

INTRA Programme

B.Sc. Chemical & Pharmaceutical Sciences



The Objective of this four-year, full-time degree is to produce graduates who:

- Have an in-depth knowledge of Chemistry, in both a pure and applied context
- Have highly developed problem solving skills and a sound knowledge of processes
- Are able to contribute significantly to, and operate effectively in, the Chemical and Pharmaceutical Industries.

Programme Outline

The **first year** of this programme provides students with a grounding in the fundamentals of Chemistry, Biology, Physics, Mathematics and Computing. In **second year**, the mainstream Chemistry courses are developed in conjunction with relevant topics in Physics, Mathematics, Computing and Biochemistry. During **year three**, the programme aims to complete coverage of the basic Chemistry material, while further developing key laboratory skills and experience. Increasing emphasis is placed on the applied nature of Chemistry. The **final year** of the programme concentrates on the development of advanced topics and their application to problem solving. A major element of the final year is the Research Project, which comprises a Literature Survey followed by laboratory based research work.

Relevant Work Experience through DCU's work experience programme *INTRA* (INtegrated TRaining) is a central feature of education at DCU and an integral part of most undergraduate and some postgraduate degree programmes. **Students from the B.Sc. Chemical & Pharmaceutical Sciences are required to complete a six month INTRA placement at the end of third year, from April to September inclusive.**

Work Areas

Students from the B.Sc. Chemical & Pharmaceutical Sciences will have the ability to work in the following areas within a wide variety of industries such as the Chemical, Pharmaceutical, Polymer, Food & Drink, Brewing, Materials, Medical and Veterinary industries:

- Synthesis
- Research & Development
- Process Development
- Materials Characterisation & Structure Determination
- Qualitative & Quantitative Chemical Analysis
- Environmental Monitoring
- Quality Control
- Process or Plant Management
- Technical Services
- Safety

Student Availability

Students are available for interview from October onwards. Please post vacancies on the *INTRA* online website at www.intra.dcu.ie, or send details to:

INTRA Unit, Student Support & Development,
Dublin City University,
Glasnevin, Dublin 9, Ireland.
Phone: 00 353 1 700 5514
Fax: 00 353 1 700 5505
Website: www.intra.dcu.ie



B.Sc. Chemical & Pharmaceutical Sciences

Year 1

CHEMISTRY Fundamentals of Analytical, Inorganic, Organic & Physical Chemistry	BIOLOGY Fundamentals of Biochemistry, Genetics, Ecology, Cell Structure & Microbiology	MATHEMATICS Fundamentals of Calculus, Complex Nos., Vectors, Matrices, Variables & Functions, Probability etc	COMPUTING Hardware, DOS, Introduction to Windows, Software Packages	PHYSICS Fundamentals of Mechanics, Optics, Sound, Electricity & Atomic Physics	LABORATORY WORK
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Year 2

CHEMISTRY Analytical, Inorganic, Organic, Bio-organic & Physical Chemistry	BIOCHEMISTRY Proteins, Enzymes, Catabolism, Carbohydrates and Lipids	MATHEMATICS Probability & Statistics Calculus of Several Variables, Partial Differential Equations	COMPUTING Visualisation and Validation of Laboratory Data with Spreadsheets	PHYSICS Atomic and Solid State Physics, Optics and Electronics	LABORATORY WORK
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Year 3

ORGANIC CHEMISTRY Drugs & their Action, Heterocycles, Molecular Rearrangements, Reactive Intermediaries	INORGANIC CHEMISTRY Organometallics, Transition Metals, Bio-inorganic Chemistry	PHYSICAL CHEMISTRY Surface Chemistry, Spectroscopy, Quantum Chemistry, Materials Science	ANALYTICAL CHEMISTRY Chromatography, Atomic Spectroscopy	COMPUTING Applications in Chemistry	LABORATORY WORK
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I N T R A

Year 4

Advanced Spectroscopy, Physical Methods of Analysis	Chemical Engineering, Organometallic Chemistry	Concepts & Strategies in Pharmaceutical Synthesis	Physical Organic Chemistry, Bio-organic Chemistry, Biosynthesis	Applied Inorganic Chemistry, Bio-inorganic Chemistry	RESEARCH PROJECT	LITERATURE REVIEW	LAB WORK
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