

# Biochemistry & Molecular Biology

CAO code: DN200 Option: Biological, Biomedical and Biomolecular Science (BBB)



Blood cell preparation in the UCD Conway Institute.  
Image by Naheda Alkazemi © UCD

Develop practical skills in:

- Protein and DNA isolation and analysis
- Molecular Biology techniques used in pharmaceutical and biotechnology
- Clinical trials tests such as immunoassays used in hospital laboratories

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I completed a summer studentship in neurochemistry in Dr Gethin McBean's lab. My research project investigated the molecular basis of neurodegeneration in a rare genetic disorder, called Cystinosis. This pilot project investigated whether there is the possibility that cysteine accumulation, exhibited in Cystinosis, leads to reduced levels of the major antioxidant glutathione in brain glial cells.

Dylan Ryan, Student

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## Sample pathway for a degree in Biochemistry & Molecular Biology \*

YEAR  
1

### ENGAGE WITH THE PRINCIPLES

#### BIOLOGY

Topics include:

- ▶ Biology in Action
- ▶ Life on Earth
- ▶ Cell Biology & Genetics
- ▶ Biomedical Sciences

#### CHEMISTRY

Topics include:

- ▶ The Basis of Organic and Biological Chemistry

#### MATHEMATICS

Topics include:

- ▶ Mathematics for the Biological & Chemical Sciences

- ▶ Two Elective modules
- ▶ One Small-Group Project

YEAR  
2

### CHOOSE YOUR SUBJECTS

#### BIOCHEMISTRY & MOLECULAR BIOLOGY

Topics include:

- ▶ Principles of Biochemistry
- ▶ Molecular Genetics and Biotechnology
- ▶ Biomolecular Laboratory Skills
- ▶ Metabolic and Immune Systems
- ▶ Chemistry for Biologists

#### MICROBIOLOGY

Topics include:

- ▶ Principles of Microbiology
- ▶ Research Methods for Science

#### PHARMACOLOGY

Topics include:

- ▶ Biomedical Science of Drugs

- ▶ Two Elective modules

YEAR  
3

### FOCUS ON YOUR CHOSEN SUBJECT

#### BIOCHEMISTRY & MOLECULAR BIOLOGY – Topics include:

- ▶ Metabolism and Disease
- ▶ Biochemist's Toolkit
- ▶ Advanced Cell Biology
- ▶ Cell Signalling

- ▶ Regulation of Gene Expression
- ▶ Molecular Basis of Disease
- ▶ Proteins and Enzymes
- ▶ Genomics and Proteomics

- ▶ Two Elective modules

YEAR  
4

### REFINE YOUR KNOWLEDGE

#### BIOCHEMISTRY & MOLECULAR BIOLOGY – Topics include:

- ▶ Biochemistry Career Skills
- ▶ Advanced Neurochemistry
- ▶ Advanced Cell Signalling

- ▶ Biochemical Research Strategies
- ▶ Biochemistry Research Project
- ▶ Protein Structure & Analysis

- ▶ Three optional modules on topics such as cancer, genetics, microbiology and pharmacology

## BSc (Honours) Biochemistry & Molecular Biology

#### MSc (Taught)

- ▶ MSc Biotechnology
- ▶ MSc Biotechnology & Business
- ▶ MSc Molecular Medicine
- ▶ MSc Biological & Biomolecular Science (NL)
- ▶ MSc Biotherapeutics
- ▶ MSc Biotherapeutics & Business

#### PhD

- ▶ Students can pursue a PhD in universities in Ireland or abroad in areas as diverse as medical research, drug development and biomedical science

#### Industry

- ▶ Pharmaceutical Companies
- ▶ Food sector
- ▶ Biotechnology sector
- ▶ Chemical Industries

#### Conversion Courses

- ▶ Professional Master of Education (PME)
- ▶ Graduate Veterinary Medicine
- ▶ Graduate Medicine
- ▶ Master of Business Administration
- ▶ Master in Management

\*See pages 4 and 5 for information on the terminology used above. Potential combinations shown here are examples only and are not guaranteed by UCD. Topics are subject to change each year.



[www.ucd.ie/myucd/bioandmolbio](http://www.ucd.ie/myucd/bioandmolbio)

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Dr Jana Haase  
UCD School of Biomolecular and Biomedical Sciences

[jana.haase@ucd.ie](mailto:jana.haase@ucd.ie)  
+353 1 716 6754  
[facebook.com/UCDSchool](https://facebook.com/UCDSchool)  
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