



# UCC

Coláiste na hOllscoile Corcaigh, Éire  
University College Cork, Ireland



## Masters Degree in Molecular Cell Biology with Bioinnovation

### Overview of Programme

The MSc in Molecular Cell Biology with Bioinnovation is a new 12-month course that aims to recruit highly motivated students with an interest in research and entrepreneurial thinking.

This Masters is a unique full-time programme that provides graduates with a truly interdisciplinary educational experience and includes:

- \* Taught programme-specific modules focused on molecular cell biology, genetics and clinical perspectives of disease
- \* Entrepreneurship and innovation training offered by the College of Business and Law
- \* A six-month research project that gives students a hands-on experience in theoretical and technical approaches to research with internationally recognised principal investigators
- \* Practical skills development in laboratory techniques and scientific communication

With three primary research themes: Cancer Biology, Infection/Immunity, and Molecular Neuroscience; students will be offered projects by internationally renowned research groups from the Departments of Biochemistry, Microbiology, Anatomy and Neuroscience in the College of Science, Engineering and Food Science.

### Innovation and Entrepreneurship Training

A unique feature of this MSc programme is that all students will receive formal innovation and technology commercialisation training through the College of Business and Law at UCC. Graduates will therefore not only possess excellent research and technical skills, but will also have the necessary business development and commercialisation skills in life science innovation.

### Entry and Eligibility

The MSc Programme in Molecular Cell Biology with Bioinnovation welcomes applications from either EU or non-EU countries. Successful applicants must possess a primary degree (minimum 2:2 honours or equivalent) in Biochemistry, Biology, Microbiology, Neuroscience, Pharmaceutical Science or a similar science-based subject. Candidates must be approved by the MSc in Molecular Cell Biology with Bioinnovation course team and/or the course director. The number of places is limited, and decisions on entry to the programme, will be made on the basis of the candidate's performance in his/her primary degree, personal statement, and interview.

### Career Opportunities

Potential graduates will be highly trained to enter into PhD studies, but could also pursue a number of career paths including the following: technology transfer officer within higher education institutes and national agencies, R&D institute project manager, commercialisation manager within life science start-up, or development manager within the pharmaceutical sector. The programme will also equip graduates with the skills required to develop their own start-up ventures.

### University College Cork

*University College Cork (UCC) is one of Ireland's oldest institutions of higher education. UCC was originally founded in 1845, and more than 160 years later, the University is internationally acclaimed as Ireland's foremost research institution.*

*University College Cork's internationally recognised science departments, biomedical research laboratories, and proximity to the largest concentration of pharmaceutical and biotechnology facilities in Ireland, place this programme at the forefront of biopharmaceutical and biotechnology education in Ireland.*







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## Masters Degree in Molecular Cell Biology with Bioinnovation

### Programme Structure

This is a unique inter-disciplinary MSc programme in UCC that combines advanced discipline-specific training with core research, technical and business skills. This Masters programme will be delivered by a multidisciplinary team of academics from the College of Science, Engineering and Food Science; College of Medicine and Health; and the College of Business and Law, in UCC. The programme will consist of lectures, tutorials, hands-on workshops, and a research dissertation based on individual research.

Students study the following modules and complete a six-month research project:

**Cell and Molecular Biology.** This module has an emphasis on analysis of research articles to provide an overview of cell and molecular biology that governs normal and neoplastic cell growth, proliferation, function and death and to explore the systems used by cells to sense and respond to their environment.

**Human Molecular Genetics and Genetic Engineering Techniques.** The aim of this module is to achieve an overview of advanced principles and techniques of human molecular genetics and genetic engineering relating to cancer, inflammation and neurodegeneration. An overview of therapeutic advances and the potential of pharmacogenomics in human medicine will also be provided.

**Biological and Clinical Perspectives of Human Disease.** This course will provide an overview of human disease that links fundamental cell and molecular biology to clinical relevance and outcomes. The focus will primarily on cancer, infection/immunity and neurological disorders, but will also include other areas of disease including diabetes and cardiovascular disease that may have etiological connections.

**Biotechniques.** The aim of this module is to give students a broad overview of the range of techniques that are applied in cellular and molecular life science research. It is comprised of a combination of lectures/seminars and hands-on workshops.

**Scientific Communication of Current Topics in Molecular Cell Biology.** This module will be in journal club format to allow for discussion and critical evaluation of current discoveries. Emphasis will be placed on improving critical literature appraisal skills through participation in discussions and presentations of current scientific articles in molecular cell biology with particular emphasis on mechanisms underlying cancer biology, neurodegeneration and infection/immunity.

**Technology and Business Planning.** The aim of this module is to examine, critique and apply the main elements of business planning as it applies to technology focused ventures. It will also give students practical experience of business start-up and entrepreneurial behaviour.

**Marketing for High Technology Entrepreneurs.** The module provides the student with a detailed foundation of marketing theory, principles and practice. The module facilitates students in developing a comprehensive understanding and appreciation of the role of marketing in the successful operation of the technology enterprise.

And one of the following business electives:

**Creativity and Opportunity Recognition.** This module will utilise business cases and draw on the experience of Irish entrepreneurs. It will also give students practical experience of identifying and validating un-met needs, leading to new products and services in the biopharmaceutical and biotechnology sectors.

### BUSINESS-BASED

**Innovation Finance.** This course examines the finance of innovation, focusing on technology-based start-up ventures, and the early stages of company development. It addresses key questions including how much money can and should be raised; when should it be raised and from whom; what is a reasonable valuation of the company?

**Intellectual Property Law for High-Tech Entrepreneurs.** This course provides students with an introduction to and understanding of the intellectual property issues arising in the protection and commercialisation of research.

### RESEARCH PROJECT

#### Research Project

Students will be offered projects by internationally renowned research groups from the Departments of Biochemistry, Microbiology, Anatomy and Neuroscience. With three primary research themes: cancer biology, infection/immunity and molecular neuroscience; each student will complete a six-month project based on individual research in one of these themes. Upon completion, results will be compiled in a research dissertation. Students will gain invaluable hands-on, practical experience in experimental design and implementation, and will also develop a wide array of transferable skills including written and verbal communication; ability to work in collaboration with others, as well as independently; and project and time-management.

#### Further Information

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#### Application Information

**Postgraduate Admissions Office**  
T: +353 21 490 2876  
E: [graduatestudies@ucc.ie](mailto:graduatestudies@ucc.ie)  
W: <http://www.ucc.ie/postgraduate>

#### Fees

**Finance Office**  
W: <http://www.ucc.ie/en/financeoffice/fees>

#### Apply Online

<http://www.pac.ie/ucc>