



University of  
**Strathclyde**  
Glasgow

DEPARTMENT OF PURE & APPLIED CHEMISTRY

# Chemistry with Drug Discovery

[www.strath.ac.uk/science/chemistry/](http://www.strath.ac.uk/science/chemistry/)

# Break the boundaries of drug discovery to improve lives around the world...

From the battle to beat cancer, to the emergence of antibacterial resistance and global epidemics; the discovery and development of new drugs is always in demand.

Some diseases have no cure, some medicines cause patients to endure appalling side effects or are unpleasant to take, while other medicines simply stop being effective. Through the MChem Chemistry with Drug Discovery course at the University of Strathclyde, you will be armed with the knowledge and insight to truly make a difference to the lives of people around the world, by contributing to the pioneering of drug discoveries that can improve, and save lives.

The discovery and development of new drugs and medicines takes place at the crossroads between chemistry, biomedical science and pharmacy.

The Chemistry with Drug Discovery course is designed to bridge the gap between these disciplines. It ensures that students are not restricted in the depth and scope of their understanding through studying just one of these areas. Instead, graduates of this course benefit from gaining the valuable synthetic chemistry skills needed to produce new compounds, as well as understanding how the molecules they are making actually react with our bodies and affect the wellbeing of patients.

The unique nature of this course ideally prepares graduates to succeed either in the traditional pharmaceuticals or medicinal chemistry industries, or in the new world of biotechnology.

The MChem Chemistry with Drug Discovery degree is accredited by the Royal Society of Chemistry. This is the RSC's highest category of degree classification and means that the degree has the content and standard necessary for the education of a professional chemist expecting to be active in the international job market.

After graduating and gaining some work experience, graduates are eligible to apply for the status of Chartered Chemist - the UK qualification recognised in the European Community for professional chemists.

## Did you know?

The University of Strathclyde was voted Scottish University of the Year by the Daily Mail University of the Year Awards 2024 and University of the Year by the Times Higher Education Awards 2012 & 2019.





## Did you know?

The MChem Chemistry with Drug Discovery degree is unique in Scotland and accredited by the Royal Society of Chemistry. This is the RSC's highest category of degree classification.

## Pioneering scientists who make our world a safer place

Medicinal chemists have led the fight against deadly infectious diseases such as smallpox, polio and TB. Without modern drugs, life was short, miserable and painful for large parts of the population – even in relatively wealthy countries such as the UK.

The reason we now live so long and in such good health is that pharmaceuticals, antibiotics and vaccines were developed by chemists working in the fields of pharmaceutical and medicinal chemistry. This work has proved so important that we all know the names of some of the pioneers. Alexander Fleming, Louis Pasteur and Joseph Lister are just some of those held to be scientific heroes because of what their discoveries meant for us all.

Today different diseases are the killers. Cancer, heart-disease, AIDS and malaria all pose a real threat to humankind; as well as the onset of new viruses such as Ebola, and the rise of antibiotic resistance. These global epidemics must be countered using new drugs and new treatments. These advances will be made by scientists who are excellent synthetic chemists, who have an appreciation of how the body interacts with chemicals, and who have the imagination and ability to design and build new molecules that will affect the body in particular ways.

The Chemistry with Drug Discovery course at the University of Strathclyde is unique in Scotland and designed to equip you with these skills and to place you at the heart of the vital battle for life and health.

## How is the course structured?

At the beginning of your degree, you will be taught alongside students studying other chemistry degrees, giving you experience across all of the fundamental areas of Chemistry. During the early years it is possible to transfer between chemistry courses as you discover new areas of the science, as long as your exam results are satisfactory.

**Year 1:** You will be given a solid grounding in principles at the core of Chemistry and Drug Discovery. These will include foundation classes in Chemistry and Mathematics, and Physics or Biology. Specialist elective classes may include: Use and Abuse of Drugs in Society, and Pharmaceutical Sciences and Drug Development. Both theory and practical skills are taught as well as transferable skills such as communication, group work and safety.

**Years 2 & 3:** As you progress through your course, you will begin to tailor your degree to suit your developing interests, choosing the subjects of most appeal to you and spending more time on practical laboratory work. Fundamental Inorganic, Organic, Biological and Physical Chemistry will be studied, along with Bioscience, Mathematics and Pharmacy classes. You can also choose other subjects from across the range of topics taught by the University.


**Year 4:** Industrial Placement: During your fourth year you will undertake either a 12 month paid industrial placement (IP) or a research or Knowledge Exchange placement within our Chemistry Clinic. These placements can take place in the UK or abroad, giving you the opportunity to gain valuable work experience, make crucial contacts and even potentially earn a realistic salary. It is an experience that can truly broaden your horizons in many senses and make a real impact on the professional and personal outlook of students. The University of Strathclyde's IP scheme has been running successfully for more than 25 years, so we have excellent links with employers and a tried and tested support network in place.

**Year 5:** The final year consists of specialised taught classes and a large part of your time will be devoted to a laboratory based research project. Typical studies revolve around practical medicinal chemistry, drug interactions with DNA, synthetic chemistry of biologically active species and biomolecule analysis.

Check out some of our students working in our Chemistry Clinic by visiting:



<https://www.strath.ac.uk/science/chemistry/chemistryclinicvideo/>



Broaden your horizons and gain invaluable professional experience through a 12 month paid industrial placement or a research or Knowledge Exchange placement.



## Did you know?

The Department of Pure and Applied Chemistry at the University of Strathclyde has a long and distinguished history. It was established in 1803, long before the University itself. The first Professor was Thomas Graham, inventor of dialysis and famous for his gas laws.

# Enjoy outstanding employment prospects through our research and teaching excellence

Calcium Levofolinate was developed in the Department of Pure and Applied Chemistry and is a common ingredient of anti-cancer chemotherapy cocktails, whilst our Pharmacy colleagues developed Atracurium, utilised during anaesthesia. Chemists in the Department of Pure & Applied Chemistry at the University of Strathclyde have recently developed a new class of antibacterial drug that is currently entering phase II clinical trials.

All of these breakthroughs have the potential to save many lives around the world, as well as generating multi-million pound benefits for their manufacturers, the University and the medicinal chemists who discovered them.

Throughout your course you will be taught by nationally and internationally recognised research scientists from the Department of Pure and Applied Chemistry and pharmacy staff within the Strathclyde Institute of Pharmacy and Biomedical Sciences (SIPBS).

Both departments accept only the highest quality UK and international students, and both are amongst

the largest providers of graduates in their respective areas. These attributes, together with our strong links to industry, mean that our graduates are widely acknowledged by employers as being amongst the best trained in the country, giving you a head start in the job market.

This degree was designed in collaboration with large and small pharmaceutical companies to produce graduates who will be knowledgeable and accomplished practical chemists with good team-work and communication skills.

The breadth and depth of knowledge gained through this degree will maximise your opportunities in a broad spectrum of employment areas, including the lucrative medicinal chemistry and pharmaceutical industries. Recent graduates are employed in roles such as drug discovery chemistry research scientist, chemistry research scientist, regulatory affairs executive, scientific communication specialist, drug sales manager and other roles in the pharmaceutical industry. Your valuable transferable skills will also be in demand in other areas.

# Studying, working and living in Glasgow

The University of Strathclyde campus is situated in the heart of Glasgow, a vibrant, multi-cultural city with an exciting social scene, great transport links, and many part-time employment prospects.

Glasgow has a long reputation as Scotland's largest, friendliest and most cosmopolitan city. You will find beautiful architecture around every corner and activities to suit every taste.

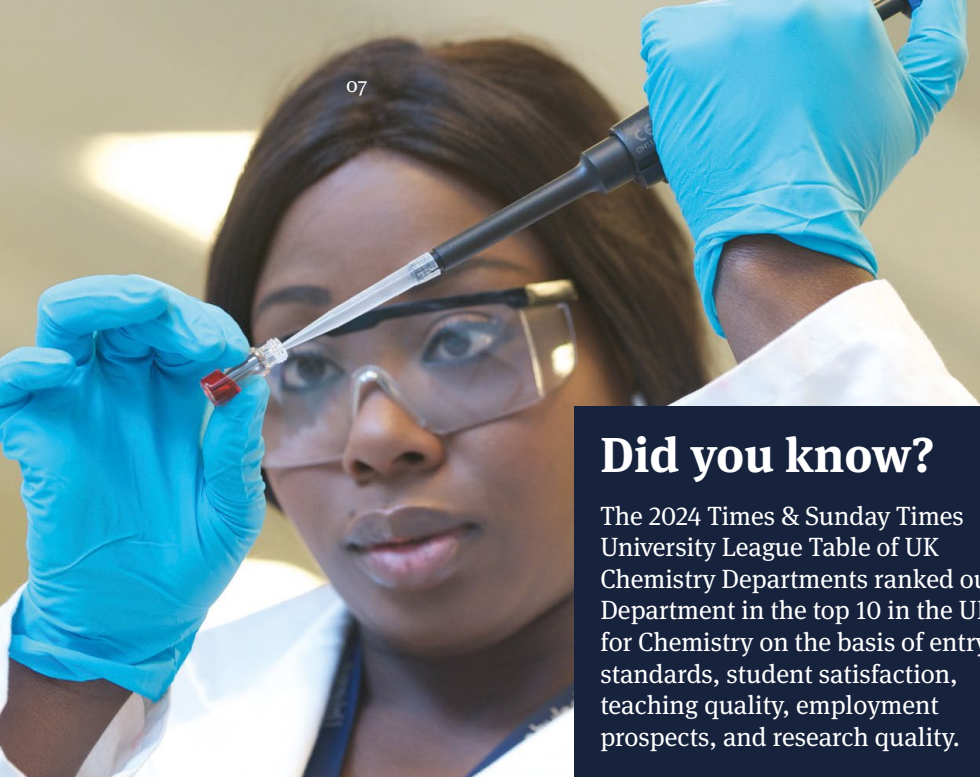
You can enjoy a vast array of places to eat out and shop, from high street names to off-beat boutiques; and revel in legendary nightlife, with a huge selection of bars and clubs to choose from. Glasgow is home to an eclectic mix of cutting-edge music, with over 100 gigs taking place every week.

There are more than 20 incredible museums, galleries and science centres scattered across the city, and best of all, most of them are completely free!

The city is also home to numerous theatres, cinemas, Scottish Opera, BBC Scottish Symphony Orchestra, Scottish Royal Ballet, and an abundance of sporting stadiums and events; as well as vibrant festivals and pop up events throughout the year.

“Glasgow” means “dear green place”, and with over 90 parks and gardens open to the public across the city, it is easy to see why. With the spectacular scenery of the highlands and islands less than one hour from the city centre and the ‘bonny banks’ of Loch Lomond just 40 minutes away; you’re never far from the breath taking vistas of Scotland’s great outdoors.





## Did you know?

The 2024 Times & Sunday Times University League Table of UK Chemistry Departments ranked our Department in the top 10 in the UK for Chemistry on the basis of entry standards, student satisfaction, teaching quality, employment prospects, and research quality.

Entry Requirements for  
MChem Chemistry with Drug Discovery  
(UCAS Code: F190)

**SCAN THE QR CODE  
TO VIEW DETAILS OF  
ENTRY REQUIREMENTS**



 **SCAN QR CODE**

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Athena  
Swan  
Silver Award

1 H hydrogen [1.007, 1.009]	2 He helium [4.0026, 4.0026]	
3 Li lithium [6.938, 6.997]	4 Be beryllium 9.012	
11 Na sodium 22.99	12 Mg magnesium [24.30, 24.31]	
19 K potassium 39.10	20 Ca calcium 40.08	3 Sc scandium 44.96
37 Rb rubidium 85.47	38 Sr strontium 87.62	39 Y yttrium 88.91
55 Cs caesium 132.9	56 Ba barium 137.3	57-71 lanthanoids
87 Fr francium	88 Ra radium	89-103 actinoids