

# Medicinal Chemistry & Chemical Biology

BSc [Hons] [NFQ Level 8]



## Science SCU1

Length of Course 4 Years

### Guideline Entry Requirements

**IB - International Baccalaureate Diploma** IB Total 30  
Subject Requirements:  
Maths: 4 at Higher Level/ 6 at Standard Level  
Lab Science: 4 at Higher Level/ 6 at Standard Level

**Cambridge A Level (+ GCSE O Level)** AAB  
Subject Requirements:  
Maths: GCSE Grade B/ A Level Grade D  
Lab Science: GCSE Grade B/ A Level Grade D

**Other Examinations** For country specific information see page 157

**UCD International Foundation Year** Yes, see [www.dublinisc.com/university-college-dublin](http://www.dublinisc.com/university-college-dublin)



David Breen and Elina Osoianu preparing an experiment in a third year Medicinal Chemistry and Chemical Biology laboratory  
Photo by Niall Hayes © UCD 2014

### Why is this course for me?

This degree is ideal for students who have an interest in chemistry and its applications in biology. Medicinal Chemistry & Chemical Biology are fields populated by chemists who have a good understanding of biology at the molecular level. They'll be of increasing importance for decades to come to address existing and emerging healthcare problems, e.g. cancer, AIDS, TB and avian flu. Chemical biologists and medicinal chemists will develop the next generation of medicines to solve such problems, and will have an impact across a wide range of areas, including the development of environmentally friendly approaches to process chemistry.

### What will I study?

This is a sample pathway for a degree in Medicinal Chemistry & Chemical Biology. Topics include metabolic biochemistry, reactivity of biomolecules, principles of pharmacology, chemical biology of natural products and macromolecules.

#### First Year

Chemistry • Mathematics • Biology • Optional Science modules • Elective modules

#### Second Year

Medicinal Chemistry & Chemical Biology • + 1 other Science subject • Elective modules

#### Third Year

Medicinal Chemistry & Chemical Biology • Elective modules

#### Fourth Year

Medicinal Chemistry & Chemical Biology  
[includes a research project]

All Science courses are full time, with many student timetables running from 9.00am to 5.00pm or later. Depending on the subject choices, a weekly timetable can include lectures, practicals and tutorials.

Assessment varies with each module but may comprise continuous assessment of practicals, written exams and online learning activities.

### Career & Graduate Study Opportunities

Graduates of the Medicinal Chemistry & Chemical Biology degree will be equipped with the skills to pursue a career in:

- Pharmaceuticals and biopharmaceuticals
- Food technology companies
- Cosmetic technology companies
- Fine chemical and chemical development
- Patenting

Graduates can also pursue a PhD in Ireland or abroad in areas such as chemistry, chemical biology or medicinal chemistry.



**Stefan Oscarson**  
PROFESSOR

Professor Oscarson is Professor of Chemical Biology in the UCD School of Chemistry and Chemical Biology and Head of Subject for Medicinal Chemistry and Chemical Biology. His main research interest is the synthesis of biologically active natural products, in particular oligosaccharides and glycoconjugates, for use in biological and medicinal experiments and applications. Another important research area is the development of new protecting group and glycosylation methodology. Currently he is collaborating with international research groups and pharmaceutical companies on the development of vaccines against bacteria and fungi with a principal focus on the bacteria *N. meningitidis*, which causes meningitis. Other key research interests include developing new types of antibiotics against bacteria such as *H. pylori*, implicated in peptic ulcers, and *E. coli* which causes urinary tract infections and investigating the specificities and functions of human lectins as galectins and calnexin.

**Professor Stefan Oscarson, Head of Subject**

### Find out more

[www.ucd.ie/international](http://www.ucd.ie/international)

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+353 1 716 2967

[facebook.com/UCDScience](https://www.facebook.com/UCDScience)

UCD School of Chemistry & Chemical Biology  
Belfield, Dublin 4

### Other courses of interest

Chemistry →108

Biochemistry & Molecular Biology →98

Chemistry with Environmental & Sustainable Chemistry →110