UNIVERSITY OF LIVERPOOL

MSc

# Drug Discovery with Artificial Intelligence

| Study mode | Duration | |
|---|---|---|
| Full-time | 12 months | Apply by: **11 September 2026**<br>Starts on: **28 September 2026** |

## About this course

The integration of artificial intelligence (AI) in drug discovery represents a transformative advancement in biomedical sciences. This field promises to enhance the efficiency, accuracy, and cost-effectiveness of discovering new therapeutic agents. Pursuing this Master's in Drug Discovery with AI offers a unique opportunity to be at the forefront of this exciting convergence of disciplines. The University of Liverpool, renowned for its pioneering research, provides an ideal environment to acquire the skills and knowledge necessary for a successful career in this innovative domain.

## Introduction

The masters in Drug Discovery with AI course aims to provide students with comprehensive knowledge and practical skills in the field of drug discovery and AI. The course will cover various aspects, including medicinal chemistry, pharmacology, molecular biology, bioinformatics and the utility of artificial intelligence, and drug development. This will equip graduates for careers in pharmaceutical research and development, who wish to do this either through direct entry into industry or as a pathway to a PhD. The degree will culminate in a collaborative research project giving students a real taste of the multidisciplinary drug discovery process enabled by significant input from our industrial partners. This masters in Drug Discovery with AI is designed to provide a holistic and practical education that prepares students for a successful career in the dynamic field of drug discovery. You will be taught by two world leading departments, Pharmacology and Therapeutics and the department of

Chemistry. Both departments are ranked top 40 in the world and have been recognized with the Queen's Prize for their sector leading teaching and research. This programme will be taught through multiple delivery modes (lectures, tutorials, workshops, group work, practical work) with active learning being central to its delivery.

## Who is this course for?

This programme is designed for students with a degree in a relevant Biology or Chemistry related subject. This includes (but is not restricted to) Pharmacy, Pharmacology, Chemistry, Medicinal Chemistry, Biochemistry, Life Sciences, Natural Sciences, Biomedical Sciences. It aims to develop students skills and knowledge to drive innovation in drug discovery, ultimately contributing to the development of new therapies and improving global health outcomes.

## What you'll learn

- To develop students understanding of the roles of medicinal chemistry, pharmacology and AI in drug discovery.
- Instil in students a sense of enthusiasm for drug discovery and AI, an appreciation of its application in different contexts and to involve them in an intellectually stimulating and satisfying experience of learning and studying.
- Provide students with a broad and balanced foundation of drug discovery and AI knowledge, computational and practical skills.
- To develop in students the ability to apply their knowledge and skills to the solution of theoretical and practical problems within drug discovery.
- To develop in students, a range of transferable skills, of value in pharmaceutical and non-pharmaceutical employment.
- To provide students with a knowledge and skills base from which they can proceed to further studies in drug discovery and AI or other multi-disciplinary areas within drug development.
- To generate in students an appreciation of the importance of pharmacology, drug discovery and AI in an industrial, economic, environmental and social context.

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# Course content

Discover what you'll learn, what you'll study, and how you'll be taught and assessed.

### Semester one

BIOS768: Introduction to Research in Drug Discovery is made up of 15 credits in semester 1 and 15 credits in semester 2.

## Modules

| Compulsory modules | Credits |
|---|---|
| FUNDAMENTALS OF DRUG DISCOVERY (BIOS769) | 15 |
| CHEMICAL AI APPLICATIONS IN DRUG DISCOVERY (CHEM521) | 15 |
| INTRODUCTION TO RESEARCH IN DRUG DISCOVERY (BIOS768) | 30 |

| Optional modules | Credits |
|---|---|
| CODING FOR LIFE SCIENCES (LIFE733) | 15 |
| BIOLOGICAL DATA SKILLS (LIFE707) | 15 |
| INFORMATICS FOR LIFE SCIENCES (LIFE721) | 15 |

Programme details and modules listed are illustrative only and subject to change.

### Semester two

BIOS768: Introduction to Research in Drug Discovery is made up of 15 credits in semester 1 and 15 credits in semester 2.

## Modules

| Compulsory modules | Credits |
|---|---|
| INTRODUCTION TO RESEARCH IN DRUG DISCOVERY (BIOS768) | 30 |
| ADVANCED DRUG DISCOVERY (CHEM522) | 15 |
| ACCELERATING DRUG DISCOVERY USING AI IN BIOLOGY (BIOS770) | 15 |

| Optional modules | Credits |
|---|---|
| FRONTIERS IN DRUG DELIVERY AND ADVANCED THERAPEUTICS (LIFE766) | 15 |
| PROTEOMICS METABOLOMICS AND DATA ANALYSIS (LIFE754) | 15 |
| EXPERIMENTAL MEDICINE AND CLINICAL PHARMACOLOGY (LIFE764) | 15 |
| DIAGNOSTICS, THERAPEUTICS AND VACCINES (LIFE732) | 15 |

Programme details and modules listed are illustrative only and subject to change.

### Final project

## Modules

| Compulsory modules | Credits |
|---|---|
| COLLABORATIVE RESEARCH PROJECT (CHEM526) | 60 |

Programme details and modules listed are illustrative only and subject to change.

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**Teaching and assessment**

## How you'll learn

Teaching on this programme is delivered through a variety of methods from weekly lectures to regular workshops and active learning methods such as seminars, practical's, problem solving exercises and opportunities for discussion.

In the final semester students will undertake a research project. Each student will have their own independent piece of research and role that will contribute towards a larger collaborative project assigned to small groups of students aimed to replicate how multidisciplinary teams work in drug discovery. The assessment methods will encompass practical work, written report, group presentation and pitch.

## How you're assessed

Assessment strategies will ensure that students can demonstrate their knowledge and skills by a variety of various methods, e.g. coursework, teamwork, presentation, summative assessment, dissertation writing, oral examination, etc.

All assessments are authentic, meaning students will engage in the simulation of real-world scenarios in hands-on, workshop and project-driven assessments to demonstrate their ability to apply technologies and address challenges in Drug Discovery with AI.

## Liverpool Hallmarks

We have a distinctive approach to education, the Liverpool Curriculum Framework, which focuses on research-connected teaching, active learning, and authentic assessment to ensure our students graduate as digitally fluent and confident global citizens.

The Liverpool Curriculum framework sets out our distinctive approach to education. Our teaching staff support our students to develop academic knowledge, skills, and understanding alongside our **graduate attributes**:

- Digital fluency
- Confidence
- Global citizenship

Our curriculum is characterised by the three **Liverpool Hallmarks**:

- Research-connected teaching
- Active learning
- Authentic assessment

All this is underpinned by our core value of **inclusivity** and commitment to providing a curriculum that is accessible to all students.

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# Careers and employability

The demand for professionals skilled in AI and drug discovery is rapidly increasing, driven by the need for more efficient drug development processes. Graduates with expertise in this area are highly sought after by pharmaceutical companies, biotechnology firms, research institutions, and regulatory agencies. The UK's robust job market and its position as a leader in both AI and pharmaceutical research provide numerous opportunities for career advancement. Additionally, the skills acquired during the program, such as data analysis, machine learning, and computational modelling, are transferable to various other sectors, enhancing employability.

A masters in AI and Drug Discovery in the UK offers an unparalleled opportunity to gain a comprehensive education and practical experience in a cutting-edge field. The combination of academic excellence, research opportunities, industry connections, interdisciplinary learning, and global perspectives makes the UK an ideal destination for pursuing advanced studies in this domain. Graduates of this programme are well-equipped to drive innovation in drug discovery, ultimately contributing to the development of new therapies and improving global health outcomes.

An MSc in Drug Discovery with AI offers a combination of specialized skills highly sought after in both the pharma and tech industries. It provides opportunities to be part of the future of medicine, driving innovation in how we develop and bring new therapies to patients. Possible onward careers include:

- Pharmaceutical/Biotechnology Industry Roles
- Research and Development (R&D) Roles
- Regulatory and Consulting Roles
- Healthcare Technology Roles
- AI and Drug Discovery Startups
- Clinical and Translational Medicine
- Cross-disciplinary Roles such as AI Ethics Specialist in Pharma and patent specialists
- Government and Policy Roles.

Major Employers in these areas include:

- Pharmaceutical companies (e.g., Pfizer, Novartis, AstraZeneca)

- Biotech startups (e.g., Exscientia, BenevolentAI)
- Healthcare technology companies (e.g., IBM Watson Health)
- Academic institutions and research labs
- Government regulatory bodies (e.g., FDA, EMA).

## Career support from day one to graduation and beyond

### Career planning

### From education to employment

### Networking events

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# Fees and funding

Your tuition fees, funding your studies, and other costs to consider.

### Tuition fees

#### UK fees (applies to Channel Islands, Isle of Man and Republic of Ireland)

Full-time place, per year - £15,000

#### International fees

Full-time place, per year - £34,000

Tuition fees are for the academic year 2026/27.

Tuition fees cover the cost of your teaching and assessment, operating facilities such as libraries, IT equipment, and access to academic and personal support.

- You can pay your tuition fees in instalments.
- All or part of your tuition fees can be funded by external sponsorship.
- International applicants who accept an offer of a place will need to pay a tuition fee deposit.

If you're a UK national, or have settled status in the UK, you may be eligible to apply for a Postgraduate Loan worth up to £12,167 to help with course fees and living costs. **Learn more about paying for your studies**.

## Additional costs

We understand that budgeting for your time at university is important, and we want to make sure you understand any course-related costs that are not covered by your tuition fee. This could include buying a laptop, books, or stationery.

Find out more about the additional study costs that may apply to this course.

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# Entry requirements

The qualifications and exam results you'll need to apply for this course.

### Postgraduate entry requirements

We accept a 2:2 honours degree from a UK university, or an equivalent academic qualification from a similar non-UK institution. This degree should be in a relevant Biology or Chemistry related subject. This includes (but is not restricted to) Pharmacy, Pharmacology, Biotechnology, Material Sciences, Biochemistry, Genetics, Life Sciences, Natural Sciences or Biomedical Sciences.

### International qualifications

Select your country or region to view specific entry requirements.

Many countries have a different education system to that of the UK, meaning your qualifications may not meet our entry requirements. Completing your Foundation Certificate, such as that offered by the University of Liverpool International College, means you're guaranteed a place on your chosen course.

# English language requirements

You'll need to demonstrate competence in the use of English language, unless you're from a majority English speaking country.

We accept a variety of international language tests and country-specific qualifications.

International applicants who do not meet the minimum required standard of English language can complete one of our Pre-Sessional English courses to achieve the required level.

### IELTS

6.5 overall, with no component below 6.0

**Duolingo English Test**

125 overall, with writing not less than 125, speaking and reading not less than 115, and listening not below 110. For academic year 2025/26 only, we will also accept the production, literacy, comprehension and conversation score set: 120 overall, with no component below 105.

## Pre-sessional English

Do you need to complete a Pre-sessional English course to meet the English language requirements for this course?

The length of Pre-sessional English course you'll need to take depends on your current level of English language ability.

### Pre-sessional English in detail

If you don't meet our English language requirements, we can use your most recent IELTS score, or the equivalent score in selected other English language tests, to determine the length of Pre-sessional English course you require.

Use the table below to check the course length you're likely to require for your current English language ability and see whether the course is available on campus or online.

| Your most recent IELTS score | Pre-sessional English course length | On campus or online |
|---|---|---|
| 6.0 overall, with no component below 6.0 | 6 weeks | On campus |
| 6.0 overall, with no component below 5.5 | 10 weeks | On campus and online options available |

| Your most recent IELTS score | Pre-sessional English course length | On campus or online |
|---|---|---|
| 6.0 overall, with no more than one component below 5.5, and no component below 5.0 | 12 weeks | On campus and online options available |
| 5.5 overall, with no more than one component below 5.5, and no component below 5.0 | 20 weeks | On campus |
| 5.0 overall, with no more than one component below 5.0, and no component below 4.5 | 30 weeks | On campus |
| 4.5 overall, with no more than one component below 4.5, and no component below 4.0 | 40 weeks | On campus |

If you've completed an alternative English language test to IELTS, we may be able to use this to assess your English language ability and determine the Pre-sessional English course length you require.

Please see our guide to Pre-sessional English entry requirements for IELTS 6.5 overall, with no component below 6.0, for further details.

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