

## What are the career options in science?

The science industries comprise pharmaceuticals, manufacture of medical and surgical equipment plus science and engineering research and development, so covers a range of disciplines. This research and development work take place in a variety of establishments, such as university departments, research-based employers or other scientific based employers. Overall, it comprises:

1. Research based pharmaceutical companies that discover, develop, market and distribute medication and drugs
2. Research and development in pharmaceutical manufacturing companies
3. Bioscience companies that are a spin-off from university research departments
4. The application of bioscience to produce innovative medicines, therapeutics and medical devices
5. The application of bioscience for the processing and production of materials (i.e. the use of bioscience in engineering industries)
6. Research and experimental development in bioscience

Bioscience-related companies tend to be located in clusters (e.g. science parks that are sometimes linked with university hospitals). One of the most significant cluster groups is around Cambridge, Oxford and London. There is also a large cluster in the North West, where there is a long-established pharmaceutical industry. In Scotland, clusters are centred around Dundee, Edinburgh and Glasgow. In Wales and Northern Ireland, clusters of companies are centred around the main universities.

**Jobs in the industry** range from: analytical chemist/scientist, biochemist, biomedical engineer, biomedical scientist, biologist, biotechnologist, clinical scientist, microbiologist, physicist, research scientist, education lab technician, laboratory technicians, medical laboratory assistant, scientific laboratory technician, process/product design engineer and production engineer

### **Industry entry and progression**

Work in science, research and development could include: ways to improve medicines and the methods used to administer them; sophisticated equipment to aid doctors in diagnosing illness; technology to improve materials (e.g. replacement hip joints) as well as the research that leads to medical and technological breakthroughs.

Within the industry, there is a preference for four-year degrees (at Bachelor or Masters level) that offer industrial placements. Some combined degrees, when combined with another science or mathematics subject, are relevant to the industry, but other combined degrees are not valued by employers. Employers are looking to recruit graduates with first or upper second class degrees.

There is a range of relevant industry endorsed courses (at foundation, undergraduate and postgraduate level), apprenticeships, vocational qualifications and training schemes available. Entry requirements vary considerably in the industry. The following provides an overview of some of the qualifications required at different levels:

- **Managers, senior researcher/scientists and professional science occupations** – entry requires a master's degree or PhD qualification along with research experience, often in a specific field. Relevant subjects include biochemistry, biology, chemistry, engineering, genetics, microbiology, physics or physiology.
- • **Associate professional and technical occupations** – For those working as laboratory technicians or laboratory assistants, entry may be through a relevant BTEC National Certificate/Diploma or an apprenticeship. Many people employed in these roles are graduates, as low numbers of employers offer apprenticeships or entry to Further

Education leavers with science Higher National Certificate/Higher National Diploma (HNC/HND) qualifications.

- **Managers and senior officials in manufacturing roles within science companies** – Often have a degree in an engineering discipline or a subject specific to management or production management. Some may have a science HNC/HND and extensive working experience, such as having completed an advanced apprenticeship.
- **Skilled trades occupations in manufacturing roles within science companies** – Most enter through Advanced Apprenticeships. Many will have work-based competencies to Level 3 and have gained the relevant vocational qualifications.

- **Process, plant and machine operatives** – Most enter through Apprenticeships. Some working in specialised jobs may have work-based competencies to Level 2 and have gained the relevant vocational qualifications.

For further information, see:

- **Institution of Engineering and Technology:**  
<https://www.theiet.org/career/>  
Engineering Council (ECUK):  
<https://www.engc.org.uk/news/press-releases/PR2020>  
UK resource centre for women in science, engineering and technology: <http://www.ukrc4setwomen.org>
- **The Association of the British Pharmaceutical Industry (ABPI)** <https://www.abpi.org.uk/facts-and-figures/industry-and-academia-links-survey-2019/>
- **Biochemical Society:**  
<https://www.biochemistry.org/education/>
- **International Federation for Cell Biology:**  
<http://www.ifcbiol.com/carrers-and-educations/education-and-training/>
- **British Pharmacological Society (BPS):**  
<https://www.bps.ac.uk/careers-development>
- **Institute of Biomedical Science (IBMS):**  
<https://careers.ibms.org/career-profiles/>
- **Institute of Physics (IOP)**  
<http://www.iop.org/careers/index.html>
- **Institute of Physics and Engineering in Medicine (IPEM)**  
<https://www.ipem.ac.uk/CareersJobs.aspx>
- **The Institute of Science Technology:**  
<https://istonline.org.uk/training/>

**Royal Pharmaceutical Society of Great Britain:**

<https://www.rpharms.com/development>

**Royal Society of Chemistry (RSC):**

<https://www.rsc.org/teaching-and-learning/>