Options with microbiology

Your skills

Over the course of your degree you develop a good mix of subject specific and technical skills as well as transferable core skills. Consider these alongside other achievements, 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.

The specific skills developed by studying microbiology are:

- microscopy skills;
- microbial identification;
- practical laboratory skills, especially aseptic techniques;
- the ability to manipulate statistics and conduct literature searches.

You'll also have experience in the design, planning and carrying out of complex experiments with the ability to use sophisticated equipment for research purposes.

In addition to the subject knowledge you will have acquired during your course, you will have developed a number of transferable skills which are highly regarded by employers. The more general skills developed include:

- the ability to identify, select, organise and communicate information;
- being able to work on your own and as part of a small team;
- analytical and problem-solving skills;
- application of scientific thought, rationale and approaches.

Your degree course may also have required you to carry out an extended research project in the final year. This will provide valuable evidence to potential employers of project management skills. It is also important to recognise the skills you might have acquired in extracurricular activities. Being involved in a student tutoring scheme, voluntary work or being a staff/student representative all prove that you have solid attributes such as initiative, time management, working under pressure and dealing with a wide range of people. This all makes you more attractive to employers.

Employment prospects

Every year, statistics are collected 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 the AGCAS Special Interest booklet 'Your Degree... What Next?'

In 2006, six months after graduation, 53% of microbiology graduates had entered full or part-time employment. The three main career areas that they had entered were: scientific research, analysis and development (25%); professional and technical occupations (20%); and retail assistants, catering, waiting and bar staff (15%).

General areas where a degree in microbiology would be useful include: clerical and secretarial occupations (7%); and commercial, industrial and public sector management (6%).

Careers relating to microbiology are found in a diverse range of employment sectors such as health, cosmetics, agriculture, pollution control, bioinformatics, contract research and food and drink. The health service, pharmaceutical companies and universities employ clinical and medical microbiologists, whereas other industry sectors (utilities and food and drink) employ industrial and environmental microbiologists.

The UK biotechnology industry consists of 480 companies, employing about 23,000 people. About a third of these are working in biopharmaceuticals, a fifth in diagnostics and the rest in agricultural environmental areas and biotechnology suppliers. The sector is increasing in size, as is the number of jobs.

Job options

Bear in mind that it's not just your degree discipline that determines your options. Get hold of the AGCAS Special Interest booklet 'Your Degree... What Next?' from your careers service. This looks more generally at the options for today's graduates and offers informed advice on career planning. Or try 'What jobs would suit me?', an online career planning tool, at www.prospects.ac.uk/links/pplanner.

You can choose between jobs that are degree-related or those that appeal because they use other interests or elements of your degree.

Jobs directly related to your degree

- Microbiologist - observes and monitors the development and effects of microbes in close detail, in order to protect public health.
- Biomedical scientist (MLSO) - carries out laboratory tests on human samples to help clinicians diagnose illness and to evaluate the effectiveness of the necessary treatment.
- Haematologist - specialises in the study and analysis of blood, blood-forming tissues and associated disorders.
- Toxicologist - plans and carries out laboratory and field studies to identify, monitor and evaluate the impact of toxic materials and radiation on human health, animal health and the environment.

Jobs where your degree would be useful

- Biological field surveyor - conducts scientific surveys of natural habitats; identifying, recording and monitoring plant and/or animal species present.
- Forensic scientist - provides impartial scientific advice for use in courts of law to support the prosecution or defence in criminal and civil investigations.
- Research scientist (life science) - designs, plans and investigates experiments and fieldwork to advance and apply knowledge of biological and natural phenomena.
- Water quality scientist - responsible for the scientific analysis of water; setting targets and standards to safeguard all aspects of water quality.

Although for many graduates the jobs listed here might not be their first, they are among the many realistic possibilities with your degree, provided you can demonstrate you have the attributes employers are looking for. It's worth noting that many graduate vacancies don't specify particular degree disciplines.

To find out more about the above options and other jobs, see AGCAS Occupational Profiles and other sources of occupational information available in careers services. Occupational Profiles are also available on www.prospects.ac.uk/links/occupations.

Where are the jobs?

You will find that jobs suited to microbiology graduates are commonly found in the following employment sectors:

- Environmental, food chain and rural - science careers encompass production, agri-services, engineering, teaching and research. Research-focused organisations include those involved in plant breeding, crop protection, plant trials, plant genetics, biotechnology, residue analysis, technical sales and research.
- Accountancy and business services - incorporates roles in accountancy, investment, budgetry controls and finanancial management.
- Science - in research and development, scientific analysis and investigation, product and process development, education, the media,and administration.

Career management is an ongoing process, one that you'll no doubt develop all your working life. For further information on all the above employment areas, visit www.prospects.ac.uk/links/sectorbs or ask to see the AGCAS Sector Briefings at your careers service.

Further study

In 2006, 27% of microbiology graduates had entered further study with a further 7% combining work with further study. Typical research areas include: genetics; medical microbiology; bioinformatics; industrial microbiology; molecular biology; microbial biotechnology and environmental microbiology. A growing number of microbiology graduates proceed to graduate entry programmes in medicine.

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 taking a look at the AGCAS Special Interest booklet 'Postgraduate Study and Research' or the 'Further study' section of www.prospects.ac.uk. For a comprehensive list of courses, see 'Prospects Postgraduate Directory'.

Refer too to the 'Prospects Postgraduate Funding Guide', the AGCAS Special Interest booklet 'Postgraduate Study and Research' and AGCAS Vocational Course Surveys for further details relating to finance and the application process.

Other options

Don't forget there are alternatives to entering employment or postgraduate study, such as taking time out, volunteering or travelling. Longer term, you may want to consider starting your own business. Check out the AGCAS Special Interest booklets 'Beyond Nine to Five: Flexible Working', 'Self-employment' and 'Working Abroad', all available from your careers service.

There are a variety of opportunities outside the laboratory such as: science/technical writing; science administration; science communication; editing; technology transfer; teaching; sales; and technical support. However, competition for these posts can be fierce with more than 100 applicants for one job. Some microbiologists may be attracted to working in a scientific company but in a more commercial role like personnel, purchasing, distribution management, accountancy and computing.

Numerous civil service departments employ microbiologists as scientific officers, eg The UK Patent Office, Forensic Science Service (FSS) and Department of Health (DH).

What next?

This should have started you thinking about your future. Whatever stage you are at, your careers service will be able to help you. A huge number of resources, including most of those mentioned here, plus a wide range of other services, including individual careers guidance, employer presentations and workshops on topics such as successful applications and interview techniques, are likely to be on offer.

A full list of useful resources plus case studies of graduates in this subject can also be found on www.prospects.ac.uk/links/options.

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