



## Your future in... **Biotechnology**

### Introduction

---

Biotechnology is the use and exploration of biological systems to solve problems, enhance processes and develop and manufacture innovative products. This is a rapidly growing industry within the life sciences sector.

Biotechnology companies in the UK predominantly form clusters. In Scotland, these are located mainly in Edinburgh, Dundee, Glasgow, Aberdeen and The East and South East of England. A large number of companies are found near to universities as 'spin-outs' to facilitate collaboration between industry, academics and medical professionals.

The UK is home to around 450 biotechnology companies employing approximately 21,000 people. For instance:

- Industrial Biotechnology Innovation Centre (IBioIC), University of Strathclyde, Glasgow, which works at the interface between leading industry members and academic institutions.
- NovaBiotics Ltd, Aberdeen, a clinical stage biotechnology company which focuses on the advancement and design of anti-infectives for difficult-to-treat diseases.
- Cellucomp, Burntisland, Fife, Scotland's first biorefinery plant, which turns vegetable waste into high-performance household materials.

### What's it like?

---

The biotechnology sector is divided into four ([Electronic Journal of Biotechnology, 2004](#)), and your working environment will be influenced by this:

- Red is the medical sector. Microbiologists, Geneticists and Biochemists work with living organisms, genes or proteins to produce diagnostic solutions and innovative therapies to treat and prevent human disease.
- Green is plant and environment based. Environmental and Biological Engineers evaluated contaminated water and land with the use of microbes such as bacteria to neutralise and clean waste.
- Blue is marine based. Scientists and Marine Biotechnologists are involved in the production of sustainable human food and energy as well as protecting the natural environment.
- White (sometimes referred to grey) is the industrial sector. Product Development Scientists, Process Chemists and Molecular Biologists apply biotechnology to industrial processes which transform the manufacture and creation of products. For instance, Edinburgh-based Celtic Renewables work in partnership with Tullibardine whisky distillery to have its by-products converted into advanced biofuel.





Opportunities have also opened up to graduates from all disciplines in areas such as:

- Sales - Technical Sales Representative, Medical Representative
- Marketing - Marketing Assistant, Product Manager
- Scientific Communication - Science Writer, Medical Writer
- IT - IT Project Manager, Software Developer

**“Biotechnology is a huge part of our everyday lives. The Scottish Biotechnology Industry is thriving at the moment with many unique and diverse opportunities for graduates. Here at Ingenza we develop sustainable bio-based processes for the manufacture of chemicals, biologics, pharmaceuticals and biofuels. Graduates have become an integral part of our business and are involved in working on key customer projects, gaining experience in specific technical areas of Molecular Biology, Fermentation and Synthetic Chemistry. As the Learning, Development and Performance Team Leader at Ingenza I would strongly recommend that graduates gain as much hands-on, practical experience as they can to boost their skillset and prepare them for an exciting career in the Biotech Industry!”**

Nicole Barnes, Team Leader Learning, Development and Performance,  
Ingenza Ltd.

## How can I get work experience?

---

Work experience will help develop your skillset and commercial awareness as well as building a network of colleagues and contacts.

- An industrial placement may be an option for some students.
- The Scottish Life Sciences Internship Programme, through ScotGrad, offers students paid summer placements between June and September. Placement projects include laboratory work, research and development and sales and marketing. Opportunities are advertised from February each year:  
<https://www.scotgrad.co.uk/students/scottish-life-sciences-internship-programme>
- Clinical Contract Research Association (CCRA) represents independent clinical research contractors and lists its members for identifying potential employers in the biotechnology industry: <http://www.ccra.org.uk/>
- Bright Green Placements offer 8 - 12 week project-based placements with an environmental focus across Scotland: <http://www.brightgreenplacements.org.uk/>
- Speculative applications and networking are key approaches to finding work experience: <http://www.ed.ac.uk/careers/looking-for-work/graduate-jobs/finding-unadvertised>

## Skills development

---

- Relevant technical skills are a key attribute ideally gained in a lab setting, industrial placement or an internship.
- Regardless of the role you're applying for, employers are looking for applicants who can demonstrate commercial awareness and receptivity





to new ideas. Check out our advice on how to develop commercial awareness:

<http://www.ed.ac.uk/careers/recruitment/business-awareness>

- Extracurricular activities and employment can be used to showcase problem-solving skills e.g. resolving a customer complaint; overcoming unforeseen difficulties whilst planning an event.
- Taking part in [sport](#) and [university societies](#) provides opportunities to develop team work and communication skills.
- Visit the Events section of MyCareerHub for details of relevant events.
- Get your organisational and time management skills recognised by taking part in the Edinburgh Award: <http://www.ed.ac.uk/careers/about-us/what-we-do/edinburgh-award>

## Postgraduate study

---

It is possible to work in a commercial or scientific role without a postgraduate qualification.

For research and development roles, a postgraduate qualification may be required. If you intend to do a PhD, contact biotechnology companies towards completion of your first degree and throughout your PhD to develop a thorough understanding of the skill set employers are looking for. Some employers may also sponsor you to complete a PhD whilst you work for them.

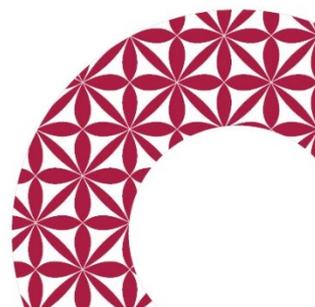
Search for postgraduate courses using:

- <https://www.prospects.ac.uk/postgraduate-courses>
- <https://www.findamasters.com/>

## Job hunting

---

- Biotechnology companies are usually small and medium-sized enterprises (SMEs) employing fewer than 250 staff and tend to group together at Science Parks. Job vacancies are less likely to be advertised. Be proactive and consider speculative applications: <http://www.ed.ac.uk/careers/looking-for-work/graduate-jobs/finding-unadvertised>
- The [BioIndustry Association](#) has a member directory (search on biotechnology) with over UK 300 biotechnology companies' details listed.
- [The UK Science Parks Association](#) is also a good place to start when trying to find potential employers (search on members).
- Use the Scottish Enterprise Life Sciences Company Directory to identify companies in Scotland: <https://www.scottish-enterprise.com/knowledge-hub/articles/directory/life-sciences-sourcebook>
- Check MyCareerHub for vacancies. It's worth looking at the expired opportunities function to find companies who have advertised vacancies in the past.
- Jobs.ac.uk advertises vacancies in university 'spin-out' companies: <http://www.jobs.ac.uk/categories/biotechnology>
- LinkedIn is a great way to access 'the hidden jobs market' – the vast number of job openings that are not formally advertised. Use LinkedIn to network and explore the career paths of people doing the type of job you want to do: <http://www.ed.ac.uk/careers/looking-for-work/social-media/linkedin>





## Find out more

---

Many of the roles mentioned are explored in more detail in the Prospects job profiles. You can find these linked from the relevant Occupations pages on the Careers Service website:

<http://www.ed.ac.uk/careers/your-future/options/occupations>

Visit our webpage on Life Sciences for further information including links to explore:

<http://www.ed.ac.uk/careers/your-future/options/occupations/scientific-research/life-sciences>

August 2017

