UNIVERSITY OF LIVERPOOL

MSc

Pharmacology and Toxicology

Study mode	Duration
Full-time	12 months
Part-time	24 months

Apply by: **11 September 2026**
Starts on: **28 September 2026**

About this course

The Pharmacology and Toxicology MSc will provide you with an advanced understanding of the development of therapeutics, for applications in many communicable, and non-communicable diseases.

Introduction

The programme's mission is around making medicines better. Through optimisation of current treatments, understanding variability in patient responses from both an efficacy and safety perspective, and formulation of advanced therapeutics such as nanomedicines and cellular therapies, and making better medicines by developing the next generation of therapeutics. All of this is underpinned by a robust understanding of the processes that govern the biodistribution, pharmacokinetics, pharmacodynamics, and safety of these new, and improved, therapeutics.

The course is led by internationally recognised experts in the field of pharmacology, toxicology, and biocompatibility from both non-clinical and clinical departments. In practice, you will be provided with in-depth teaching on the processes underlying these areas, as well as the clinical and regulatory processes aligned to them. You will utilise real-world case studies of therapeutics under development by experts involved in these research areas prior to you joining one of these teams for the implementation of your final research project.

You will gain in-depth scientific knowledge and will receive training for research that can be applied to academic, commercial and healthcare settings. In addition, you will

learn digital, programming and informatic skills that are of increasing importance for research and many employers.

Who is this course for?

This master’s is for graduates from a biomedical sciences background who want to pursue a career in pharmacology and toxicology.

What you'll learn

- Advanced research skills in pharmacology and toxicology, including digital fluency through informatics and programming skills
- Experimental medicine and clinical pharmacology
- Early phase clinical trial periods, encompassing phase I and II of the drug development pipeline
- Core and novel aspects of toxicology in the context of the development of new medicines
- Key advances in novel drug delivery systems
- The emergence of advanced therapeutics, enabled by significant progress in biomedical science and technology.

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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

This course is still subject to approval, meaning course content may change.

Compulsory modules

Pharmaceutical Toxicology 2023-24: 15 Credits

This key module in the MSc Pharmacology and Toxicology programme brings together core and novel aspects of toxicology in the context of the development of new medicines. Topics include major organ toxicities, pharmacogenetics, development of in vitro test systems, nanotoxicology and computational/systems toxicology. This builds on local research strengths (e.g. Centre for Drug Safety Science) and strong links with the pharmaceutical industry and regulatory agencies. The module includes research connected lectures and seminars, from leading academic researchers based at the University of Liverpool, as well as external speakers. The two module assessments are aimed at writing reports on topics covered in the first and second half of the module, respectively.

Modules

Compulsory modules	Credits
INFORMATICS FOR LIFE SCIENCES (LIFE721)	15
BIOLOGICAL DATA SKILLS (LIFE707)	15

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

Semester two

Students will take 30 credits from the required modules.

Students will also select one 15 credit module from the optional modules.

Compulsory modules

Experimental Medicine and Clinical Pharmacology 2023-24: 15 Credits

The module will address the early phase clinical trial period, encompassing phase I and II of the drug development pipeline, which seeks to determine the safe dose of a novel treatment that has the most promise to be effective. The methodology is distinct from that of later phase effectiveness trials (phase III onwards).

The module includes research connected lectures, workshops and structured discussions on selected texts as student-led topics. The content will focus on methods for dose-finding and early efficacy studies. The module assessments are aimed at: 1) writing a report on a selected investigational product and the methods for dose finding 2) presentation of a key factor that contributes to the determination and management of risk. The factor focused on will be selected from workshops and student-led discussions. Students will acquire a good understanding of the theoretical underpinning early-phase dose-determining clinical trials. By the end of the module, students should have the knowledge and skills required to interpret pre-clinical data sufficient to plan, and manage, a phase I clinical trial

Frontiers in Drug Delivery and Advanced Therapeutics 2023-24: 15 Credits

Key advances in novel drug delivery systems and the emergence of advanced therapeutics enabled by significant progress in biomedical science and technology are not only transforming drug administration, but also changing our definition of ‘drugs’. Organisations are adapting very quickly to take advantage of the opportunities created by these advances to tackle some of the biggest health challenges. This key module in the MSc Pharmacology and Toxicology programme will equip students with competencies that will help them advance their career in these areas. The module includes research connected lectures, seminars and workshops on selected student-led topics. Assessment will be by a written report and a presentation.

Modules

Optional modules	Credits
COMPUTATIONAL BIOLOGY (LIFE752)	15

Optional modules	Credits
DIAGNOSTICS, THERAPEUTICS AND VACCINES (LIFE732)	15
PROTEOMICS METABOLOMICS AND DATA ANALYSIS (LIFE754)	15

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

Final project

Modules

Compulsory modules	Credits
MSC RESEARCH PROJECT (LIFE703)	60

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

Teaching and assessment

How you'll learn

You will experience a range of teaching and learning methods, including lectures, seminars, workshops, data-handling and computation skills development and e-learning.

The taught components of the course are delivered by experts in their respective fields and are closely aligned to research within the Department of Pharmacology and Therapeutics, ensuring that all teaching is research-led.

Additionally, through the final research project, you will apply the knowledge and skills you have learned in the program by working within the laboratories of these research teams, at the cutting edge of R&D in Pharmacology. This is particularly suited for those wishing to go onto a research career, supported by PhD research.

How you're assessed

Assessment of knowledge and understanding, practical skills and transferrable skills is through a blended mix of coursework that may include practical and project reports, essays, completion of workbooks, talks, data handling sessions and posters.

All modules will provide you with feedback on your learning progress and allow for adjustment of your learning. Electronic resources available on the University virtual learning environment support learning and teaching.

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 Pharmacology and Toxicology MSc will provide you with the necessary knowledge and skills to become a professional scientist in the multidisciplinary areas of pharmacology and toxicology.

Commercial sectors such as the pharmaceutical, biotechnology and agriculture industries will be possible employers of graduates, especially with the anticipated increases in the development of new therapeutics, to meet emerging infectious diseases.

In the public sector, researchers are in demand in research institutes, government departments, the Health Service, forensic science and the Environment Agency.

For those committed to a career as a research scientist, this programme will qualify you to be able to take up PhD studies, research posts in academia or in industry or management posts in clinical trial units.

Commercial sectors such as the pharmaceutical, biotechnology and agriculture industries will be possible employers of graduates, especially with the anticipated increases in the development of new therapeutics to meet emerging infectious diseases.

In the public sector, researchers are in demand in:

- Research institutes
- Government departments
- The NHS
- Forensic science
- Environment Agency.

For those committed to a career as a research scientist, this programme will qualify you to be able to take up PhD studies, research posts in academia or in industry or management posts in clinical trial units.

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
Part-time place, per year - £7,500

International fees

Full-time place, per year - £34,000
Part-time place, per year - £17,000

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 Biological Sciences subject or equivalent. Candidates must have a scientific background acceptable to the Programme Director.

International qualifications

Select your country or region to view specific entry requirements.

If you hold a bachelor's degree or equivalent, but don't meet our entry requirements, a Pre-Master's can help you gain a place. This specialist preparation course for postgraduate study is offered on campus at the **University of Liverpool International College**, in partnership with Kaplan International Pathways. Although there's no direct Pre-Master's route to this MSc, completing a Pre-Master's pathway can guarantee you a place on many other postgraduate courses at The University of Liverpool.

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

TOEFL iBT

88 overall, with minimum scores of listening 19, writing 19, reading 19 and speaking 20. TOEFL Home Edition not accepted.

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.

Pearson PTE Academic

61 overall, with no component below 59

LanguageCert Academic

70 overall, with no skill below 65

PSI Skills for English

B2 Pass with Merit in all bands

INDIA Standard XII

National Curriculum (CBSE/ISC) - 75% and above in English. Accepted State Boards - 80% and above in English.

WAEC

C6 or above

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
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	40 weeks	On campus

Your most recent IELTS score	Pre-sessional English course length	On campus or online
component below 4.0		

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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