Chemistry with Medicinal Chemistry (with Industrial Training Year)

MChem Honours

UCAS code F124
4 Years

www.ncl.ac.uk/ug/F124
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This professionally accredited MChem degree includes an industrial placement year and a year of advanced study at Master’s level. It provides a good basis for a PhD or career in research.

You gain a thorough understanding of all the main areas of chemistry, alongside in-depth knowledge of those aspects of chemistry that are important to the pharmaceutical industry.

In Stage 3 you take a paid year in industry. It is a great opportunity for you to gain first-hand experience in the chemical sector.

In Stage 4, you take advanced modules such as advanced methods in drug discovery, and organic synthesis for drug targets.

Your specialist medicinal chemistry topics include:

- cancer chemotherapy
- enzymology
- toxicology

Supported by our research-active staff, you also conduct an extended research project in an area of chemistry of your choice, contributing to knowledge at the cutting edge of the field.

**Highlights of this degree**

**Professional accreditation**

**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.

**BSc or MChem?**

Students who are planning for a career in chemical research in industry or academia, or who may wish to study for a higher qualification such as a PhD, are encouraged to apply for an MChem degree.

Our MChem degrees last four years and provide a more in-depth study of chemistry than our BSc degrees. They also include a research project in the fourth year, which gives you experience of working in a research environment.

**What you will study**

**Shared first year**

All of our chemistry degrees share the same first year, building on your existing knowledge. The high level of **shared content means transfer between our degrees is usually possible** if you want to (depending on academic performance). This gives you time to explore the subject and find out where your interests lie.

During the first year you’ll cover:

- general chemistry
- organic chemistry
- physical chemistry
- inorganic chemistry
- biological and medicinal chemistry
- analytical chemistry

**Second and third year**

You continue to build on your knowledge of organic chemistry, physical chemistry, inorganic chemistry, and structural chemistry. You take a group assignment module and create a learning pack, developing your transferable skills. An advanced laboratory course develops your skills to professional level. You undertake an independent research literature project.

You study a range of specialist topics related to medicinal chemistry, such as:

- cancer chemotherapy
- practical medicinal chemistry
- toxicology
- enzymology

**Fourth year (MChem only)**

The optional fourth year includes an extended research project, developing your professional level research skills.

You also take a range of advanced modules in medicinal chemistry, including advanced methods in drug discovery - see the Course Details.

**Industrial training year**

All of our industrial training degrees last four years, with the placement in year three.

Studying a chemistry degree with a paid industrial training year is a great opportunity to gain first-hand experience of working in the chemical industry. If you impress your host company, it could even result in a job offer on graduation.

You’ll develop valuable skills such as teamwork, communication and project management.
MChem students
The placement is an assessed part of the degree for MChem students, who also complete a research project and distance learning modules in advanced organic and inorganic chemistry.

BSc students
For BSc students the placement year is not assessed but it’s a good opportunity to gain valuable work experience in the industry, and you write a report on your placement.

Support with finding a placement
The School of Natural and Environmental Sciences will give you extensive support to find a suitable placement, including help to write your CV to send out to our wide range of industrial contacts.

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 support
You will be part of the School of Natural and Environmental Sciences.

Facilities
We have some of the highest specification laboratory facilities in the country, including:

- a state-of-the-art £2.8m synthetic teaching laboratory
- £1.9m chemistry research laboratory
- £750,000 refurbishment of the physical chemistry teaching laboratory
- specialist computer facilities and refurbished lecture theatres

Support
To support you in your studies, all new students entering year 1 or year 2 receive:

- a tablet so you can download the online learning resources you’ll need for your course (helping us to make our campus more sustainable);
- a welcome pack including, for example, a lab coat, goggles, a molecular modelling kit, scientific calculator and access to a world-leading scientific drawing programme

You’ll be supported by a personal tutor throughout your degree – an academic member of staff who can help with academic and personal issues. You’ll also have access to a peer mentor in your first year – a fellow student who can help you settle in and answer any questions you have.

Social activities
Our student-run society Nu:Kem organises a busy schedule of social and academic events throughout the year to help you meet fellow students from all years.

Course Details

Modules for 2019 entry

Please note
The module and/or programme information below is for 2019 entry. Our teaching is informed by research and modules change periodically to reflect developments in the discipline, the requirements of external bodies and partners, student feedback, or insufficient numbers of students interested (in an optional module). To find out more read our terms and conditions.

Module/programme information for 2020 entry will be published here as soon as it is available (end of May 2020).

Our degrees are divided into Stages. Each Stage lasts for an academic year and you need to complete modules totalling 120 credits by the end of each Stage. Further information, including the credit value of the module, is available in each of the module descriptions below.

Stage 1

Compulsory modules
CHY1101 Basic Organic Chemistry
CHY1102 Fundamentals of Biological and Medicinal Chemistry
CHY1201 Elements of Physical Chemistry
CHY1204 General Chemistry
CHY1205 Introductory Physical Chemistry
CHY1301 Fundamentals of Inorganic Chemistry
CHY1402 Analytical Methods and their Applications

Stage 2

Compulsory modules
CHY2001 Professional Development and Employability Skills
CHY2101 Organic Chemistry
CHY2102 Bioactive Natural Products
CHY2103 Medicinal Chemistry and Drug Design
CHY2201 Physical Chemistry
CHY2301 Inorganic Chemistry
CHY2401 Structural Chemistry
Stage 3 (Industrial Training Year)
You spend Stage 3 on a paid placement in industry. This year counts towards your final degree mark and is assessed through the following modules:
- CHY3105 Advanced Organic Chemistry (Distance Learning)
- CHY3305 Advanced Inorganic Chemistry (Distance Learning)
- CHY8310 Project in Industry
Your placement aims to provide you with the necessary training and work experience to make you competitive in the job market after graduation.
While on your placement you are employed by your host company but also retain your student status. In the past students have found placements throughout the UK and, occasionally, overseas.
We will give you extensive support in finding and during your industrial placement:
at the beginning of Stage 2 we help you to write your CV and send it to our wide range of industrial contacts
we help you to organise your interviews, and any necessary travel to the companies
we keep in regular e-mail contact with you while you are on your placement and visit you during the year to discuss your progress

Stage 4
Compulsory modules
- CHY3110 Advanced Medicinal Chemistry
- CHY8421 Advanced Methods in Drug Discovery
- CHY8430 Advanced Problem Solving
- CHY8511 Research Project (70)
Optional modules
You choose 10 credits from the following list:
- CHY8420 Selectivity and Stereocontrol in Organic Synthesis
- CHY8422 Further Organic Chemistry
- CHY8423 Research Challenges in Chemical Structure and Dynamics
- CHY8424 Catalyst Application and Design
- CHY8425 Further Inorganic Chemistry
- CHY8428 Energy and Materials

Teaching and assessment
Study at the cutting edge
The School of Natural and Environmental Sciences at Newcastle contributes to an internationally recognised portfolio of chemistry research – a breadth of study that caters for a wide range of interests and career aspirations.
Our research feeds directly into our teaching material. This makes sure that you have the chance to learn about some of the latest discoveries in your subject area, from the people responsible for making them.

Teaching methods
Teaching is by a combination of lectures, tutorials and workshops. You will have practical classes for two afternoons each week in Stage 1 and these increase in later Stages.

Assessment methods
Assessment is by in-course assessment, laboratory work and written examinations.

Find out more
Visit our Teaching & Learning pages to read about the outstanding learning experience available to all students at Newcastle University.

Careers
Chemistry with Medicinal Chemistry careers
A degree in chemistry can be the passport to a whole range of careers. If you want to pursue chemistry research in industry or academia, a good chemistry degree (usually an MChem) is essential, often followed by a research (PhD) degree. A large number of our graduates do follow such a career pattern.

Our Chemistry with Medicinal Chemistry degrees are particularly suited for employment in the pharmaceutical industry, hospital laboratories and firms specialising in clinical diagnosis. The industrial training year often plays a decisive role in choosing a career and provides an excellent opportunity to gain the practical skills and experience that employers value so highly. Most chemistry graduates choose to pursue careers in scientific research-related roles or in technical occupations.

The main employers are those in the chemical and related industries such as pharmaceuticals, agrochemicals, petrochemicals, toiletries, plastics and polymers. Other key employment sectors include the food and drink industry; utilities and energy research; health and medical; research organisations and agencies.

A small proportion of Chemistry graduates will choose to enter very different career areas such as finance, marketing, sales and advertising; arts, design and sport; and social and welfare professions.

During your second year, the School hosts a Professional Awareness Day. We invite a broad mix of business representatives to the event. This provides you with knowledge to make educated career decisions when you leave higher education. Our School also organises one-to-one meetings between final year students and academics to discuss your professional future.
What our graduates go on to do: employment and further study choices

See what our recent graduates went on to do and view graduate destinations statistics. These statistics are based on what graduates were doing on a specific date, approximately six months after graduation. Take a look at the most recent data available for our graduates.

The destination data is available in varying levels, beginning with the University and moving through Faculty and School down to individual course reports. This final level may give you some useful ideas about possible options after your course or a course you are considering.

Careers and employability at Newcastle

Newcastle University consistently has one of the best records for graduate employment in the UK.

96% of our 2017 UK-domiciled UG/PG graduates progressed to employment or further study within six months of graduating.

85.5% of our graduates are in graduate level employment or further study within six months of graduating.

We provide an extensive range of opportunities to all students through an initiative called ncl+. This enables you to develop personal, employability and enterprise skills and to give you the edge in the employment market after you graduate.

Our award-winning Careers Service is one of the largest and best in the country, and we have strong links with employers.

Fees & Funding

Tuition Fees (UK students)

2020 entry: £9,250
For programmes where you can spend a year on a work placement or studying abroad, you will receive a significant fee reduction for that year.
Some of our degrees involve additional costs which are not covered by your tuition fees.

Please note:
The maximum fee that we are permitted to charge for UK students is set by the UK government.
As a general principle, you should expect the tuition fee to increase in each subsequent academic year of your course, subject to government regulations on fee increases and in line with inflation.

Tuition Fees (EU students)

2020 entry: £9,250
You will pay the same tuition fees as UK students for the duration of your course.
For programmes where you can spend a year on a work placement or studying abroad, you will receive a significant fee reduction for that year.
Some of our degrees involve additional costs which are not covered by your tuition fees.

Please note:
As a general principle, you should expect the tuition fee to increase in each subsequent academic year of your course, subject to government regulations on fee increases and in line with inflation.

Tuition Fees (International students)

2020 entry*: £22,800

*Please note:
You will be charged tuition fees for each year of your degree programme (unless you are on a shorter exchange programme).
The tuition fee amount you will pay may increase slightly year on year as a result of inflation.
If you spend a year on placement or studying abroad as part of your degree you may pay a reduced fee for that year.

Scholarships and Financial Support (UK students)

You may be eligible for one of a range of Newcastle University Scholarships in addition to government financial support.

Newcastle University Scholarships
Government financial support

Scholarships and Financial Support (EU students)

You may be eligible for one of a range of Newcastle University Scholarships in addition to government financial support.

Newcastle University Scholarships
Scholarships and Financial Support (EU students)

Government financial support

Scholarships and Financial Support (International students)

We offer a range of scholarships to eligible international students:
Vice-Chancellor’s International Scholarships
Vice-Chancellor’s Excellence Scholarships
Vice-Chancellor’s Global Scholarships
We also offer International Family Discounts which are available for all international students with a close family member who has graduated from or is now studying at Newcastle University.
Newcastle University offers Sanctuary Scholarships for eligible undergraduate students (excludes MBBS and BDS students) from asylum-seeker and refugee backgrounds.
Some of our subject scholarships and sports scholarships are also available for international students.

Apply

Applying to Newcastle University through UCAS

To apply for undergraduate study at Newcastle you must use the online application system managed by the Universities and Colleges Admissions Service (UCAS).

UCAS codes for Newcastle University
- institution name - NEWC
- institution code - N21

UCAS buzzword

Ask your teacher or adviser from your school or college for the UCAS buzzword. You need the buzzword when you register on the Apply system. This makes it clear which school or college you are applying from.

All UK schools and colleges and a small number of EU and international establishments are registered with UCAS.

If you are applying independently, or are applying from a school or college which is not registered to manage applications, you will still use the Apply system. You will not need a buzzword.

Making your application

On the UCAS website you can also find out more about:
- application deadlines and other important dates
- offers and tracking your application
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 the 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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Full details of the University’s terms and conditions, including reference to all relevant policies, procedures, regulations and information provision, are available at
www.ncl.ac.uk/pre-arrival/regulations

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