



Pharmacology and Pharmaceutical Science

Undergraduate Degrees 2026

The power to change lives.

Welcome to pharmacology and pharmaceutical science at Lancaster.

By studying one of these exciting subjects, you could play a role in tackling some of the greatest health challenges affecting the world today and truly change lives.

You will benefit from our world-class research and excellent laboratories, gaining a strong scientific foundation, practical skills, and the confidence to thrive in these rapidly evolving fields.

Whether you want to study how drugs are made and delivered with a degree in pharmaceutical science or explore the effect of drugs on the body by studying

pharmacology, you will become part of our thriving community of like-minded students.

You will make lifelong friends and memories in practical sessions, learn from renowned scientists in lectures and gain the support you need from our dedicated teams of academic and pastoral staff.

Importantly, we will also prepare you for life beyond Lancaster, developing your employability and ensuring you're ready to make an impact in your future career, whether that's within or beyond the lab.

Your time at university has the potential to shape the rest of your life. I would like you to be assured that we are here to support you every step of the way.



Our degrees

We offer bachelor's degrees with optional Study Abroad and Placement Year variants across pharmacology and pharmaceutical science. You may also wish to consider an integrated master's degree (MSci), which will allow you to explore either of these subjects in greater depth.

A level entry requirements

Degree title		Degree (Hons)	UCAS code	Course duration (years)	Typical A level offer
Pharmacology		BSc	B210	3	AAB#
Pharmacology		MSci	B213	4	AAA#
Pharmacology (Placement Year)	&	BSc	B211	4	AAB#
Pharmacology (Study Abroad)	•	BSc	B212	4	AAB#
Pharmacology (with a Foundation year)		BSc	B21F	4	CCC##
Pharmaceutical Science		BSc	B200	3	AAB#
Pharmaceutical Science		MSci	B201	4	AAA#
Pharmaceutical Science (Placement Year)	&	BSc	B202	4	AAB#
Pharmaceutical Science (Study Abroad)	6	BSc	B203	4	AAB#





This course requires a GCSE in English Language (grade 4/C) and Mathematics (grade 5/B). Your A levels must include Biology and Chemistry.

This course requires a GCSE in English Language (grade 4/C) and Mathematics (grade 6/B). Your A levels must include Biology and Chemistry.

BTEC and International Baccalaureate (IB) entry requirements

Degree/Award	BTEC	IB
MSci	NA†	36 points≈
BSc	DDD††	35 points≈
Pharmacology with a Foundation Year	MMM†††	27 points≈≈

† Only considered for entry to the BSc Hons course variant. Subject to academic progression and availability, students can transfer to the MSci course.

†† DDD considered alongside A level Chemistry grade B, and to include sufficient Biology content. We require Distinctions in the majority of relevant science units.

†† MMM considered on a case-by-case basis, and to include sufficient science units at Distinction. We may require an A level Chemistry grade D.

≈ 16 points from the best 3 HL subjects, including 6 in Biology HL and 6 in Chemistry HL.

≈≈ 14 points from the best 3 HL subjects, including 4 in Biology HL and 4 in Chemistry HL.



Made for learning

Pharmacology is delivered by Lancaster's Department of Biomedical and Life Sciences, while pharmaceutical science is taught by both Biomedical and Life Sciences and Chemistry. Both are highly-regarded departments that will offer you a structured, progressive training in pharmacology and pharmaceutical science.

How you'll learn

Your lectures will be delivered by subject experts and introduce key concepts in Pharmacology and Pharmaceutical Science, while laboratory practicals and workshops are where you will apply what you've learned. There, you will become skilled in using equipment and techniques to understand drugs and how they're made or how they work.

Workshops are interactive sessions that may use problem solving, computer labs, group work or exploring scientific literature to give you a solid understanding of the theory covered in lectures.

You will also have small group tutorials where you will acquire the key skills needed for your degree.

Your Academic Tutor will help you with academic queries, pastoral support or careers advice.

Research with impact

The academics you'll learn from are experts in their fields. Their research is shaping our understanding of the world, and this feeds into our degrees, ensuring your education is informed by cutting-edge thinking.

- + Dr Steven Hall's research focuses on discovering and developing new drugs to treat tissue damage caused by certain snake venoms.
- + Dr Karen Wright investigates how cannabinoids compounds found primarily in the cannabis plant – can be used to treat inflammation and metabolism.
- + Professor David Middleton uses a range of methods, including solid-state NMR (nuclear magnetic resonance) spectroscopy, to understand the molecular mechanisms of human disease.

Test your knowledge

Assessment methods vary across modules and may include laboratory reports, essays, independent project reports, group presentations, multiple-choice tests and exams.

Assessment is an ongoing process. This means we will provide feedback to you throughout your degree as part of your preparation for end-of-module exams.



Biosciences at Lancaster

Pharmacology and Pharmaceutical Science are among a range of biosciences subjects taught at Lancaster University.

- + Biology our most flexible degree, encompassing the study of life from cells to animals, plants to whole communities and ecosystems.
- + Biomedicine and Biomedical Science – our most specialised courses, focussing on the study of human life processes and disease.
- + Biochemistry uniting biology and chemistry to explore life at a molecular and cellular level.
- + Pharmaceutical Science the design, formulation, development, manufacturing and evaluation of drugs.
- + **Pharmacology** exploring how drugs interact with living systems and affect our bodies.
- + Neuroscience combining biology and psychology to understand the nervous system's role in behaviour and brain disorders.
- + Ecology and Conservation focussing on ecosystems, animal behaviour, evolution and global change biology.



Rachel, third-year

Biosciences student

I learnt essential skills in the lab that provided me with confidence and an understanding of how to use lab equipment. This has been extremely helpful for carrying out practicals as part of my other modules.

Having completed an internship and now going on to carry out my research project, the skills I learnt and implemented in the lab, such as micropipetting, learning how to make dilutions and centrifuging, have been essential in the experiments I now execute.

Furthermore this enabled me to learn good clinical laboratory practice, which, if working in a lab, is non-negotiable.



Gain *real-world* experience

Studying either our Pharmacology (Placement Year) BSc or Pharmaceutical Science (Placement Year) BSc is an ideal way to stand out in a competitive job market.

It's an opportunity to develop valuable, hands-on experience in your chosen field and see how the academic theory you learn during your degree translates into real-world application. Placements are paid, professional-level roles, lasting between ten and 12 months. We will use all reasonable effort to support you in finding a suitable role for your placement year, drawing on our strong links with organisations across healthcare, industry and research.

At present, students only pay 20 per cent of the standard tuition fee in the year of their placement. Please see our website for full details.

Five reasons to take a placement year

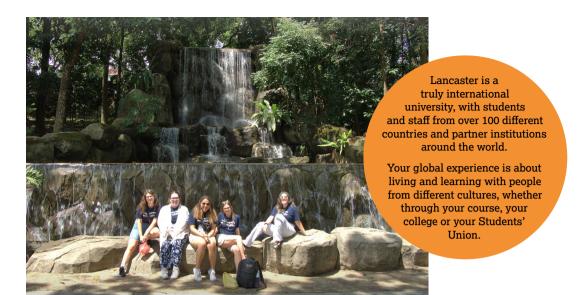
- 1. Try out your ideal job
- 2. Build a network of professional contacts
- 3. Grow in confidence
- 4. Boost your CV
- 5. Maybe even secure a job offer after graduation!

Biosciences internships at Lancaster

You can also apply for a paid summer internship in our department, helping you to gain additional research experience. Past interns have worked on research topics including Alzheimer's disease, cancer biology, immunology, microbiology and infectious diseases.







Your global experience

Choosing either Pharmacology BSc or Pharmaceutical Science BSc with a year abroad is a fantastic opportunity to see the world, grow in confidence, and become an even more employable graduate.

You will spend your third year studying at one of our trusted partner institutions in either North America or Australasia.

During your year abroad, you'll experience a different culture and society and return with a more global world view. It's also a chance to gain new perspectives on your degree subject.

You will choose specialist modules relating to your degree. You might also have the option to study modules from subjects offered by the host university that are specific to that university and country.

Altogether, your global experience will see you return to Lancaster in your final year as a more well-rounded, confident and employable version of yourself. This fourth year of your studies will follow the same curriculum as the final year of our three-year pharmacology or pharmaceutical science BSc degrees.

At present, students only pay 15 per cent of the standard tuition fee during their study abroad year. Please see our website for full details.



Visit lancaster.ac.uk/study-abroad to see a full list of the overseas institutions with which we currently have a partnership arrangement. 44

The experiences and people you meet will make it an unforgettable experience and something you won't be able to stop talking about.

Alison, third-year student
Biosciences student

The opportunity to study in a different country for a whole year is a truly unique experience and was something I couldn't pass up. I had always wanted to go to Canada and, when I saw that was an option, I knew I had to do it.

I studied at the University of British Columbia in Vancouver, which was a highlight in itself. The campus was situated right on the edge of the city, surrounded by beaches and mountains in the distance. There was always a positive buzz around the campus, and the university spirit was amazing. I managed to do so much, from backcountry skiing and sunset swims to travelling up to the Rockies in our midterm breaks.

The experiences and people you meet will make it an unforgettable experience and something you won't be able to stop talking about. I would do it all over again if I could!



A hands-on degree

Our state-of-the-art life science teaching laboratories are where you'll put the knowledge you've acquired from lectures and tutorials into practice. They are also where you will get to know your coursemates and academics while developing the core practical skills of a modern scientist.

Through guided practical sessions, you'll develop a wide range of techniques that will support your understanding of how drugs are made and how they work. These experiences form a strong foundation for careers in pharmacology, biotechnology, and pharmaceutical research, giving you the confidence and skills to make an impact.

Life sciences labs

In both pharmacology and pharmaceutical science, you will participate in practicals in our fantastic life sciences labs.

You will learn to use sophisticated equipment and carry out techniques to understand how drugs interact with and affect molecules, cells and organisms.

You will also have access to equipment, including:

- + microscopes
- + spectrophotometers
- + microplate readers
- + centrifuges
- + DNA, RNA and protein gel electrophoresis and visualisation equipment
- + Polymerase chain reaction (PCR) thermocyclers
- + cell culture incubators
- + fume hoods
- + microbiology and histology preparation areas

Depending on your choice of modules or research project theme, you may also use some of the following labs and facilities:

Imaging and bioanalysis

Our bioimaging facility allows you to study cells, tissues, and molecular interactions using advanced imaging tools. With access to confocal microscopy, you'll observe real biological processes and learn how pharmacological compounds interact at a microscopic level.

Protein and cell-based techniques

Protein purification and characterisation equipment allows you to separate and analyse proteins, developing insights into how drug molecules influence biological function. In our cell culture labs, you'll be able to grow and treat cells in sterile conditions, modelling how pharmacological treatments behave in real biological environments.





Our chemistry labs

If you study pharmaceutical science, you will also learn in our chemistry labs. Depending on your choice of modules or research project theme, you may also use some of the following labs and facilities:

Advanced chemical techniques

You'll also access our chemistry labs and analytical facilities, where you'll learn advanced chemical synthesis techniques and techniques for chemical characterisation, including infrared (IR), nuclear magnetic resonance (NMR), and mass spectrometry. These skills support your understanding of molecular structure, purity, and compound behaviour, key for careers in pharmaceuticals and drug development.

High-Performance Liquid Chromatography (HPLC)

Our HPLC facilities allow you to separate and analyse complex mixtures of compounds in liquids. Using high-pressure pumps, you'll push samples through columns that separate components by their chemical properties. This widely used technique helps you identify and quantify substances like drugs, pollutants, or food additives.

Instruments and applications

You'll work with systems including the Biorad NGC chromatography system, AKTA purifier chromatography system, and Agilent 1260 HPLC analyser. By gaining hands-on experience with HPLC, you'll develop valuable skills in analytical chemistry, preparing you for careers in pharmaceuticals, biotechnology, and environmental science.



Pharmacology

BSc Hons, MSci Hons

A pharmacology degree is your opportunity to study and research new and existing drugs: how they work, how they affect our bodies, and how they can be used to change lives and tackle global healthcare challenges.

In **Year 1**, you will gain a thorough grounding in the biomedical basis of pharmacology by studying core topics including an introduction to pharmacology, the molecules of life, genetics and molecular biology.

In **Year 2**, you will study more advanced topics within the field of pharmacology, enabling you to grow your practical skills that will provide you with an understanding of the experimental techniques used in modern pharmacological research.

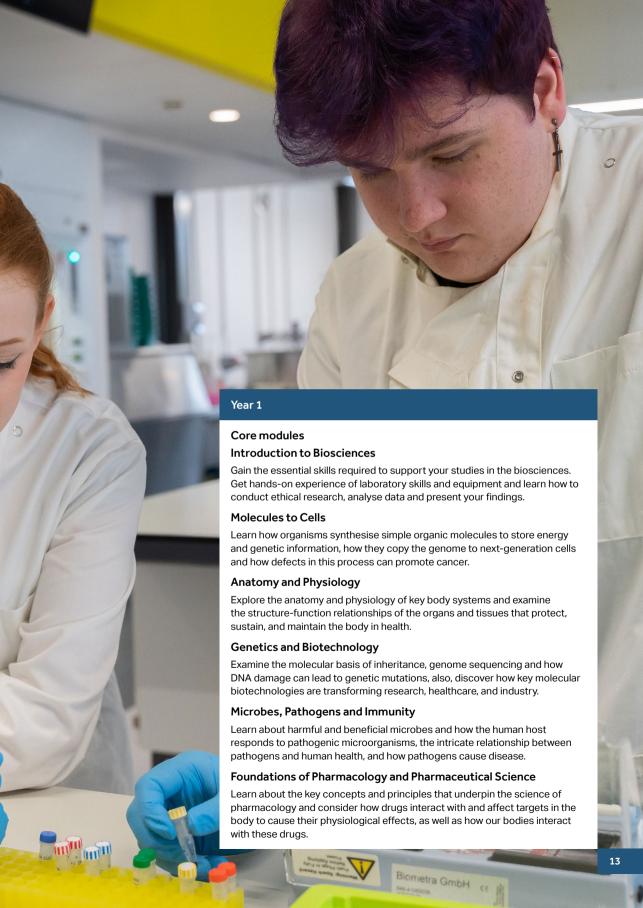
In **Year 3**, you will focus on themes such as advanced drug design and development and global health challenges, and you will put your learning into practice with an independent research project.

If you are studying for an integrated master's degree (MSci), in **Year 4** you will gain additional practical skills by undertaking another more extended research project and can further tailor your choices to the interests you have developed during the first three years of study.

Enhancing your curriculum

We continually review and enhance our course curricula to ensure we are delivering the best possible learning experience, and to make sure that the subject knowledge and transferable skills you develop will prepare you for your future. Information within this publication with respect to courses and modules is correct at the time of publication, and the University will make every reasonable effort to offer courses and modules as advertised. In some cases, changes may be necessary and may result in new modules or some modules and combinations being unavailable, for example as a result of student feedback, timetabling, staff changes and new research.





Pharmacology (continued)

Year 2

Core modules

Microbiology and Immunology

Learn how our indigenous microbes help with numerous physiological functions, protect us from pathogens and how they tolerated by our immune system. You'll also look at the pathogenic mechanisms of a range of microbes, learn about our natural defence and examine interventions to control infections.

Biochemistry of Cellular Metabolism

Study the structure and function of biomolecules and their roles in metabolic pathways and other essential cellular mechanisms. Learn the molecular underpinnings of human health and how disruptions in biochemical pathways contribute to disease.

Pharmacology

Delve into how drugs bind to and inhibit or activate their targets with different affinities and how this affects the body and mind (pharmacodynamics) and how the parameters of absorption, distribution, metabolism and excretion dictate how the body affects drugs (pharmacokinetics). Together, these will equip you with an understanding of critical concepts in pharmacology.

Cell and Developmental Biology

Explore the intricate processes through which cells respond to environmental and developmental signals, explore the interactions between cells and their surroundings, and how disruptions in these mechanisms contribute to developmental disorders and disease.

Drug Design and Development

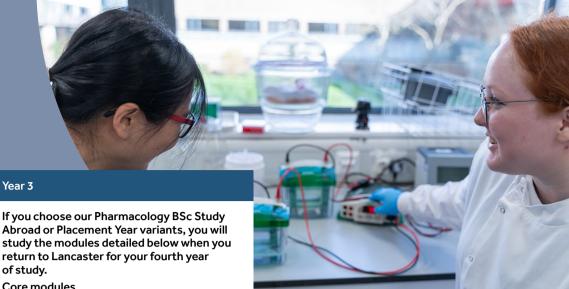
Learn about different approaches for finding new drugs: from high-throughput screening of compound libraries to focused screens, virtual screens, and structure-based drug design. Gain an insight into challenges in assessing the efficacy and safety of new drugs.

Optional modules currently include

- + Life Cycle of Proteins
- + Molecular Genetics

Please see our website for further information about the options available.





Core modules

Year 3

Biosciences Research Project

This research project provides you with first-hand research experience and the opportunity to immerse yourself in an area of pharmacology that fascinates you. You'll receive one-to-one support from a member of academic staff and training in research methods to support your investigation.

Advanced Drug Design and Development

Discover new concepts in the design and use of small molecules to treat disease, and recently emerging therapeutic avenues such as biologics, nanotechnology, cell and gene therapy and immunological therapies. Understand how these approaches work and their benefits in treating and preventing disease.

Global Health Challenges

Whilst scientific advances have led to improvements in human health over the past century, significant challenges remain. You will study challenges of global significance that will provide you with a realworld perspective on human health and the multidisciplinary and collaborative approaches required to tackle these.

Optional modules currently include

- + Biology of Ageing
- + Pathobiology
- + Cancer Biology and Therapeutics
- + Cell Signalling in Health and Disease
- + Ethics in Biomedicine
- + Protein Bioinformatics
- + Medical Genetics and Clinical Immunology

Please see our website for further information about the options available.

Year 4

For students studying an integrated master's degree in pharmacology (MSci) only.

Core modules

Biosciences Integrated Master's Research Project

You will undertake an extended research project on a specific topic within your field of study. The project enables you to build on the research skills you developed during your third-year project and further enhances your independence and experience of working in a research environment.

Emerging Therapeutics in Immunology

Gain advanced knowledge of the innate and adaptive immune system, understanding classical and novel cell types and how they prevent disease, and how failure of the immune system results in chronic infection or autoimmunity. You'll also study how application of immunological research is applied to biomedical science and clinical practice.

Drug Development from concept to clinic

Learn how current and emerging tools, such as genomics, virtual design, high-throughput screening and safety testing, are used to allow new medicines to reach clinical trials and regulatory approval.

Optional modules currently include

- + Brain Disorders
- + Cancer Bench to Bedside
- + Neglected Tropical Diseases

Please see our website for further information about the options available.

Pharmaceutical Science

BSc Hons, MSci Hons

You will study themes across biology, chemistry, and pharmacology to understand the principles of drug design, development, synthesis, function, characterisation, delivery and side effects. You will also explore the wider societal and regulatory context of drug development and use, and how laboratory drugs are translated into viable consumer products.

In **Year 1**, you will lay the foundations of your knowledge, covering core themes like infection and immunity, cell structure and function, organic and inorganic chemistry, physical chemistry and pharmacology.

In **Year 2**, you will gain a deeper understanding of biochemistry (how biological processes work on a molecular level), organic synthesis (how drugs are synthesised), and their action within the body (pharmacology).

Year 3 will see you study advanced topics in both pharmacology and chemistry, such as drug design and development. You will apply your learning to global health challenges and conduct an independent research project.

If you are studying for an integrated master's degree (MSci), in **Year 4** you will undertake an extended research project. You can also tailor your module choices to the interests you have developed during the first three years of study.

Enhancing your curriculum

We continually review and enhance our course curricula to ensure we are delivering the best possible learning experience, and to make sure that the subject knowledge and transferable skills you develop will prepare you for your future. Information within this publication with respect to courses and modules is correct at the time of publication, and the University will make every reasonable effort to offer courses and modules as advertised. In some cases, changes may be necessary and may result in new modules or some modules and combinations being unavailable, for example as a result of student feedback, timetabling, staff changes and new research.







Year 2

Core modules

Biochemistry of Cellular Metabolism

Study the structure and function of biomolecules such as proteins, lipids, and carbohydrates, and their roles in metabolic pathways and other essential cellular mechanisms. Learn the molecular underpinnings of human health and how disruptions in biochemical pathways contribute to disease.

Pharmacology

Delve into how drugs bind to and inhibit or activate their targets with different affinities and how this affects the body and mind (pharmacodynamics) and how the parameters of absorption, distribution, metabolism and excretion dictate how the body affects drugs (pharmacokinetics). Together, these will equip you with an understanding of critical concepts in pharmacology.

Organic Chemistry

Develop your knowledge of chemical synthesis, focusing on mechanistic and structural chemistry and expanding on the approaches we can use to rationalise and predict the behaviour, structure and reactions of organic molecules. Deepen your understanding of chemical systems and chemical compound synthesis.

Principles of Chemical Analysis and Spectroscopy

Gain expertise in the characterisation of chemical systems. By integrating models of structure, bonding, motion and reactivity with spectroscopic and analytical techniques, we develop an enhanced view of their properties, structure and behaviour.

Practical and Laboratory Skills for Chemistry

Develop your portfolio of practical and professional chemistry skills. This module builds upon synthesis and characterisation techniques, growing your practical skills to complement the content of theory modules.

Drug Design and Development

Learn about different approaches for finding new drugs: from high-throughput screening of compound libraries to focused screens, virtual screens, and structure-based drug design. Gain an insight into the challenges in assessing the efficacy and safety of new drugs.

Year 3

If you choose our Pharmaceutical Science BSc Study Abroad or Placement Year variants, you will study the modules detailed below when you return to Lancaster for your fourth year of study.

Core modules

You will have the choice to undertake either a Biosciences Research Project or a Chemistry Project. Both will see you design experiments, lead investigations, analyse and manage data, carry out health and safety training and effective literature searching and become proficient in using specialised equipment and techniques. These experiences will refine your skills, build your confidence and prepare you for advanced studies and professional work in pharmaceutical sciences and beyond.

Biosciences Research Project

This research project provides you with first-hand research experience and the opportunity to immerse yourself in an area of pharmaceutical science that fascinates you. You'll receive one-to-one support from a member of academic staff and training in research methods to support your investigation.

OR

Chemistry Project and Skills

Chemistry is pivotal in addressing global challenges such as sustainability, energy, materials, pharmaceuticals, and medical treatments. Here you'll gain hands-on experience with advanced professional skills in an extended project.

Advanced Drug Design and Development

Discover new concepts in the design and use of small molecules to treat disease, and recently emerging therapeutic avenues such as biologics, nanotechnology, cell and gene therapy and immunological therapies, and gain an understanding of their role in disease treatment and prevention.

Global Health Challenges

Study challenges of global significance that will provide you with a real-world perspective on human health and the multi-disciplinary and collaborative approaches required to tackle these.

Optional Modules

- + Advanced Synthetic Chemistry
- + Advanced Organic Chemistry and Materials Chemistry
- + Advanced Practical Skills in Chemistry

Please see our website for further information about the options available.

Year 4

For students studying an integrated master's degree in pharmaceutical science (MSci) only. Core modules

Biosciences Integrated Master's Research Project

You will undertake an extended research project on a specific topic within your field of study. The project enables you to build on the research skills you developed during your third-year project and further enhances your independence and experience of working in a research environment.

Optional Modules

- + Cancer Bench to Bedside
- + Diseases of the Brain
- + Drug Development from concept to clinic
- + Emerging Therapeutics in Immunology
- + Frontiers in Organic and Materials Chemistry
- + Frontiers in Inorganic and Materials Chemistry
- + Neglected Tropical Diseases

Please see our website for further information about the options available.





Hello future!

Degrees in pharmacology or pharmaceutical science are an ideal springboard for a variety of careers, both in the lab and beyond.

Gain experimental design and practical lab skills and become adept at statistical analysis and data recording. Develop wider abilities in project management, problem-solving, and ethical and environmental awareness, all of which are highly valued by employers.

Pharmacology careers

Graduates often enter the pharmaceutical or biotechnology sectors or academia and education, in roles such as*:

- + Pharmacologist
- + Toxicologist
- + Science Communications and Public Engagement
- + Medicine Monitoring and Licensing
- + Regulatory Affairs
- + Science Teacher
- + Research Manager
- + Forensic Scientist
- + Drug Safety Associate
- + Clinical Trial Project Manager
- + Medical Doctor (following a graduate-entry degree in medicine)

*Some of these roles may require further training.

Pharmaceutical science careers

A degree in pharmaceutical science opens the door to a wide range of career paths in healthcare, science, industry, and beyond.

You might pursue roles such as*:

- + Pharmaceutical Scientist
- + Medicinal Chemist
- + Drug Safety Associate
- + Quality Control Analyst
- + Clinical Trial Project Manager
- + Pharmacy Technician
- + Sales and Marketing roles
- + Science Teacher
- + Medical Publisher

*Some of these roles may require further training.

Beyond the lab

Both degrees will provide you with a host of transferable skills, from data analysis to critical thinking that will provide an ideal basis for roles beyond the sciences, including NHS Manager, Finance Manager and Accountant.

Further study and training

Postgraduate study in an area you are passionate about is another option for our graduates, including master's degrees and PhDs in fields such as pharmacology, pharmaceutical science, cancer therapeutics, neuroscience, microbiology or immunology.



Hear from our students

The support at Lancaster is fantastic. Lecturers go above and beyond to provide help and guidance, and a termly meeting with your academic tutor provides one-to-one support when needed. As someone who struggles with maths, making use of the maths and statistics team here at Lancaster really boosted my confidence.

The careers and employability team are always there to offer a helping hand across a range of topics from CV writing through to securing a placement and volunteering opportunities.

Highlights of my undergraduate degree included the opportunity for me to complete an industrial placement year at GlaxoSmithKline within the Immunology Research Unit, as well as my undergraduate dissertation in cancer biology.

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The support at Lancaster is fantastic.



Katie

Biosciences graduate





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Whilst studying is a significant part of my university experience, going to university is so much more than just that. You'll become an independent adult, so you need to spend time doing day-to-day life admin, like buying groceries. But moreover, you'll make some amazing friends – people you live with, others in your college and those on the same course as you.

I'm so glad I chose to study at Lancaster. That's not to say there haven't been challenges and times when the course has been tough. But what's important is overcoming those and making the most of your university experience - and I know I can look back at my university experience and confidently say it has been amazing.

Zainab, third-year

Biosciences student









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The information provided in this publication relates primarily to 2026 entry to the University and every effort has been taken to ensure the information is correct at the time of printing in June 2025. The University will use all reasonable effort to deliver the course as described but the University reserves the right to make changes after going to print. You are advised to consult our website at: lancaster.ac.uk/study for up-to-date information before you submit your application. Further legal information may be found at: lancaster.ac.uk/compliance/legalnotice.