

# Medicinal Chemistry & Chemical Biology

CAO code: DN200 Option: Chemistry & Chemical Sciences (CCS)



UV determination of enzyme kinetics is a key step in the design of industrially relevant biocatalysts.

- Learn how to apply the tools of Chemistry to study biological systems
- Develop experience in techniques and instrumentation used in the pharmaceutical industry, e.g., the synthesis, identification and analysis of chemicals



“ I enjoyed practical lab work, drug development, organic chemistry and aspects of pharmacology that I probably would not have realised if I had chosen a specialisation straight out of school. I hope to do a masters in organic chemistry or instrumental analysis when I graduate.

Tricia Madden, Student

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## Sample pathway for a degree in Medicinal Chemistry & Chemical Biology \*

YEAR 1

### ENGAGE WITH THE PRINCIPLES

#### CHEMISTRY

Topics include:

- ▶ The Basis of Organic and Biological Chemistry
- ▶ The Basis of Physical Chemistry
- ▶ The Basic of Inorganic Chemistry
- ▶ The Molecular World

#### MATHEMATICS

Topics include:

- ▶ Mathematics for the Biological & Chemical Sciences

#### BIOLOGY

Topics include:

- ▶ Cell Biology & Genetics

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

YEAR 2

### CHOOSE YOUR SUBJECTS

#### MEDICINAL CHEMISTRY & CHEMICAL BIOLOGY

Topics include:

- ▶ Molecular Genetics and Biotechnology
- ▶ Principals of Biochemistry
- ▶ Medicinal Chemistry & Chemical Biology
- ▶ Pharmacology: Biomedical Science of Drugs

- ▶ Biomolecular Laboratory Skills
- ▶ Organic Chemistry
- ▶ Physical Chemistry
- ▶ Inorganic Chemistry

#### CHEMISTRY

Topics include:

- ▶ Students who choose Medicinal Chemistry & Chemical Biology as their main subject for second year also cover the requirements for Chemistry.

- ▶ Two Elective modules

YEAR 3

### FOCUS ON YOUR CHOSEN SUBJECT

#### MEDICINAL CHEMISTRY & CHEMICAL BIOLOGY – Topics include:

- ▶ Chemical Biology of Natural Products
- ▶ Chemical Biology of Macromolecules
- ▶ Carbonyl Chemistry & Synthesis
- ▶ Medicinal Chemistry

- ▶ Structure Determination & Heterocyclic Chemistry
- ▶ Microbial Cell Factory/Chemists
- ▶ Mechanism & Stereochemistry
- ▶ Biochemist's Toolkit

- ▶ Two Elective modules

YEAR 4

### REFINE YOUR KNOWLEDGE

#### MEDICINAL CHEMISTRY & CHEMICAL BIOLOGY – Topics include:

- ▶ Metals in Biology
- ▶ Methods in Organic Synthesis

- ▶ Modern Methods of Catalysis
- ▶ Research Project

- ▶ Special topics in Medicinal Chemistry and Chemical Biology

## BSc (Honours) Medicinal Chemistry & Chemical Biology

#### PhD

- ▶ Students can pursue a PhD in universities in Ireland or abroad in areas as diverse as Chemistry, Chemical Biology, Medicinal Chemistry, and Biochemistry

#### Industry

- ▶ Pharmaceuticals and Biopharmaceuticals
- ▶ Cosmetics Food Technology
- ▶ Fine Chemicals
- ▶ Chemical Development
- ▶ Patenting
- ▶ Science-based Sales, Marketing, Finance

#### 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/medicinalchemistryandchemicalbiology](http://www.ucd.ie/myucd/medicinalchemistryandchemicalbiology)

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