feature pieces related to particular issues. Many such writers will have other occupations and their writing interests will usually be related to their professional expertise. There are also newswire and agency services, such as Reuters (www.reuters.com), the Press Association (www.pressassociation.co.uk) or Bloomberg (www.bloomberg.com) which supply news to newspapers, magazines or TV/radio broadcasters. Many journalists will start on regional titles or channels, and this is particularly true in organisations such as the BBC which has a countrywide regional network (www.bbc.co.uk/jobs). There are also a myriad of professional, trade or special interest publications open to those with particular knowledge or expertise.

Media researcher

Behind every programme broadcast on radio or television is a team of researchers, generating programme ideas, preparing background information, finding and checking the facts and figures, identifying the appropriate people and conducting preliminary interviews. The role differs from journalism, with a greater focus on the overall production of a programme, and with administrative and organisational duties being a significant part of the role in addition to research tasks. Competition is high for media jobs, but there are hundreds of independent production companies, and you may be able to market your specialist knowledge most effectively through these. See the *Guardian Media Directory* for a comprehensive list of UK media organisations (www.mediaguardian.co.uk). See also Start in TV www.startintv.com, which offers a CV posting and matching service for jobs in TV and the occupational profiles for media research and journalism roles on the Prospects website (www.prospects.ac.uk).

FINANCE AND CONSULTANCY

Investment banking

PhD students with strong statistical, economic and numerical skills are often sought by financial firms and investment banks to work in quantitative research roles, developing the models which are used as part of daily trading and risk management activities. Many have dedicated PhD recruitment positions and opportunities exist in areas such as equities, derivatives, fixed income analytics and quantitative strategy and research. UKGrad run regular insight courses into investment banking careers for PhD students - see www.grad.ac.uk for details of forthcoming events.

Management and strategy consultancy

Consultants are involved in designing and implementing new strategies and operations within organisations, in order to improve productivity or efficiency. This may involve introducing new technology, to improve information and data management in an organisation or streamline a processing function. Clients are drawn from across the public and private sector, with some consultancies involved in long-term projects with government departments, for example. Most offer development schemes for graduates, allowing training and rapid progression to more senior roles. See the Management Consultancies Association (www.mca.org.uk) for a list of firms.

The Careers Group is committed to providing information in accessible formats. An electronic version of this document is available at www.careers.lon.ac.uk/cep. For further formats, please contact your college careers service or email cs@careers.lon.ac.uk.