

# Genetics

## BSc

College of Science,  
Engineering and Food  
Science



University College Cork, Ireland  
Coláiste na hOllscoile Corcaigh

### Introduction

The BSc Genetics Programme aims to produce graduates who have a strong foundation in modern genetics. There is a particular emphasis on the molecular basis of the subject, but all facets of genetics are covered in the degree.

### Why Study

The BSc Genetics Programme teaches how genes work in individuals and populations. This knowledge is fundamental to all areas of biological study, as genes carry the information which largely determines what we are and how we function. There is particular emphasis on the molecular basis of genetics, but all facets are covered throughout the degree and graduates get a strong foundation in modern genetics. The final year also includes a three-month project, ten weeks of which are spent in the laboratory, during which the student receives training in the use of genetic approaches to solving a contemporary problem in Biology.

### Work Placement

While work placement is not an integrated part of the programme, the staff endeavour to help motivated students to find relevant summer work experience, particularly before the final year. There are also some options for undergraduate experience abroad through the ERASMUS Programme.

### Careers

The programme produces graduates with a strong foundation in modern genetics,

molecular biology, and functional genomics. The practical applications of these disciplines include biotechnology, medical genetics, and forensics. The Irish Government has identified many areas that draw upon genetic expertise. Government policy remains committed to fostering the development of indigenous biotechnology companies, which will provide further employment opportunities for genetics graduates. UCC graduates, by virtue of their broad training, will also have skills relevant for careers in the pharmaceutical industry, molecular diagnostics, medical research, science journalism, or teaching, and in genetic counselling, after further training.

### Further Study

Graduates are eligible to compete for entry into MSc and PhD programmes in Ireland and overseas, in many disciplines including biochemistry, medical genetics, microbiology, medicine, neuroscience, plant science, zoology, and ecology. Graduates will also be eligible to compete for entry to genetic counselling training programmes.

- PhD Biochemistry
- PhD Genetics
- PhD Medicine
- PhD Microbiology
- MSc Biochemistry
- MSc Biotechnology
- MSc Food Microbiology
- MSc Genetic Counselling
- MSc Microbiology
- MSc Molecular Cell Biology with Bioinnovation
- HDip Statistics
- Graduate Entry Medicine.

## CK405

**DURATION** 4 Years

**APPROX. INTAKE** 25

**MINIMUM POINTS 2016** 480

**POINTS RANGE 2016** 480–615

**LEAVING CERTIFICATE ENTRY**

**REQUIREMENTS** H5 in two subjects, and O6/H7 in four other subjects from Irish, English, Maths, one laboratory science subject (Biology, Chemistry, Physics, Physics with Chemistry or Agricultural Science) and two other subjects recognised for entry purposes.

**ADDITIONAL REQUIREMENT** H4 in Biology (meets the Laboratory Science requirement)

**QQI FET LINKS** [www.ucc.ie/en/study/undergrad/fetac/sefs](http://www.ucc.ie/en/study/undergrad/fetac/sefs)

**MATURE PLACES** 3

**COURSE PAGE ONLINE** [www.ucc.ie/en/ck405](http://www.ucc.ie/en/ck405)

### CONTACT INFORMATION

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[www.ucc.ie/en/microbiology](http://www.ucc.ie/en/microbiology)

#uccmakeyourmark



## KEY FACTS

- Multidisciplinary course team
- 3-month lab project
- Small classes
- Versatile multi-skilled graduates

### Year 1 Modules

**BC1001** Introduction to Biochemistry and the Biological Basis of Disease (5 credits); **BL1002** Cells, Biomolecules, Genetics and Evolution (5 credits); **BL1005** Introduction to Ecology (5 credits); **BT1001** Biotechnology (5 credits); **GN1006** Principles and Methods in Genetics (5 credits); **MA1001 & MA1002** Calculus for Science 1 & 2 (5 credits each); **MB1003** Microbiology in Society (5 credits); **CM1200** Fundamentals of Modern Chemistry Part 1 (10 credits); **PY1010** Physics for Biological and Chemical Sciences (10 credits)

### Year 2 Modules

**CORE:** Biomolecules; Principles of Metabolic Pathways; Fundamentals of Modern Chemistry; Current Perspectives in Genetics; Fundamentals of Microbiology; Principles of Microbiology; Introductory Molecular Biology; Introduction to Plant Biotechnology; Introduction to Biostatistics; Vertebrate Diversity

**ELECTIVES:** Mammalian Cell and Tissue Structure; Ecological Plant Physiology

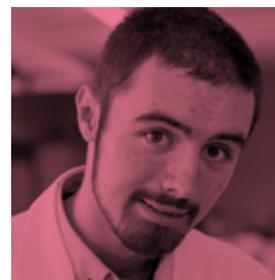
### Year 3 Modules

Structural Biochemistry; Cell Signalling; Molecular Biology; Principles of Medical Genetics; Bioinformatics; Literature Project on Genetics; Population and Evolutionary Genetics; Genetic Engineering and Molecular Biotechnology; Molecular Genetics and Genomics; Immunology; Host Response to Pathogens; Genetic Manipulation of Plants; Biostatistics

### Year 4 Modules

**CORE:** Research Project; Developmental Genetics; Genomics and Applications; Genetics and Society; Computational Biology; Eukaryotic Molecular Genetics; Molecular Biology and Physiology of Bacteria; Biostatistics

**ELECTIVES:** Medical Microbiology; Advanced Medical Microbiology; Advanced Virology; Advanced Cell Biology; Cancer Biology; Current Advances in Immunology



**TIMOTHY O'FLYNN**

GRADUATE

*“I had the opportunity to work on cutting-edge projects and be involved in new movements occurring in biology, namely iGEM and IndieBio. I plan to do a masters and eventually to teach genetics and biology at a third level.”*