

## Drug Discovery and Medicinal Chemistry Masters/MSc

### Postgraduate degree course in Drug Discovery and Medicinal Chemistry Masters/MSc:

This multidisciplinary one year programme is intended to act as a springboard into the fine chemical, pharmaceutical and biotech sectors for those with a good first degree in chemistry.

You will widen your knowledge of chemistry and will develop new skills and competencies in a range of areas key to drug discovery, including synthesis, molecular modelling, toxicology, pharmacology, medicinal chemistry and information science.

The programme includes a multidisciplinary project, and has course components delivered by industry experts.

**[Study here and find out why the University of Birmingham was awarded The Times and The Sunday Times University of the Year 2013-14 \(http://www.birmingham.ac.uk/news/latest/2013/09/20-sep-Birmingham-announced-as-University-of-the-Year.aspx\)](http://www.birmingham.ac.uk/news/latest/2013/09/20-sep-Birmingham-announced-as-University-of-the-Year.aspx)**

#### Course fact file

**Type of Course:** Taught

**Study Options:** Full time

**Duration:** 1 year full-time

**Start date:** September 2013

#### Related courses

**[Chemical Biology and Biomedical Imaging Masters/MSc \(/postgraduate/courses/taught/chemistry/chemistry-biology-biomedical-imaging-masters.aspx\)](/postgraduate/courses/taught/chemistry/chemistry-biology-biomedical-imaging-masters.aspx)**

#### Contact

For more information about applying for this course, please contact the **[Admissions Tutor \(mailto:chem-pgadmissions@lists.bham.ac.uk\)](mailto:chem-pgadmissions@lists.bham.ac.uk)**:

If you would like further information about the course content, please contact:

Professor Nigel S. Simpkins

Email: **[n.simpkins@bham.ac.uk \(mailto:n.simpkins@bham.ac.uk\)](mailto:n.simpkins@bham.ac.uk)**

**[School of Chemistry \(/schools/chemistry/index.aspx\)](/schools/chemistry/index.aspx)**

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#### Details

The course is designed to give chemists with a first degree a good understanding of how synthetic organic chemistry provides the foundation for the discovery of new medicines.

Course content is aimed at developing chemistry skills in the context of drug design, for example through lectures and interactive sessions with industry experts, molecular modelling and an extended multidisciplinary project.

Topics span chemistry, natural products and synthesis, through to metabolism, pharmacology and information, patents and IPR.

#### Why study this course

- This course has been designed for those targetting a career in the fine chemicals, pharmaceuticals, biotech and associated custom research organizations (CROs).
- Key course components in medicinal chemistry and information/patents/IPR will be delivered by industry experts.
- Learn about the whole 'Bench to Bedside' scientific landscape, including chemistry, pharmacology, toxicology, and information science.
- A perfect transition programme towards industry or a PhD.

#### Modules

##### Modules include:

##### Total Synthesis of Natural Products

Natural products and their analogues are an important focus for the pharmaceutical industry, and synthetic methodology employed in academic synthetic work is important in making drug candidates.

##### Bio-related Chemistry

Overview of bioinorganic chemistry, metals in medicine, biological carbohydrate chemistry.

## Molecular Modelling in Drug Discovery

An interactive and practical course on molecular modelling.

## Metabolism and Excretion of Xenobiotics

The module describes the disposition of foreign compounds within the body of living organisms. It covers the methods used to study xenobiotic metabolism; their absorption and distribution and excretion, and includes the application of molecular biology techniques to drug metabolism and pharmacogenetics.

## Pharmacology of Drug Discovery and Development

Including aspects of lead compound identification, preclinical assessment, clinical trials.

## Essentials of Medicinal Chemistry R&D and Process Development

Delivered by industry experts, this course will take students through the scientific, inventive and commercial aspects of turning an organic 'hit' molecule into a clinical medicine.

## Information, Patents and IPR in the Pharma Sector

Delivered by industry experts, this course will help students to understand information, sources of information (databases), search strategies, intellectual property and patents.

## Research Project

An extended multi-disciplinary project.

## Fees and funding

### Tuition fees for home/EU students (2015/2016)

- £7,290

### Tuition fees for international students (2015/2016)

- £19,250

### Further funding information

Learn more about [fees and funding \(/postgraduate/pgt-fees/fees.aspx\)](#)

## Scholarships and studentships

The University of Birmingham is committed to promoting and nurturing excellence. To reward and encourage excellence in entry, we are delighted to be able to offer the following scholarships for 2013 entry on our MSc and MRes programmes.

### Students attracting overseas fees

A £3,000 scholarship will be awarded to a number of privately funded, full fee paying, international Master's students. The scholarship is awarded to applicants who have demonstrated excellent academic results in their previous degree studies.

### Students attracting home/EU fees

A £1,000 scholarship will be awarded to a number of privately funded, full fee paying, Home/EU Master's students. The scholarship is awarded to applicants who have demonstrated excellent academic results in their previous degree studies.

Applicants to the courses will be considered for these awards at application stage and if you are successful you will be notified when your offer is made.

For further information contact the [Admission Tutor \(mailto:chem-pgadmissions@lists.bham.ac.uk\)](mailto:chem-pgadmissions@lists.bham.ac.uk) or email [financialsupport@bham.ac.uk](mailto:financialsupport@bham.ac.uk) ([financialsupport@bham.ac.uk](mailto:financialsupport@bham.ac.uk))

## Entry requirements

Applicants must have a minimum of a high 2(i) degree in chemistry, or equivalent

Learn more about [entry requirements \(http://www.birmingham.ac.uk/students/pg/requirements\)](http://www.birmingham.ac.uk/students/pg/requirements).

### International students

We accept a range of qualifications from different countries – learn more about [international entry requirements \(http://www.birmingham.ac.uk/students/pg/requirements/international\)](http://www.birmingham.ac.uk/students/pg/requirements/international).

[Standard English language requirements \(/postgraduate/requirements-pgt/international/index.aspx\)](#) apply

### Additional information:

Those interested in conducting the research project in industry will be given support to secure a placement (although these cannot be guaranteed).

## How to apply

When clicking on the Apply Now button you will be directed to an application specifically designed for the programme you wish to apply for where you will create an account with the University application system and submit your application and supporting documents online. Further information regarding how to apply online can be found on the [How to apply pages \(http://www.birmingham.ac.uk/students/courses/postgraduate/apply-pg/index.aspx\)](http://www.birmingham.ac.uk/students/courses/postgraduate/apply-pg/index.aspx)

**Apply now (<https://pga.bham.ac.uk/lpages/EPSo9o.htm>)**

## Related news and events

[Developments in drug discovery and medicinal chemistry \(/university/colleges/eps/news/schools/medicinal-chemistry.aspx\)](#)

## Learning and teaching

The programme will be delivered in a flexible and multi-faceted fashion, with learning delivered through lectures, workshops, computer-aided sessions and practical work.

An extended project will enable students to put theory into practice, learning will be reinforced with a synoptic module, and some projects may be available with industrial partners.

## Employability

### University Careers Network

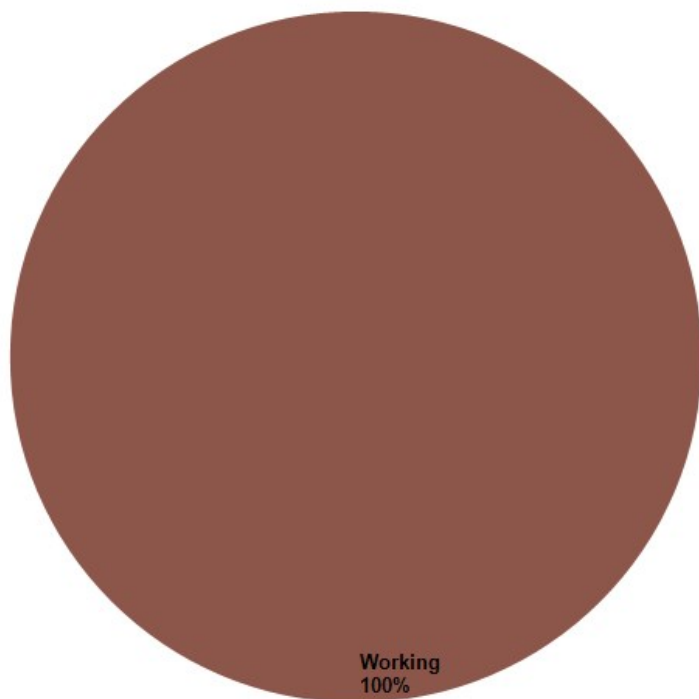
Preparation for your career should be one of the first things you think about as you start university. Whether you have a clear idea of where your future aspirations lie or want to consider the broad range of opportunities available once you have a Birmingham degree, our Careers Network can help you achieve your goal.

Our unique careers guidance service is tailored to your academic subject area, offering a specialised team (in each of the five academic colleges) who can give you expert advice. Our team source exclusive work experience opportunities to help you stand out amongst the competition, with mentoring, global internships and placements available to you. Once you have a career in your sights, one-to-one support with CVs and job applications will help give you the edge.

If you make the most of the **wide range of services** (<https://intranet.birmingham.ac.uk/as/employability/careers/college/eps/index.aspx>), you will be able to develop your career from the moment you arrive.

### Destinations of Leavers from Higher Education (DLHE) 2011/12 (postgraduate taught graduates)

The DLHE survey is conducted 6 months after graduation.



#### Examples of employers

- Macdermid plc
- Ernst & Young
- Future Science Group
- GlaxoSmithKline
- Goldman Sachs International
- Johnson Matthey
- Kraft Foods
- Novartis
- Augean plc
- Henkel Ltd

#### Examples of occupations

- Accountant
- Analytical Chemist
- Analytical Engineer
- Chemical Analyst
- Development Chemist
- Assistant Commissioning Editor
- Assistant Technical Officer
- Laboratory Chemist
- Manufacturing Graduate
- Process Development Chemist

#### Further study - examples of courses

- MRes Human and Environmental Health Impacts of

Nanoscience and Nanotechnology

- MSc Advanced Chemical Engineering
- MSc Analytical Toxicology
- MSc Biochemical Engineering
- MSc Forensic Investigation
- Second degree in medicine
- PhD - Radiochemistry
- PhD - Cancer Sciences
- Doctor of Pharmacy
- PhD Chemistry

Visit the **Careers section of the University website** (<https://intranet.birmingham.ac.uk/as/employability/careers/college/eps.aspx>) for further information.

