Since its establishment in 2004, the B.Sc. in 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.

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.

Graduate Attributes
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.

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 & purification
- Biochemical analysis
- Bioinformatics
- Molecular biology
- Food processing
- Quality control/assurance
- Animal cell culture
- Microbiological Analysis
- Immunological analysis
- Molecular genetics/genomics
- Environmental analysis

Student Availability
Students are available for interview from October onwards and for appointment from the following February to September. 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. Genetics & Cell Biology

## Year 1

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<th>BIOLOGY</th>
<th>CHEMISTRY</th>
<th>PHYSICS</th>
<th>BIOSTATISTICS</th>
<th>COMPUTATIONAL BIOLOGY</th>
<th>INTERDISCIPLINARY SCIENCE</th>
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<td>[Available courses]</td>
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## Year 2

### Biomolecules and Metabolism
- Introduction to Cell Biology
- Microbiology and Genetics I
- Practical Biochemistry Laboratory

### Computational Biology
- Cell Structure and Function
- Microbiology and Genetics II
- Practical Microbiology and Genetics Laboratory

### Bio-organic and Pharmaceutical Chemistry
- Organic Chemistry
- Statistics
- Scientific Literature

## Year 3

### Gene Cloning and Gene Expression
- Biopharmaceutical Chemistry
- Advanced Cell Biology

### Comparative Genomics and Developmental Biology
- Bioinformatics and Gene Cloning
- Pathogen Genomics

## Year 4

### STREAM 1
**BIOTECHNOLOGY AND LIFE SCIENCE**
- Research Project
- Human Inheritance and Population Genetics
- Commercial Biotechnology and Biopharma

### ALL STUDENTS
- Human Genomics
- Proteins, Proteomics and Biopharma
- Current Topics in Genetics and Cell Biology
- Immunology and Immunoanalysis
- Animal Cell Biotechnology
- Literature Survey and Experimental Design

### STREAM 2
**BIOPHARMA**
- Bioprocessing Laboratory
- Advanced Bioanalysis Laboratory
- Biopharmaceutical Industry Regulation and Management
- Biopharmaceutical Facility Design and Operation
- Formulation and Delivery of Biopharmaceuticals

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**INTRA** up to 8 months