

Chemistry with Medicinal Chemistry

MChem Honours

- UCAS code: **F123**
- Full time
- 4 years
- Next start date: **September 2021**

This professionally accredited MChem degree equips you with a thorough understanding of all the main areas of chemistry and includes a year of advanced study at master's level. It also provides a good basis for a PhD or career in research.

Fees (per year)

- Home: **£9250**
- International: **£23400**

Entry requirements

- A Level: **AAB**
- IB: **33 points**

UCAS Institution name and code:

- NEWC / N21

Course overview

Chemistry touches every part of our lives. From food and medicine to biotechnology and renewable energy, its influence is endless. As a Chemist, you can have a great career and make a difference in the world.

Medicinal Chemistry is the discovery, design and synthesis of new clinical drugs.

Our MChem degree follows the normal BSc curriculum, plus a further year of advanced study. The MChem programme is perfect for those pursuing a career within scientific research.

This exciting degree allows you to broaden your interests as you discover the subject. You'll explore the role of chemistry in:

- drug design
- cancer chemotherapy
- enzymology
- toxicology

You'll study organic, inorganic, physical and structural chemistry. You'll investigate modern analytical techniques and computational chemistry. You can create your own distinct learning experience at Newcastle. You'll explore your interests as you discover the subject.

BSc or MChem?

The MChem programme is perfect for those pursuing a career within scientific research.

Our MChem degree follows the normal BSc curriculum, plus a further year of advanced study. You'll undertake a research project in the fourth year. You'll gain

valuable experience of working in a research environment.

COVID-19

Please rest assured we make all reasonable efforts to provide you with the courses, services and facilities described. However, it may be necessary to make changes due to significant disruption, for example in response to COVID-19.

[See our terms and conditions for more information](#)

[View our Frequently Asked Questions](#)

Additional information

Flexible degree structure

Our chemistry degrees share a common first year. This ensures that you develop a solid foundation in chemistry and its many forms.

Quality and ranking

We have a long tradition of excellence in teaching, recognised in many external surveys and assessments, but also by our own students.

Our commitment to teaching quality and an excellent student experience is reflected through our results in national and international student satisfaction surveys.

Professional accreditation

This degree is professionally accredited by the Royal Society of Chemistry. It fully meets the academic criteria for Chartered Chemist (CChem).

Find out more on the [Royal Society of Chemistry's website](#).

All professional accreditations are reviewed regularly by their professional body.

Modules and learning

Modules

The information below is intended to provide an example of what you will study.

Most degrees are divided into stages. Each stage lasts for one academic year, and you'll complete modules totalling 120 credits by the end of each stage.

Our teaching is informed by research. Course content may change periodically to reflect developments in the discipline, the requirements of external bodies and partners, and student feedback.

Optional module availability

Student demand for optional modules may affect availability.

Full details of the modules on offer will be published through the [Programme Regulations and Specifications](#) ahead of each academic year.

This usually happens in May.

To find out more please [see our terms and conditions](#).

Our chemistry degrees share a common first year. This ensures that you develop a solid foundation in chemistry and its many forms. You'll explore the fundamentals of organic, inorganic and physical chemistry.

Modules

Compulsory Modules	Credits
Chemical Skills and Professionalism	10

Fundamentals of Organic Chemistry	20
General Chemistry	10
Fundamentals of Physical Chemistry	20
Fundamentals of Inorganic Chemistry	20
Chemical Laboratory Skills 1	20
Optional Modules	Credits
Natural Science Research Impact	10
Diversity of Life: Form and Function	20
Earth System Science	10
Mathematical Skills for Chemists	10
Introduction to Scientific Computing for Chemists	10

You'll explore concepts in medicinal chemistry including pharmacokinetics, pharmacodynamics, enzymes and drug design. You'll be introduced to structure-based drug design using CCP4 Molecular Graphics software.

You'll take an employability module that includes a Professional Awareness Event. You'll have the opportunity to interact with a range of companies.

Modules

Compulsory Modules

ACE2077 Sustainable Solutions
 CHY2010 Structural Chemistry
 CHY2110 Organic Chemistry
 CHY2210 Physical Chemistry
 CHY2310 Inorganic Chemistry
 CHY2410 Medicinal Chemistry
 CHY2510 Chemistry Laboratory Skills 2

Optional Modules

[BIO2017 Microbiology](#)

[CEG2604 Global Element Cycling](#)

[CHY2611 Applied Computational Medicinal Chemistry](#)

You'll discover more advanced concepts in medicinal chemistry including toxicology, enzymology, cancer chemotherapy and chemotherapy of infectious diseases.

You'll also study advanced organic and inorganic chemistry, exploring topics including chemical nanoscience, synthesis and bioinorganic chemistry.

You'll also complete an independent research literature project. This will help to develop your skills in reviewing, critiquing and presenting research material.

Modules

Compulsory Modules

[CHY3010 Structural Chemistry](#)

[CHY3012 Chemical Skills and Employability](#)

[CHY3111 Advanced Organic Chemistry](#)

[CHY3410 Advanced Medicinal Chemistry](#)

[CHY3310 Advanced Inorganic Chemistry](#)

[CHY3512 Chemistry Laboratory Skills 3M](#)

[CHY3511 Analytical Chemistry in Practice](#)

In your final year, you'll complete an investigative project. This involves creating original, unpublished work in a modern area of chemistry. As part of the project, you'll generate a researcher development record. This record highlights the specialist skills you've acquired from your research project.

You will also choose from a range of optional modules on specialist topics.

These include catalysis and synthesis of organic compounds.

Modules

Compulsory Modules	Credits
Advanced Methods in Drug Discovery	10
Advanced Problem Solving	10
Research Project	70
Optional Modules	Credits
Selectivity and Stereocontrol in Organic Synthesis	10
Pericyclic and radical reactions	10
Chemistry Far From Equilibrium	10
Contemporary Catalysis: Principles and Applications	10
Exploring d and f block chemistry: applications and structural methods	10
Energy and Materials	10

Teaching and assessment

Teaching methods

Teaching is by a combination of lectures, tutorials and lab-based and computational experiments. You will have practical classes for two afternoons each week in Stage 1 and these increase in later years.

Assessment methods

You'll be assessed through a combination of:

- Assessments
- Dissertation or research project

- Examinations – practical or online
- Practical sessions

Skills and experience

Practical skills

You'll have the opportunity to develop professional laboratory skills through practical experience in our high-spec teaching labs.

You'll also develop strong analytical and problem-solving skills. These will enable you to pursue careers outside of Chemistry, including:

- accountancy
- patent law
- marketing

Business skills

You're able to develop business skills through:

- employability skills modules across all stages
- work placements
- study abroad opportunities
- industrial visits

You'll develop key skills, including:

- writing proposals
- writing scientific reports and papers
- delivering presentations

You'll also network with industry at our Professional Awareness Day, empowering you to make decisions about your career.

Research skills

Research is at the heart of what we do. Our latest research discoveries feed into your curriculum. You'll learn on the cutting-edge of Chemistry. Our discoveries include:

- discovery of new anti-cancer drugs
- development of battery technology
- creation of nanoscale electronics

Opportunities

Study abroad

Experience life in another country by choosing to study abroad as part of your degree. We also offer [Chemistry with Medicinal Chemistry \(with Study Abroad\) MChem Honours](#) degree.

You spend Stage 3 studying chemistry at one of our partner institutions abroad. We have partners in:

- Europe
- North America
- Asia

The year abroad is assessed on the basis of a research project you conduct while overseas. You also take distance learning modules in advanced organic and inorganic chemistry.

You'll be encouraged to embrace fun and challenging experiences, make connections with new communities and graduate as a globally aware professional, ready for your future.

[Find out more about study abroad](#)

Industrial training year

We also offer [Chemistry with Medicinal Chemistry \(with Industrial Training Year\) MChem Honours](#) degree. The placement takes place in Stage 3.

An industrial training year is a great opportunity to gain first-hand work experience. If you impress your host company, it could even result in a job offer on graduation.

It's also an opportunity to build valuable skills such as teamwork, communication and project management.

The placement year is assessed, and you'll complete a research project and distance learning modules in advanced organic and inorganic chemistry.

In the past students have found placements throughout the UK and, occasionally, overseas with companies including:

- Akzo Nobel
- AstraZeneca
- Corus
- GlaxoSmithKline
- P&G

Facilities and environment

Facilities

During your studies, you'll be based in [the School of Natural and Environmental Sciences](#) at our city-centre campus.

You'll have the opportunity to study in well-resourced research laboratories and synthetic chemistry teaching laboratories. Our facilities also include:

- physical chemistry laboratory

- mechanical, glassblowing and electronic workshops, staffed by highly trained technicians
- facilities for the synthesis and characterisation of novel materials
- extensive computational resources for molecular modelling and dynamics
- a centralised NMR facility which includes 200, 300 and 500 MHz spectrometers

Support

As a new student, you'll receive your own tablet as part of your studies. You'll also receive a lab coat for laboratory practicals.

You'll have the support of an academic member of staff as a personal tutor throughout your degree to help with any issues.

Your future

Join a network of successful graduates

92% of our 2016/17 graduates progressed to employment or further study within six months of graduating*.

Employers hold our graduates in high regard. Our graduates go on to work in a wide variety of sectors, including:

- drug development
- pharmacologist
- data analyst
- laboratory technician

*Destinations of (undergraduate, UK and EU) Leavers from Higher Education Survey 2016/17

Benefit from strong industry links

You'll also benefit from our well-established links with organisations within the industry, such as:

- Astra Zeneca
- GlaxoSmithKline
- Proctor & Gamble

Enterprising students

Careers support

During your second year, you'll attend our Professional Awareness Day. We invite a broad mix of businesses to the event, carry out mock interviews and hold Q&A sessions with alumni. You're empowered to make decisions about your future career.

In your final year, you will have one-to-one meetings with an academic to discuss your professional future.

Our award-winning Careers Service is one of the largest and best in the country, and we have strong links with employers. We provide an extensive range of opportunities to all students through our ncl+ initiative.

[Visit our Careers Service website](#)

Find out more...

- Go online for information about our full range of degrees:
www.ncl.ac.uk/undergraduate
- To watch videos about student life in Newcastle, visit
www.ncl.ac.uk/lovenewcastle
- Visit **www.ncl.ac.uk/tour** to take virtual tours of the campus and city
- Book for an Open Day to come and see us in person
www.ncl.ac.uk/openday
- Contact us online at **www.ncl.ac.uk/enquiries** or phone +44 (0)191 208 3333

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