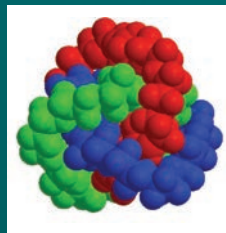
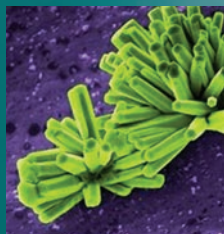




Trinity College Dublin

Coláiste na Tríonóide, Baile Átha Cliath

The University of Dublin



SCHOOL OF CHEMISTRY

Faculty of Engineering, Mathematics and Science

- Science-Chemistry (TR071)
- Chemistry with Molecular Modelling (TR074)
- Medicinal Chemistry (TR075)
- Nanoscience: Physics and Chemistry of Advanced Materials (TR076)

www.tcd.ie/chemistry



Trinity College Dublin

Trinity College Dublin is one of the world's great universities and was ranked at number 71 in the world by the QS World University Rankings in 2014/15. It is widely recognised for the high quality of its graduates and the international standing of its multidisciplinary research. Founded in 1592, the historic 47-acre campus is located at the heart of Dublin city centre. The university now has a diverse population of 16,600 students and 2,900 staff and it prides itself on offering a liberal learning environment. In addition to a distinguished educational experience, Trinity College has a wide range of clubs, societies, volunteer groups and other social activities that are open to all students, as well as providing each student with an academic tutor, who can offer advice and support.

The School of Chemistry was founded in 1711 and has been consistently in the top 150 chemistry departments in the world for the last four years. The School has 22 academic staff, 6 administrative staff, and 15 technical and attendant staff. The School's core undergraduate teaching activities, including lectures, tutorials and weekly seminars are held primarily on the main campus, with practical laboratory sessions being held in the state-of-the-art Cocker teaching laboratory. The School of Chemistry participates in European and North American student exchanges through Erasmus Plus and TASSEP, and welcomes one semester and one year visiting students through both programmes. In conjunction with University College Dublin, the School operates the Dublin Chemistry Graduate Programme, which ensures a structured learning environment for all of its postgraduate students. The School of Chemistry operates a dedicated outreach programme and engages with primary and secondary schools e.g. through Science Foundation Ireland's (SFI) Speakers for Schools and the hosting of the Salter's programme (12-14 year olds), an annual Summer School as well as a very popular transition year programme (15-17 year olds).

The School has a vibrant research programme that encompasses synthetic organic, medicinal, biological and inorganic chemistry, computational chemistry, electrochemistry, photochemistry, nanomaterials and surface chemistry. The strong research community includes an average of 35 postdoctoral research fellows and 100 postgraduate students. Chemistry has contributed to major strategic innovation in Trinity College, e.g. to the multidisciplinary research centres: the Sami Nasr Institute for Advanced Materials (SNIAM), the Centre for Research on Adaptive Nanostructures and Nanodevices (CRANN), the Institute for Molecular Medicine (IMM) and the Trinity Biomedical Sciences Institute (TBSI). Researchers from the School are currently involved in the AMBER (Advanced Materials and BioEngineering Research) project funded by SFI as well as being actively engaged in national and international collaborations e.g. members of the School hold prestigious European Research Council Awards.

- Worldwide academic reputation
- International student body
- Vibrant city-centre campus
- Broad and flexible curriculum

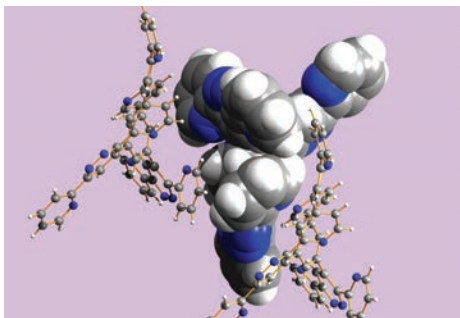


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School of Chemistry- Degree Options

The School of Chemistry provides four-year honours degree courses (moderatorships) that are designed to train our students with the creative talents and skills required for research and industry. These courses provide a broad base in organic, inorganic and physical chemistry. The School offers two direct-entry degree courses – Chemistry with Molecular Modelling (TR074) and Medicinal Chemistry (TR075) and, in conjunction with the School of Physics, a degree programme in Nanoscience, Physics and Chemistry of Advanced Materials (N-PCAM, TR076). Students can also select Science (TR071) and specialise in Chemistry for their senior years. All of the School's degree courses encompass a final-year research project that can be carried out within the School or in Europe, the United States, Canada or China.

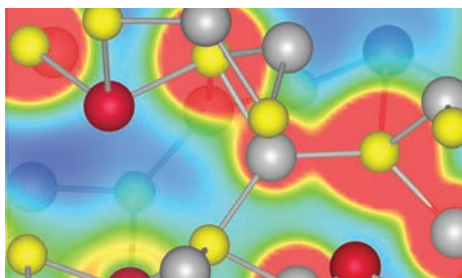
Science-Chemistry (TR071)



Chemistry is a creative science that can be used to develop everything from new materials such as superconductors for new batteries to new drug molecules for the pharmaceutical world. Without it, many modern science disciplines, such as materials science, molecular biology and environmental science, would not be possible. Our degree provides students with the opportunity to study the fundamentals of modern chemistry whilst developing their interests in specific topics such as molecular dynamics, solid-state materials and synthetic chemistry.

If you are interested in a Chemistry degree in Trinity College, apply for the general entry TR071 Science course, and choose Chemistry as one of your subjects for first and second year. Students who specialise in Chemistry in third and fourth year are awarded an honours degree in Chemistry.

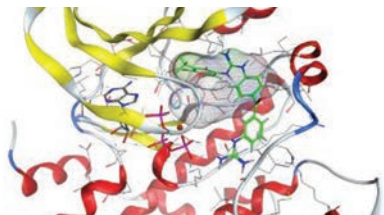
Chemistry with Molecular Modelling (TR074)



Molecular Modelling is the use of computer modelling to understand and explore chemistry and its potential applications. Advances in molecular modelling have led to an explosive growth in a range of areas, such as drug design, optoelectronics and catalytic converters. This course focuses on the theory and practice of modelling complex structures and their reactivity using a variety of computational techniques, while simultaneously providing our graduates with a fundamental knowledge of chemistry and its applications. Graduates of this course are sought after

for their problem-solving skills and are currently employed across the pharmaceutical, chemical and materials industries, as well as financial services, management and even meteorology!

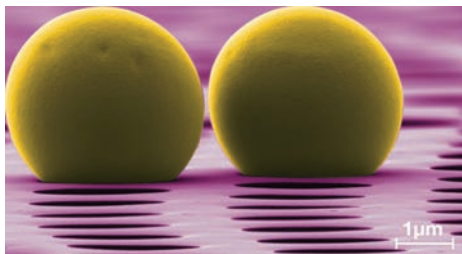
Medicinal Chemistry (TR075)



Medicinal chemists are the creative talent behind the modern pharmaceutical industry. As well as being expert chemists, they have extensive knowledge of molecular design, drug synthesis and the effect of drugs on biological function. Medicinal chemistry students take a specific combination of courses in physical, inorganic and organic chemistry with a special emphasis on synthetic chemistry and the topics related to drug design. Students benefit from a

series of industrial speakers as well as teaching provided by the Schools of Pharmacy, Genetics & Microbiology and Biochemistry & Immunology. Graduates of this course find employment in leading international pharmaceutical companies both in Ireland and abroad, in addition to a variety of jobs suitable for graduates of the physical sciences.

Nanoscience: Physics and Chemistry of Advanced Materials (TR076)



Nanoscience is the study of small-scale structures, the minuscule building blocks of semiconductor devices, functional materials and biological matter. Nanoscience incorporates fields such as energy conversion, medical diagnostics and electronics, and is contributing to material innovation in virtually every field of manufactured goods. In Ireland we are globally acknowledged for the quality of the nanoscience research carried out in our universities, especially at TCD's state-of-the-art nanoscience

institute, CRANN. Our interdisciplinary degree programme combines physics and chemistry subjects so that students gain a deep and lasting understanding of the science of advanced materials that underpins nanoscience. Students will also be introduced to a wide range of techniques for the synthesis, preparation and characterisation of nanoscale materials. In their final year, students carry out a research project through which they become familiar with the applications of advanced materials, nanostructures or nanodevices in real-life applications.



Chemistry Options at Trinity College Dublin

All of the School of Chemistry's degree courses are taught through a combination of lectures, practical work, tutorials and workshops. The teaching year is divided into two semesters (teaching terms) and examinations are held annually at the end of the academic year. Final-year students have the opportunity to conduct their research project either within the School of Chemistry or abroad. The School of Chemistry hosts a variety of national and international speakers through a weekly seminar programme.

Chemistry Options	First Year (Junior Freshman) 60 ECTS	Second Year (Senior Freshman) 60 ECTS	Third Year (Junior Sophister) 60 ECTS	Fourth Year (Senior Sophister) 60 ECTS
Chemistry (Entry through General Science Degree) (TR071)	<ul style="list-style-type: none"> Chemistry (20 ECTS) Maths (20 ECTS) <i>OR</i> Mathematical Methods (10 ECTS) Remaining ECTS from Physics, Biology, Geology, Geography 	<ul style="list-style-type: none"> Chemistry (20 ECTS) 40 ECTS from Maths, Physics, Biology, Geography, Geology 	<ul style="list-style-type: none"> Organic, Inorganic and Physical Chemistry Modules (40 ECTS) Optional Modules (5 ECTS) Chemistry Laboratory Practicals (15 ECTS) 	<ul style="list-style-type: none"> Term 1: Research Project (20 ECTS) Term 2: Lectures (40 ECTS) <ul style="list-style-type: none"> Inorganic Chemistry Organic Chemistry Physical Chemistry Optional Modules
Chemistry with Molecular Modelling (TR074)	<ul style="list-style-type: none"> Chemistry (20 ECTS) Maths (20 ECTS) Physics <i>OR</i> Biology (20 ECTS) 	<ul style="list-style-type: none"> Chemistry (20 ECTS) Maths (20 ECTS) Physics <i>OR</i> Biology (20 ECTS) 	<ul style="list-style-type: none"> Chemistry Modules (35 ECTS) Molecular Modelling Modules (10 ECTS) Chemistry Laboratory Practicals (15 ECTS) 	<ul style="list-style-type: none"> Term 1: Research Project (20 ECTS) Term 2: Lectures (40 ECTS) <ul style="list-style-type: none"> Inorganic Chemistry Organic Chemistry Physical Chemistry Molecular Modelling
Medicinal Chemistry (TR075)	<ul style="list-style-type: none"> Chemistry (20 ECTS) Biology (20 ECTS) Maths (20 ECTS) 	<ul style="list-style-type: none"> Chemistry (20 ECTS) Biology (20 ECTS) Maths (20 ECTS) <i>OR</i> Chemistry (20 ECTS) Biology (40 ECTS) 	<ul style="list-style-type: none"> Core Chemistry Modules (30 ECTS) Medicinal Chemistry Modules (15 ECTS) Chemistry Laboratory Practicals (15 ECTS) 	<ul style="list-style-type: none"> Term 1: Research Project (20 ECTS) Term 2: Lectures (40 ECTS) <ul style="list-style-type: none"> Inorganic Chemistry Organic Chemistry Physical Chemistry Medicinal Chemistry
Nanoscience, Physics, Chemistry of Advanced Materials (TR076)	<ul style="list-style-type: none"> Chemistry (20 ECTS) Physics (20 ECTS) Maths (20 ECTS) Nanoscience Tutorials 	<ul style="list-style-type: none"> Chemistry (20 ECTS) Physics (20 ECTS) Maths (20 ECTS) Nanoscience Tutorials 	<ul style="list-style-type: none"> Materials Physics Modules (20 ECTS) Materials Chemistry Modules (20 ECTS) Advanced Materials Laboratory Practicals (20 ECTS) 	<ul style="list-style-type: none"> Term 1: Research Project (25 ECTS) Term 2: Lectures (35 ECTS) <ul style="list-style-type: none"> Materials Chemistry Modules Materials Physics Modules



Entry Requirements:

Individual course requirements are available at:

www.tcd.ie/courses/undergraduate

International entry requirements are available at:

www.tcd.ie/study/non-eu/undergraduate/

Postgraduate Opportunities

The School of Chemistry has a vibrant and international postgraduate body that benefits from our structured postgraduate programme and diverse research activities. Applications for postgraduate positions are accepted all year round, however, applications between January and April are best suited to annual funding cycles. The majority of research projects begin in September/October. Expressions of interest should be emailed directly to your potential supervisor and should include a cover letter, CV (including details of academic achievements), subject of research interest and proposed start date. After the initial contact, a member of staff may agree to endorse your application for a Ph.D./M.Sc. degree, after which you will be instructed to submit an application through the Graduate Studies Office. The typical duration of an M.Sc. degree is 1-2 years and a Ph.D. normally requires 4 years.

"Trinity College is an excellent university with so much to offer! As a chemistry postgraduate, I have access to state-of-the-art facilities that I require for my research. I have made wonderful friends here and I know that the journey towards my PhD will be challenging, but also rewarding thanks to the amazing environment Trinity provides for its students!"

Mili Litvajova, School of Chemistry
PhD student, 2013

Career Opportunities

The broad nature of a Chemistry degree prepares graduates to develop their careers in many directions. Our graduates can pursue postgraduate degrees either in the School of Chemistry or in other world-class research institutions. Many leading companies in the chemical and pharmaceutical industry are based in Ireland, providing excellent employment opportunities for science graduates. Chemists have also gone on to successfully develop careers in patent law, finance and management as well as teaching at both school and university level.

"I would encourage any student wishing to pursue a career in the global pharmaceutical industry to take Medicinal Chemistry. The more varied an undergraduate experience a student has, the better equipped they are to secure employment in the pharmaceutical industry. Medicinal Chemistry at TCD can open many doors within both academic and industrial settings."

Dr Robin Daly (Development Scientist,
Sandoz), Medicinal Chemistry graduate 2009

Further Information

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