



Ollscoil Chathair
Bhaile Átha Cliath
Dublin City University



BSc Genetics and Cell Biology - INTRA Programme (DC168)

Objective

Since its establishment in 2004, the BSc Genetics and Cell Biology (GCB) has addressed the training needs of science students in the post-genome era. High calibre students are particularly attracted to this degree, with a consistent high standard maintained since its inception. The focus of the GCB programme is on molecular and cellular biology with a particular emphasis on genetics and bioinformatics. As with all science degrees at DCU, practical training is at the forefront of our programme where students receive 'hands-on' experience in a range of techniques spanning molecular genetics, cell culture, protein manipulation, immunology and bioinformatics.

Programme Outline

The basics of theoretical and practical biology, chemistry, physics, statistics and computational biology are taught in Year 1 of the GCB degree. This ensures that all students have sufficient basic knowledge across the science disciplines before commencing more detailed topics. Year 2 sees students develop a deeper understanding of biochemistry, microbiology, genetics, cell biology and genomics and they are introduced to the basics of bioinformatics and instrumentation. In Year 3 the emphasis switches to training in advance of INTRA placements (up to eight months, February to September). Students study six modules that build on their laboratory experience developed in Years 1 and 2.

Skills

Prior to INTRA placement, students will have experience in the following:

- Biochemical analyses
- Protein purification
- Design and execution of PCR based assays including recombinant DNA cloning and genome database mining
- Growth, identification and manipulation of bacterial cultures
- Bioinformatics and computational biology
- Statistics
- Report writing
- Literature surveys

Work Areas

The interdisciplinary nature of the programme will strengthen the marketability of students, who will have the ability to work in a variety of areas:

- Microbiological analysis
- Recombinant DNA cloning
- Protein expression and purification
- Biochemical analysis
- Bioinformatics
- Molecular biology
- Food processing
- Quality control/assurance
- Animal cell culture
- Microbiological Analysis
- Immunological analysis
- Molecular genetics/genomics
- Environmental analysis



INTRA Internship

We recognise the importance of desirable attributes among our graduates in a company setting. Apart from excellent scientific training, our range of modules also encourage our students to develop into balanced, outgoing, professional, articulate individuals with an ability to use their own initiative and to work as part of a team.



Students are available for interview from October onwards. For more information, contact:

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Year 1	Year 2	Year 3	Year 4
Core Modules	Biomolecules and Metabolism	Gene Cloning and Gene Expression	Stream 1 Biotechnology and Life Science
Biology	Introduction to Cell Biology	Biopharmaceutical Chemistry	Research Project
Chemistry	Microbiology and Genetics I	Advanced Cell Biology	Human Inheritance and Population Genetics
Physics	Practical Biochemistry Laboratory	Comparitive Genomics and Developmental Biology	Commercial Biotechnology and Biopharma
Biostatistics	Computational Biology	Bioinformatics and Gene Cloning	All Students
Computational Biology	Cell Structure and Function	Pathogen Genomics	Human Genomics
Interdisciplinary Science	Microbiology and Genetics II		Proteins, Proteomics and Biopharma
	Microbiology and Genetics II	INTRA (up to 8 months)	Current Topics in Genetics and Cell Biology
	Practical Microbiology and Genetics Laboratory	INTRA	Immunology and Immunoanalysis
	Bio-organic and Pharmaceutical Chemistry		Animal Cell Biotechnology
	Organic Chemistry		Literature Survey and Experimental Design
	Statistics		Stream 2 Biopharma
	Scientific Literature		Bioprocessing Laboratory
			Advanced Bioanalysis Laboratory
		Biopharmaceutical Industry	
		Regulation and Management	
		Biopharmaceutical Facility	
		Design and Operation	
		Formulation and Delivery of Biopharmaceuticals	