

Your Degree in Pharmaceutical Biotechnology...What Next

Biotechnology involves the use of living organisms (mostly microbes) to produce useful products. It includes traditional processes like brewing, cheesemaking to modern developments such as genetic engineering which can lead to new drugs against cancer and other diseases.

Study subjects such as Biomolecules and Cells, Bioanalytical Science, Introduction to Physics Technological Mathematics, General and inorganic Chemistry, Enzymes, Energy and Disease. At least 50% of the contact time is spent in the laboratory gaining practical experience.

The pharmaceutical industry develops, produces, and markets drugs licensed for use as medications. Pharmaceutical companies can deal in generic and/or brand medications. They are subject to a variety of laws and regulations regarding the patenting, testing and marketing of drugs. Drug discovery and development is expensive; of all compounds investigated for use in humans only a small fraction are eventually approved. This approval comes only after heavy investment in pre-clinical development and clinical trials, as well as a commitment to

There is a trend toward Biopharmaceuticals (as opposed to traditional small molecules produced by chemistry techniques) due to the potential specificity and potency against a target disease. However biopharmaceutical processes require greater application of Aseptic processing and the associated environmental controls and monitoring to ensure this is achieved.

This course is very broad and is specifically designed to train students in all aspects of modern biotechnology. Graduates from this course are qualified to work in a number of areas within the biotechnology industry with many attaining employment immediately after graduating.

What skills have I gained from my Pharmaceutical Biotechnology Science degree?

Technical Skills	Non-technical 'Soft' Skills
Knowledge of the factors affecting human health and well being	Excellent organisational, planning skills and ability to work to deadlines
Basic Sciences	Attention to Detail

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Public health Policy and its implication	Time Management
Food production	Skills of enquiry
Decision-making	Responsibility
Report-writing (Ability to communicate complex information)	Communication & Interpersonal (Ability to get on with people of all levels)
Strategic-thinking	Analytic skills
	Identify and propose solutions to problems

Characteristics required for employment in Pharmaceutical Biotechnology related roles:

- Excellent interpersonal skills
- Foresight & Initiative
- Presentation Skills

Note: It is vital that you recognise and differentiate between your technical skills and your non-technical or 'soft' skills in preparation for pursuing employment or further study.

Graduate Employment

Careers in the Bio/ Pharma Industry

Within the pharma industry there are a range of scientific and non-scientific jobs available, while in the biotech industry the majority of vacancies for graduates are in scientific research. Research & Development roles overall have the largest demand for graduates. You may work in such areas as new product development, quality control, quality assurance, production, ingredients or testing.

For jobs in the pharma and biotech industries prior work experience is useful. Not only will it help in skills development, but also in heightening your commercial/industrial awareness. Industrial employers are keen to employ people who understand the business. Work collaborations, placements, or work-shadowing while studying or during a postdoc can be ways of overcoming this lack of awareness. Some of the larger firms may offer internships, but it will often be necessary to make speculative applications and network to find relevant contacts to approach in smaller firms.

You could look for work in:

- Pharmaceutical Companies
- Research Institutions
- Commercial Organisations – Distilleries, Food Processing & Chemical Manufacturers

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Potential Employers:

PFIZER Biotechnology, Janssen Biologics, Novartis, Stryker, Boston Scientific, Eli Lilly, GSK, Abbot, McKesson, Guinness, Kerry Foods, ABP Food Group.

Types of Role:

QC Analyst/QA Technician
Microbiologist
Bio-assay Specialist
Research and Development
Bio Chemist
Analytical Chemist
Process Engineer

Is the Biotechnology Industry secure?

Pharmaceutical exports from Ireland typically exceed €24 billion per year. Approximately 25% of all US biotechnology based imports come from Ireland. Despite the current economic situation, biotechnology is still very vibrant and remains one of the biggest national employers.

If you are interested in working in industry, the following websites will provide lists of companies in Ireland.

Enterprise Ireland has lists of Irish employers across all industry sectors, including up-to-date sector profiles. Business Management plays a vital role for these companies. Check out; www.enterprise-ireland.com. Click on 'Source a Product or Service from Ireland' and 'Sector and Company Directories'.

Tip: The Industrial Development Agency (IDA) has a comprehensive list of all multi-national companies in Ireland. Companies who employ Nutrition\Food Science graduates are listed. Check out; www.idaireland.com. Click on 'Business in Ireland', select from the list of sectors and then click on 'Search Company Database' for a full list of companies.

- Register with gradireland to get email alerts on employment opportunities as well as job search advice; www.gradireland.com
- Pick up free copies of the **Gradireland Directory** for Ireland (north and south) and, '**Ireland's 100 Leading Graduate Employers 2015**', which is available at CIT's Careers Service, 2nd Floor, Student Centre.

Postgraduate Study

For details, see www.cit.ie/biologicalsciences

This course is an excellent platform for further studies, both in terms of short add-on courses, and more structured postgraduate degrees such as Master of Science and PhD programmes.

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Gaining a postgraduate qualification brings with it many benefits. It enables you to gain further, more specialised knowledge in your field of study. It can give you a specific technical, vocational or professional qualification and facilitate you in developing a range of key skills including; research, analysis, evaluation and written communication.

For further information, go to the 'Further/Postgraduate Study' link on the Students page of our website; <http://www.mycit.ie/careers>

Other websites include; www.postgradireland.com and www.prospects.ac.uk

For further information please contact the Careers Service on 021 4335772.

Further Resources & Information

Gradireland publications – Available at the Careers Service or download a copy of the relevant sector publications from www.gradireland.com

Tip: If you are unsure about what direction to take after your degree, the gradireland Careers Report is a useful tool for matching your personal information and preferences to potential careers. Log on and register at www.gradireland.com to use the report.

Tip: If you want to find out more information about what is involved in any of the job titles listed in this document, check out the *A to Z Occupation List* on www.careersportal.ie

Tip: Check the www.mycit.ie/careers page and view the 'Find a Job' section regularly.

Also make sure that you attend the *Annual Careers Fair* in CIT.

BioConnect Ireland - BioConnect Ireland is an informal, open and independent networking organisation for individuals in the biotechnology, life science and medical device sectors in Ireland, North and South. It was founded in 2001 to promote interaction and exchange between all of those working in this broad field. They have a discussion page on LinkedIn and can also be found on <https://www.enterprise-ireland.com>

The Pharmaceutical Society of Ireland – PSI - <http://www.thepsi.ie/>

Some Recruitment Agencies in the Life Sciences :

<http://www.claran.ie/> (Cork Based)

<http://lifescience.ie/> (Dublin based, Nationwide jobs)

<http://www.sigmarrecruitment.com/> (Dublin based, Nationwide jobs)