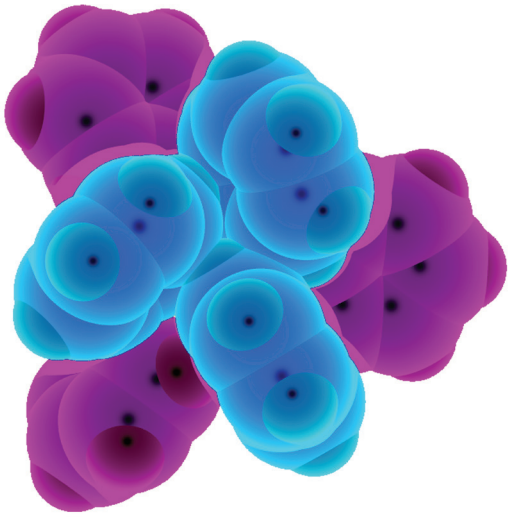
University College Dublin
Ireland's Global University



X-ray crystal structure of all cis hexaphenylcyclohexane, isolated from the BIRCH reduction of hexaphenylbenzene.

MSc Synthetic Chemistry for the Pharmaceutical & Fine Chemicals Industry
(1 Year Full Time)

Ireland is home to nine of the top 10 world pharmaceutical and biotechnology companies, with seven of the 10 top blockbuster pharmaceuticals made in Ireland. This MSc in Synthetic Chemistry is designed for Chemistry graduates who are interested in deepening their knowledge of synthetic chemistry with a view to pursuing a career in either the fine chemicals or pharmaceutical industry.

The course draws on the expertise from researchers in the UCD School of Chemistry who specialise in the following areas:

- Catalysis and new transformations research is directed towards design and discovery of new methodologies for metal-mediated and organic bond making and breaking processes to provide new techniques for building up molecular complexity (cascade processes) and to facilitate challenging reactions under mild conditions. Areas of application are multifaceted, including for example natural product synthesis, energy storage (hydrogen fuel economy, greenhouse gas fixation, water splitting), and greener processes.
- Carbohydrate chemistry research focuses on developing new synthetic methodologies towards carbohydrates, C- and S-glycosides, and towards oligosaccharides and glycoconjugates, and also includes the evaluation of the biological activity, specifically as antibiotics, vaccines, and antitumour agents.
- New materials for magnetic, medicinal and electronic applications research encompass the fabrication and application of complexes and assemblies for spin crossover (magnetic switches) and as electrochemical sensors. Substantial work is also directed towards the synthesis and application of metal-based drugs for anticancer and antimicrobial application.

Key Facts

The UCD School of Chemistry has vibrant research in areas such as catalysis, the synthesis of biologically active compounds and the development of new materials for magnetic and electronic applications, and it has strong links with pharmaceutical and fine chemical companies in Ireland and around the world.
According to the 2017 QS World University Rankings by Subject, Chemistry at UCD is ranked 1st in Ireland and in the world top 150.

Why study at UCD?

Tradition
Established 1854, with 160 years of teaching & research excellence

Global profile
UCD is ranked in the top 1% of higher education institutions worldwide

Global community
Over 6,000 international students from over 120 countries study at UCD

Global careers
Degrees with high employability; dedicated careers support; 1 year stay-back visa

Safety
Modern parkland campus with 24 hour security, minutes from Dublin city centre

Course Content and Structure

90 credits	60 credits	30 credits
taught masters	taught modules	research project

The structure of the programme is as follows:

September - December
- Organic Synthesis
- Metals in Biology
- Topics in Medicinal Chemistry
- Spectroscopic Techniques
- Masterclass in Carbohydrate Chemistry

January - May
- Organic Synthesis 2
- Modern Methods & Catalysis
- Chemistry Lab to commercialisation
- Catalytic Asymmetric Synthesis
- Advanced NMR & MS
- Advanced Organic Synthesis & Drug Discovery

May - August
- Research Project

Modules and topics shown are subject to change and are not guaranteed by UCD.

Clofazimine, the Irish anti-leprosy drug, is being researched for new medical uses. © UCD Research Images

Pictured is a superconducting magnet, part of the 600MHz Nuclear Magnetic Resonance (NMR) Spectrometer system, which is used to study (bio)chemically important molecules. © UCD Research Images

Career Opportunities

The MSc in Synthetic Chemistry provides a basis for graduates to enter the chemical, pharmaceutical, bio-pharmaceutical and materials industries. Analytical services, environmental protection, and primary and secondary school teaching present other possible opportunities. This course is also a route for some students into a PhD programme.

Apply Now

This programme receives significant interest so please apply early online at www.ucd.ie/apply

Entry Requirements

- This programme is intended for applicants with a Chemistry degree, or a degree with a significant component of chemistry. An upper second class honours undergraduate degree or international equivalent is required.
  Applicants who first language is not English must also demonstrate English languate proficiency of IELTS 6.5 (no band less than 6.0 in each element), or equivalent.

Staff Profile

Associate Professor Paul Evans, UCD School of Chemistry

I am an organic chemist, both contributing to teaching and also leading research in the UCD School of Chemistry. My main research interest is in the area of developing new synthetic methods to prepare biologically active small molecules. Targets include fatty acid metabolites and saturated N-heterocycles, and we have prepared both natural products and structural analogues with a view to assessing their anti-microbial and inflammatory properties, in addition to their cytotoxicity. To do this we are using reactions reported in the literature in new ways, which serve to prepare the targets in as efficient means as possible.

Fees and Scholarships

Tuition fee information is available on www.ucd.ie/fees. Please note that UCD offers a number of postgraduate scholarships for full-time, self-funding international students, holding an offer of a place on masters programmes. Please visit www.ucd.ie/international/scholarships

Accommodation

UCD has accommodation for over 2,500 students across five locations. Places are limited and more information is available at www.ucd.ie/residences/
For information and advice on living off campus, please contact the UCD Residences Off-Campus Office or the UCD Student Union Accommodation Services. Please visit www.ucd.ie/residences/accommodation-booking-support/ for further details.

Related Masters Programmes of Interest

- MSc Chemistry (Negotiated Learning)
- MSc Nanomaterials Chemistry
- MSc NanoBio Science

EU Enquiries Associate Professor Mike Casey
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http://www.ucd.ie/courses/msc-synthetic-chemistry
UCD School of Chemistry, University College Dublin, Belfield, Dublin 4.

Non-EU Enquiries : internationaladmissions@ucd.ie
www.ucd.ie/international