Lancaster University

Natural Sciences

Undergraduate Degrees 2026

A Natural Sciences degree from *Lancaster* is designed to *train the change makers* of the 21st century.

Many global issues in today's world are problems that lie at the interface of traditional scientific disciplines. Consider the examples of world food production, climate change, global pandemics, natural disasters… .

All of these issues require complex solutions that span traditional scientific boundaries. Through studying across a range of science subjects, often across discipline boundaries, a degree in Natural Sciences empowers you with a wide skill set and depth of scientific knowledge to obtain some of the most tremendous career opportunities.

Director of Natural Sciences

Dr Peter Wynn

Why study Natural Sciences?

Coming to university does not necessarily mean specialising in one subject. A Natural Sciences degree will allow you to maintain an interest in two or three scientific disciplines where you will learn and integrate knowledge from a range of subjects.

You will take the same modules as the single honours students and be taught to the same depth of understanding.

What differentiates our Natural Sciences programme from other universities is the wide choice of subject pathways and flexibility. We deliver our learning in 'pathways'. A pathway is a selection of modules from a single honours programme. We have a large range of pathways available, from which you should select three in your first year of study. These three pathways should be contained within one of our defined science 'groups'.

Such open-minded scientists are in great demand with employers. Your personal and professional development are of the utmost importance to us and by studying a Natural Sciences degree you are telling a prospective employer that you are the sort of person who is prepared to think and work across the conventional boundaries of science.

You are sure to make lasting friendships, create special memories and develop life skills that will stay with you long after you leave us.

So, welcome to Lancaster and welcome to Natural Sciences.

A Natural Sciences degree gives you a unique opportunity to mix different scientific subjects to form your own hand-picked degree. If you are interested in more than one science subject or you are interested in where traditional disciplines overlap, Natural Sciences is the choice for you. We provide the following degrees:

Degree title	Degree (Hons)	UCAS code	Course duration (years)	Typical A level offer
Natural Sciences	BSc	GFC0	3	A*AA
Natural Sciences (Study Abroad)	BSc	CFG2	4	A*AA
Natural Sciences (Placement Year)	BSc	GFC1	4	A*AA
Natural Sciences	MSci	FCF3	4	A*AA
Natural Sciences (Study Abroad)	MSci	CFG1	5	A*AA
Natural Sciences (with a Foundation Year)	BSc	GFCF	4	CCC

Study abroad available Industry placement available

Design your own degree

Lancaster University offers one of the most flexible Natural Sciences degree schemes in the country.

The Natural Sciences degrees at Lancaster are accredited by the Society of Natural Sciences. They meet the benchmarks for offering interdisciplinary science as well as sufficient practical, mathematical and transferable skill sets in all science pathways.

Making the grade

The standard entry requirements for all of our courses are A*AA at A level with at least two of these being in science subjects from the following; Biology, Chemistry, Computing, Environmental Science, Geography, Geology, Information Technology, Mathematics, Physics or Psychology.

You must also have GCSE Mathematics grade B or 6 and English Language grade C or 4.
Please see our website for details of alternative qualifications and international equivalences.

In addition, entry to some first year Pathways require A level qualifications in particular subjects.
Please see the list below:

Pathway	A level requirements
Chemistry (all pathway variants)	Chemistry B
Engineering - Chemical	Mathematics B and Chemistry B
Engineering - Electronic	Mathematics B and Physics B
Engineering - Mechanical	Mathematics B and Physics B
Mathematics (all pathway variants)	Mathematics A
Physics	Physics A and Mathematics A

Design your own *degree*

Flexible options

In your first year of Natural Sciences, you will study three subjects, focusing to two thereafter. These subjects are to be chosen from the following disciplines:

+ Biology
+ Chemistry
+ Computing and Communications
+ Engineering
+ Environmental and Earth Sciences
+ Geography
+ Mathematics
+ Health and Medicine
+ Physics
+ Psychology

Your first year

During your first year, you will study a variety of modules within your chosen pathways.

Each module covers a particular aspect of a subject and will typically incorporate a large amount of laboratory-based practical work. Successful completion of the first year allows you to progress to second year.

Years 2 and 3

After a broad based first year, you will specialise in just two pathway subjects throughout your second and third year. There will be a mixture of core and optional modules, and in one of your pathways you will undertake a research project.

Year 4

The MSci year comes with a mandatory research project selected from a department of your choice and often linked to an array of partner organisations. A wide selection of Master's-level modules are open to you.

MSci or BSc?

You can enrol on either the BSc honours degree or the MSci honours degree. Both programmes are identical in years one to three. You are able to transfer from BSc to MSci up until part way through third year. You will then progress onto the fourth year of study (the MSci year) providing you achieve at least an upper second class honours mark at the end of the three year BSc.

Pathways *made easy*

It is not possible to study the entire content of two or three single-honours degree courses simultaneously. To help with your course selection, each science department has created one or more coherent collections of modules known as 'Pathways'.

You choose which Pathways you would like to study. By following a Pathway through a particular subject you are guaranteed to have the necessary pre-requisites for each subsequent year. You can follow any Pathway, subject to pre-requisite entry requirements (see page 3).

Double weighted Pathways

Please note, due to the complexity of subject content, some of our Pathways are double weighted in the first year of study. This means you can only take one other Pathway with these Pathway choices. Double weighted Pathways are shown in bold in the table below.

At the point of application you do not have to specify which three Pathways you intend to pursue in your Natural Sciences degree programme. After results day in August, you will be asked for your three Pathway choices and if you're not sure, these can be discussed during Welcome Week.

Discover our pathway content

Each pathway contains a set of core and optional modules.

Core modules represent the key learning required as part of your Natural Sciences degree and the optional modules provide you with extra skills and knowledge.

In most cases, modules in the first year are fixed and more options open up in subsequent years. This is intentional as our Pathways have been expertly selected so that your first year covers as much ground as possible to keep your later options open. Many second and third year optional modules have pre-requisites from the previous year.

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.

Natural Sciences pathway groupings

Environmental grouping

Physical Geography

Human Geography

Biology

Earth and Environmental Science

Ecology

Chemistry (single/**double**)

Mathematics (single)

Mathematics of artificial intelligence

Computing and communications

Physics (single/**double**)

Pure Sciences grouping

Physics (single/**double**)

Mathematics (single)

Pure Mathematics

Chemistry (single/**double**)

Computing and Communications

Biology

Medical Sciences grouping

Biomedicine

Pharmacology

Human Physiology

Psychology

Psychology BPS accredited

Physics (single/**double**)

Mathematics (single)

Chemistry (single/**double**)

Computing and communications

Engineering grouping

Engineering (Electrical) + Maths (single) + Physics (single)

Engineering (Chemical) + Maths (single) + Chemistry (single)

Engineering (Mechanical) + Maths (single) + one single pathway from the Pure Sciences grouping or Environmental grouping

Ben, *third year*

BSc Hons Natural Sciences (Placement Year)

Met Office

Atmospheric Dispersion and Air Quality group

Overall, studying Natural Sciences at Lancaster and taking a placement year were two of the best decisions I've made.

I've spent my placement year working within the Atmospheric Dispersion and Air Quality group at the Met Office, where my work has involved evaluating dispersion model outputs for large volcanic events using satellite retrievals.

I've had the chance to work with, and present to, world-leading scientists and grow my knowledge in my own niche area of interest - dispersion science. Outside of work, I have found that taking a placement year and a break from university has facilitated great personal growth.

Studying Natural Sciences at Lancaster was pivotal for my placement year. Within my degree, I study modules across the mathematics and environmental sciences departments. This interdisciplinary approach in Natural Sciences became particularly relevant when applying for my placement role within the Met Office, which sought experience in the 'physical sciences or mathematics'. I found myself in a unique position as I could display skills in both. The Faculty careers team was also invaluable and provided a great deal of support in finding placements, submitting applications, and preparing for interviews.

Scan the QR code to watch Ben talk about his placement year in more depth.

Kick start your career with a *placement year*

BSc Hons (Placement Year) - 4 Years

Our Placement Year provides a wonderful opportunity for you to increase your attractiveness to employers and to add a distinctive element to your CV.

Working in a science or non-science related role at graduate level, you will deepen your understanding of the workplace and how to apply your skills and knowledge. This will greatly increase your confidence and broaden your horizons.

Throughout your first and second year we will support you to find a graduate level role for your placement in your third year.

Whilst on placement you will be expected to update a reflective work diary and you will be supported in your role by a Lancaster University academic and a company employee. At present, students only pay 20% of the standard tuition fee in the year of their placement. Please see our website for full details.

I chose to study Natural Sciences at Lancaster University because it offered me the flexibility to tailor my degree to suit my individual interests and career goals. The interdisciplinary approach provided me with the opportunity to choose pathways in biomedicine, sports science, and psychology. This allowed me to explore a wide range of subjects that when combined, focus on different aspects of human biology, which I was particularly interested in. As someone who prefers not to be confined to a single subject area, this course and the staff encourage that and provide the flexibility to keep my career options open, which is a huge advantage.

Another significant factor in my decision to choose Lancaster University was the campus lifestyle it offers. Not only is the campus extremely scenic and surrounded by nature, but it also makes life very convenient. Everything you need is in one place: modern research and study facilities, shops, community spaces, the gym, clubs and societies. This creates a strong sense of community and support, which is essential for a fulfilling and successful student experience. Before arriving at the university, I had heard about many positive student experiences, which only increased my confidence that Lancaster was the right choice for me.

Ella, *third year*

BSc Natural Sciences

Scan the QR code to watch a typical day in the life of a Natural Sciences student

“Studying Natural Sciences at Lancaster University was the best decision I could have made when picking my course.”

Trudy

MSci Natural Sciences (2023) now a PhD student at Lancaster University

While at school, I always considered myself as a future scientist covering a broad range of skills and disciplines. Natural Sciences at Lancaster has allowed me to do just that. The breadth of knowledge I built in my first two years of my degree helped me to discover my main areas of interest, and I have been able to tailor my degree to focus on these areas in my last two years of study. The Natural Sciences departmental staff have been so helpful and supportive, and I feel like advice is readily available whenever I ask for it.

My favourite thing about studying in Lancaster is the diversity of students. Having moved from London, I was not sure whether I would still be surrounded by as great a diversity of people, but my flat in first year had people from 5 different continents! It’s been so interesting being able to share foods and languages and it really does feel like I am part of an international community.

Broaden your horizons and *study abroad*

Experience the world around you by spending a year studying in North America or Australasia. Your studies abroad count towards your final degree classification and so you take modules which fit into Lancaster's scheme of study.

You will benefit greatly from your overseas experiences and our students often find their year abroad life changing. You will grow in confidence and become more independent. It's a great opportunity to broaden your horizons and develop an understanding of different cultures and values.

An overseas experience can add a distinctive element to your CV. Employers may be looking for graduates who demonstrate flexibility and have a richer outlook on life.

If you're not sure whether this is the degree for you, our advice is to apply for the Study Abroad scheme - it's easy to transfer off the degree and onto a standard variant.

Scan the QR code to watch a typical week in the life of a study abroad student.

“The experience of living in a new part of the world, learning, experiencing, and making life-long friends really is once in a lifetime.”

Sophy, *fourth year*

MSci Natural Sciences (Study Abroad)

I’m Sophy, and I am currently on my Natural Sciences year abroad in Sydney, Australia. In my second year, the global experiences team provided me with a range of different universities all over the globe to choose from, and since deciding on Sydney, I have not looked back! Getting to experience university life in a completely different climate and culture is an experience I can’t recommend enough!

When I first arrived in Australia in July, I had no idea what to expect, but after attending Macquarie’s welcome week and meeting other international and exchange students I felt right at home. I’ve had the opportunity to swap studying European marine and terrestrial ecosystems for Australian ones, and have waded through lakes with nets, surveyed the rainforests nearby and snorkelled the Great Barrier Reef. Aside from university itself, I’ve also had the opportunity to travel over the Christmas (summer) holidays, road-tripping my way through Queensland, Victoria, South Australia, Tasmania, the Outback, and then backpacking through New Zealand for a month.

“The choice of modules throughout the course is varied and vast which makes every year more and more interesting.”

Clara, *graduate*

MSci Natural Sciences (2022)

Due to a Natural Science degree being multidisciplinary, my organisational and time-management skills were established throughout. With multiple departments having modules running alongside one another, to meet deadlines and produce high quality results for all projects, excellent time-management skills were required.

My Natural Sciences degree also enabled the development of my transferable skills. I took practical skills from both the biology and chemistry lab settings I had experienced, and applied them to antibody production in the Biopharmaceutical Industry.

Alongside my lab skills, I also gained experience in scientific report writing in the context of current scientific literature after collecting, analysing, and interpreting data.

I also loved that Lancaster’s Natural Sciences degree offered Study Abroad. I had always wanted to spend a year studying in another country. I lived in Australia for the year which allowed me to experience different cultures and pushed me out of my comfort zone.

Scientist in the Biopharmaceutical Industry

PhD student

Natural Sciences 2022

Natural Sciences places graduates in a unique and powerful position to tackle some of the world's most pressing issues

Hello future

A multidisciplinary degree, such as Natural Sciences, opens up a wide range of career opportunities. You will be highly sought after for your technical and practical skills that can be transferred across a range of industries.

Graduates have gained full-time work in a variety of sectors such as:

+ Application support specialist
+ Audit associate
+ Chemistry engineer
+ Civil service
+ Environmental consultant
+ Financial accountant
+ Financial modelling analyst
+ Genetic technologist
+ Graduate consultant enterprise
+ Graduate GIS consultant
+ Insight analyst
+ Marine wildlife analyst
+ Market survey officer
+ Nuclear technical advisor
+ Project co-ordinator
+ Recruitment consultant
+ Risk and hazard management
+ Science media production
+ Software engineer
+ System operations analyst
+ Tax consultant
+ Technical graduate engineer

Preparing for your future

We also believe that relevant work experience while you are at university is crucial to achieving a good graduate job. Our comprehensive careers service and employability modules also provide advice and guidance on writing CVs, job applications, and preparing for interviews.

Discover internships

We have an extensive network of businesses providing a range of full and part-time paid internship opportunities. Honing the skills that are much sought after by employers, such as team working, commercial awareness and time management, will give you an advantage in the job market.

My passion for statistics and coding led me to the Civil Service Fast Stream, where I apply skills gained through a flexible degree.

Angus, *graduate*

MSci Hons Natural Sciences (Study Abroad, 2021)

I applied to the Civil Service Fast Stream before Christmas in my final year. I was able to get a place in the Government Statistical Service scheme, which I chose because of my interest in statistics. I studied maths modules during my degree, focusing on probability and statistics. Formal statistical training was a requirement for my job. I was also able to pick up many statistical techniques while studying modules in Environmental Science. I was fortunate to have introductions to R Studio, Matlab, SPSS, and ArcGIS during my degree. Having transferrable coding skills and the ability to learn more code in other languages has been vital. Skills in Excel, gained during my degree, have also been useful.

I enjoyed the flexibility of the module choice and the wide range of skills I was able to pick up. I found that studying abroad whilst being able to contribute credits to my degree was a huge positive.

Statistician

UK Government

Natural Sciences 2022

Biology Pathways

Biology

Understanding biological processes helps us to tackle key environmental challenges of the 21st century, such as food security, ecosystem functioning and biodiversity conservation. You will be trained in the scientific study of interactions between organisms and the environment, and how these are modified by human activities

Double Weighted Pathway

Available for selection as part of the Pure Sciences and Environmental grouping

Year 1

Core modules

+ Introduction to Biosciences
+ Molecules to Cells
+ Genetics and Biotechnology
+ Ecology Field and Data Skills

Optional modules

+ Anatomy and Physiology
+ Evolutionarily Biology
+ Microbes, Pathogens and Immunity
+ Biodiversity and Global Change

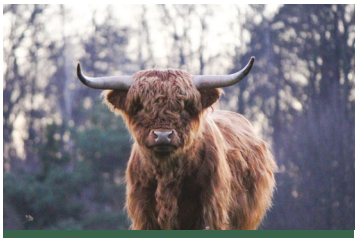
Year 2

Core modules

+ Interdisciplinarity and Employability in the Natural Sciences 1
+ Biological Research design and delivery
+ Molecular Genetics

Optional modules

+ Microbiology and immunology
+ Biochemistry of Cellular Metabolism
+ Fundamentals of Neuroscience
+ Ecology and Conservation
+ Evolution
+ Life Cycle of Proteins
+ Plant Biology
+ Ecology Field Skills
+ Vertebrate Biology



Year 3

Core modules

+ Interdisciplinarity and Employability in the Natural Sciences 2
+ Project
+ Dissertation

Optional modules

+ Molecular Medicine/Clinical Genetics and Immunology
+ Cancer Biology and Therapeutics
+ Protein Bioinformatics
+ Advanced Neuroscience – circuits and systems
+ Animal Behaviour
+ Interdisciplinary Conservation Science
+ Global Health Challenges
+ Biology of Ageing
+ Cell Signalling (in Health and Disease)
+ Ethics in Biomedicine
+ Coral Reef Ecology
+ Sustainable Agriculture
+ Host-Parasite interactions
+ Teaching, Outreach and Public Engagement

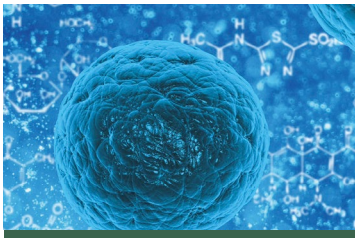
Biology Pathways

Pharmacology

This pathway will provide you with a deep understanding of how drugs interact with living systems and affect our bodies. In addition to studying drug development, mechanisms of action, therapeutic uses, and potential side effects, you'll also gain insight into the wider societal and regulatory context in which drugs are used, and new drugs developed.

Double Weighted Pathway

Available for selection as part of the Medical Sciences grouping



Year 1

Core modules

+ Introduction to Biosciences
+ Molecules to Cells
+ Foundations of Pharmacology

Optional modules

+ Genetics and Biotechnology
+ Microbes, Pathogens and Immunity

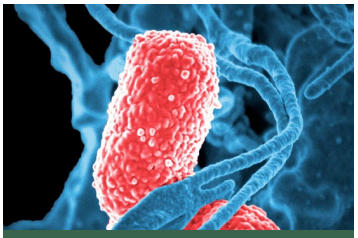
Year 2

Core modules

+ Interdisciplinarity and Employability in the Natural Sciences 1
+ Pharmacology
+ Drug Design and Development

Optional modules

+ Microbiology and Immunology
+ Biochemistry of Cellular Metabolism
+ Cell and Developmental Biology
+ Life Cycle of Proteins
+ Molecular Genetics



Year 3

Core modules

+ Interdisciplinarity and Employability in the Natural Sciences 2
+ Project
+ Advanced Drug Design and Development

Optional modules

+ Cancer Biology and Therapeutics
+ Protein Bioinformatics
+ Global Health Challenges
+ Biology of Ageing
+ Cell Signalling (in Health and Disease)
+ Ethics in Biomedicine
+ Teaching, Outreach and Public Engagement

Biology Pathways

Biomedicine

This Pathway offers choices ranging across general biomedicine: cell biology, genetics, microbiology and physiology. This provides a broad grounding, with the ability to specialise in some areas.

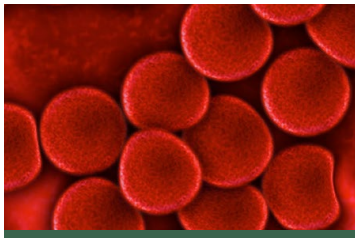
Double Weighted Pathway

Available for selection as part of the Pure Sciences and Medical Sciences grouping

Year 1

Core modules

+ Introduction to Biosciences
+ Molecules to Cells
+ Genetics and Biotechnology
+ Microbes, Pathogens and Immunity



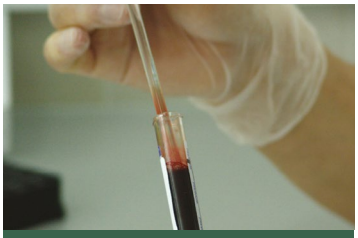
Year 2

Core modules

+ Interdisciplinarity and Employability in the Natural Sciences 1
+ Microbiology and Immunology
+ Molecular Genetics

Optional modules

+ Biochemistry of Cellular Metabolism
+ Fundamentals of Neuroscience
+ Cell and Developmental Biology
+ Life Cycle of Proteins



Year 3

Core modules

+ Interdisciplinarity and Employability in the Natural Sciences 2
+ Project

Optional modules

+ Molecular Medicine/Clinical
+ Genetics and Immunology
+ Cancer Biology and Therapeutics
+ Protein Bioinformatics
+ Global Health Challenges
+ Biology of Ageing
+ Cell Signalling (in Health and Disease)
+ Ethics in Biomedicine
+ Teaching, Outreach and Public Engagement

Chemistry Pathways

Single Chemistry

Our single chemistry pathway begins with a broad range of fundamental chemistry in first year across inorganic, organic and physical chemistry. This provides a solid foundation from where you can explore new topics and re-examine familiar ones in greater depth and from new perspectives in later years. After first year, individual modules each cover a range of topics within more focused areas, allowing specialisation in your chosen areas in years two and three.

Available for selection as part of the Environmental, Pure Sciences, Medical Sciences and Engineering groupings

Year 1

Core modules

+ Fundamental Chemistry A
+ Fundamental Chemistry B

Year 2

Core modules

+ Interdisciplinarity and Employability in the Natural Sciences 1
+ Further Chemical Analysis and Spectroscopy
+ Further Chemistry Practical and Skills A

Optional modules

+ Further Organic Chemistry
+ Further Physical Chemistry
+ Further Inorganic and Materials Chemistry

Year 3

Core modules

+ Interdisciplinarity and Employability in the Natural Sciences 2
+ Chemistry Project and Skills
+ Advanced Chemistry Practical and Skills

Optional modules

+ Advanced Synthetic Chemistry
+ Advanced Physical Chemistry
+ Advanced Organic Chemistry and Materials Chemistry
+ Advanced Inorganic Chemistry and Materials Chemistry
+ Advanced Chemical Structure Elucidation Teaching, Outreach and Public Engagement

Chemistry Pathways

Double Chemistry

Double chemistry has an increased focus on practical chemistry throughout, and provides the chance to deep dive into the world from the perspective of atoms and molecules. From the same broad foundations, you can continue to explore a diverse range of chemistry in later years, culminating in a significant, chemistry-focused project gaining hands-on experience with real-world scientific challenges working alongside active researchers.

Double weighted Pathway

Available for selection as part of the Environmental, Pure Sciences, and Medical Sciences groupings

Year 1

Core modules

+ Fundamental Chemistry A
+ Fundamental Chemistry B
+ Fundamental Practical Chemistry

Optional modules

+ Fundamental Skills in Chemistry
+ Fundamental Science Concepts for Chemists

Year 2

Core modules

+ Interdisciplinarity and Employability in the Natural Sciences 1
+ Further Chemical Analysis and Spectroscopy
+ Further Chemistry Practical and Skills A

Optional modules

+ Further Organic Chemistry
+ Further Physical Chemistry
+ Further Inorganic and Materials Chemistry

Year 3

Core modules

+ Interdisciplinarity and Employability in the Natural Sciences 2
+ Chemistry Project and Skills
+ Advanced Chemistry Practical and Skills

Optional modules

+ Advanced Synthetic Chemistry
+ Advanced Physical Chemistry
+ Advanced Organic Chemistry and Materials Chemistry
+ Advanced Inorganic Chemistry and Materials Chemistry
+ Advanced Chemical Structure Elucidation
+ Teaching, Outreach and Public Engagement

Computing Pathways

Double Computing and Communications

This Pathway explores the theory and practice of innovative and experimental computing, allowing you to develop well-rounded professional and technical skills. Areas covered include programming and software development, the theory of computation, human-computer interaction, digital technology and its applications.

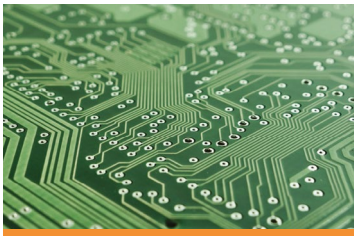
Double Weighted Pathway

Available for selection as part of the Environmental, Pure Sciences, and Medical Sciences groupings

Year 1

Core modules

+ Software Development A
+ Digital systems
+ Software Development B
+ Fundamentals of Computer Science



Year 2

Core modules

+ Interdisciplinarity and Employability in the Natural Sciences 1
+ Secure Systems and Data Engineering
+ HCI: Designing for People

Optional modules

+ Internet applications
+ Extended Reality
+ Artificial Intelligence and algorithms

Year 3

Core modules

+ Interdisciplinarity and Employability in the Natural Sciences 2
+ 3rd year project (Computer Science)

Optional modules

+ Advanced Programming
+ Quantum Computing
+ Languages and Compilation
+ Machine Learning
+ Computer Vision
+ Natural Language Processing
+ Digital Health
+ Sustainable Computing
+ Computer Science Education
+ Engineering and Verifying Secure Distributed Systems
+ Secure Cyber Physical Systems
+ Secure Artificial Intelligence
+ Teaching, Outreach and Public Engagement

Engineering Pathways

Chemical Engineering

A Level Requirements: Chemistry and Mathematics (at grade B or above)

Chemical Engineering influences numerous areas of technology. This pathway will help you to develop the skills needed to conceive and design processes for the production, transformation and transportation of materials.

Triple Weighted Pathway: Due to the complexity of this subject and the background knowledge it requires in later years, this Pathway requires a set of first year maths-based modules, either through the School of Engineering or the School of Mathematical Sciences (under the Pathway Mathematics (statistics), on page 28). Students are also required to take the single chemistry pathway.

Available for selection as part of the Engineering grouping

Year 1

Core modules

+ Engineering Science
+ Engineering Thermofluids
+ Fundamental Engineering Mathematics
+ Applied Engineering Mathematics

Year 2

Core modules

+ Interdisciplinarity and Employability in the Natural Sciences 1
+ Fluid Mechanics and Mass Transfer
+ Chemical Engineering Design

Optional modules

+ Thermodynamics and heat transfer
+ Chemical Engineering Practice
+ Reaction Engineering 1
+ Particle Technology and Separation Processes

Year 3

Core modules

+ Interdisciplinarity and Employability in the Natural Sciences 2
+ Chemical Process Group Design Project

Optional modules

+ Engineering Management and Entrepreneurship
+ Process Dynamics and Control
+ Sustainable Process Engineering
+ Reaction Engineering II
+ Teaching, Outreach and Public Engagement

Engineering Pathways

Electronic and Electrical Engineering

A Level Requirements: Mathematics and Physics (at grade B or above)

This Pathway will help you develop a sound foundation in all aspects of Electronic and Electrical Engineering that is crucial to the design and manufacture of future systems in the medical, environmental, energy, transport and ICT markets. You will also have the opportunity to specialise in areas including wireless communications, silicon chip design, nanotechnology, green technologies and power generation.

Triple Weighted Pathway: Due to the complexity of this subject and the background knowledge it requires in later years, this Pathway requires a set of first year maths-based modules, either through the School of Engineering or the School of Mathematical Sciences (under the Pathway Mathematics (statistics), on page 28). Students are also required to take the single physics pathway..

Available for selection as part of the Engineering grouping

Year 1

Core modules

+ Engineering Science
+ Engineering Systems
+ Fundamental Engineering Mathematics
+ Applied Engineering Mathematics

Year 2

Core modules

+ Interdisciplinarity and Employability in the Natural Sciences 1
+ Electrical circuits and analogue electronics
+ Electromagnetism and communications

Optional modules

+ Power Engineering
+ Digital Systems and Software
+ Electronics Materials and Manufacturing

Year 3

Core modules

+ Interdisciplinarity and Employability in the Natural Sciences 2
+ Individual Project
+ Group Project

Optional modules

+ Engineering Management and Entrepreneurship
+ HF circuit engineering and communications
+ Power Electronics and applications
+ DSP and integrated circuits

Teaching, Outreach and Public Engagement

Engineering Pathways

Mechanical Engineering

A Level Requirements: Mathematics and Physics (at grade B or above)

Mechanical Engineering is a field covering any industry that uses moving parts, from construction to transport; medicine to manufacturing; renewable energy to consumer technology. Our programme provides skills training, with an applied focus on mechanical system designs.

Triple Weighted Pathway: Due to the complexity of this subject and the background knowledge it requires in later years, this Pathway requires a set of first year maths-based modules, either through the School of Engineering or the School of Mathematical Sciences (under the Pathways Mathematics (statistics), on page 28). As such, students taking Mechanical Engineering can only take one other Pathway from the Pure Sciences or Environmental grouping in addition to either of the supporting Maths Pathways.

Available for selection as part of the Engineering grouping

Year 1

Core modules

+ Engineering Skills
+ Engineering Thermofluids
+ Fundamental Engineering Mathematics
+ Applied Engineering Mathematics

Year 2

Core modules

+ Interdisciplinarity and Employability in the Natural Sciences 1
+ Engineering mechanics
+ Machine design

Optional modules

+ Fluid Mechanics and Mass Transfer
+ Thermodynamics and heat transfer
+ Engineering materials

Year 3

Core modules

+ Interdisciplinarity and Employability in the Natural Sciences 2
+ Individual Project
+ Group Project

Optional modules

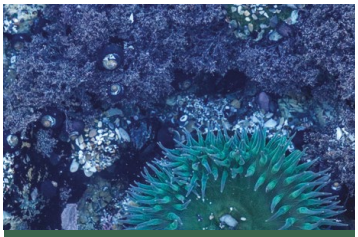
+ Engineering Management and Entrepreneurship
+ Computer Aided Engineering
+ Dynamic Systems
+ Product Design
+ Teaching, Outreach and Public Engagement

Environment Centre Pathways

Ecology

Interactions between organisms, the environment and humanity are often complex. You will receive a thorough grounding in ecological theory and how these biological principles relate to the conservation of wildlife and ecological habitats. The Pathway also concerns the practice of ecology and has a strong fieldwork component designed to encourage you to develop your practical skills.

Available for selection as part of the Environmental grouping



Year 1

Core modules

+ Ecology Field and Data Skills

Optional modules

+ Evolutionary Biology
+ Ecology

Year 2

Core modules

+ Interdisciplinarity and Employability in the Natural Sciences 1
+ Ecology and Conservation
+ Biological Research Design and Delivery

Optional modules

+ Evolution
+ Plant Biology
+ Ecology Field Skills
+ Vertebrate Biology

Year 3

Core modules

+ Interdisciplinarity and Employability in the Natural Sciences 2
+ Dissertation

Optional modules

+ Eco-innovation for sustainable development
+ Food and Agriculture in the 21st Century
+ Spatial Data Analysis
+ Animal Behaviour
+ Interdisciplinary Conservation Science
+ Coral Reef Ecology
+ Sustainable Agriculture
+ Host-Parasite interactions
+ Marine Ecology Field Course
+ Tropical Biology and Conservation Field Course
+ Teaching, Outreach and Public Engagement

Environment Centre Pathways

Earth and Environmental Science

This Pathway aims to train you in those areas of natural science (including chemistry, physics, biology, mathematics, geology, physical geography) that are used to understand natural and anthropogenic processes on both the surface of the earth, and within the solid rocks that comprise the Earth's crust. This is delivered in the context of environmental change operating over a variety of timescales.

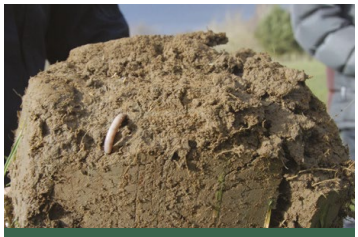
Double Weighted Pathway

Available for selection as part of the Environmental grouping

Year 1

Core modules

+ Practical Skills for Environmental Scientists
+ Geology
+ Catchment Science
+ Atmosphere, Weather and Climate



Year 2

Core modules

+ Interdisciplinarity and Employability in the Natural Sciences 1
+ Environmental Field Skills
+ Environmental Data Analysis and Visualisation

Optional modules

+ Glaciology
+ Practical Geoscience
+ Hydrology and water Quality
+ Soil Science
+ Geologic mapping
+ Atmospheric Science

Year 3

Core modules

+ Interdisciplinarity and Employability in the Natural Sciences 2
+ Dissertation

Optional modules

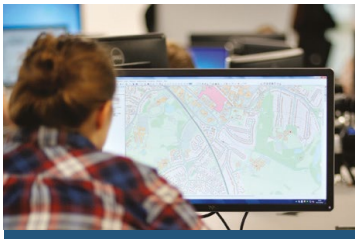
+ Eco-innovation for sustainable development
+ Spatial Data Analysis
+ Climate Change
+ Environmental Pollution: Management and Remediation
+ Environmental Geophysics
+ The Earth's Interior
+ Water resources Management
+ Governing Socio-Ecological Systems in tropical Asia Field Course
+ Cryosphere in a changing climate
+ Geological Hazards
+ Volcanic Processes Field Course
+ Managing the Energy Transition
+ Teaching, Outreach and Public Engagement

Geography Pathways

Human Geography

This Pathway provides you with an understanding of society, culture, development and issues of globalisation within a framework of environmental issues in the 21st century.

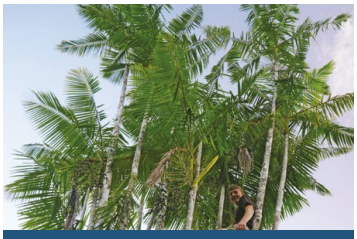
Available for selection as part of the Environmental grouping



Year 1

Core modules

+ Being a Geographer
+ Society and Place



Year 2

Core modules

+ Interdisciplinarity and Employability in the Natural Sciences 1
+ Human Geography in Practice
+ Geography, Development and the Majority World

Optional modules

+ Cultural and Social Geography
+ Political and Economic Geography
+ Environmental Geography
+ Sustainable Hebrides: Field Course
+ Geographical Data Science
+ Geography, Development and the Majority World

Year 3

Core modules

+ Interdisciplinarity and Employability in the Natural Sciences 2
+ Dissertation

Optional modules

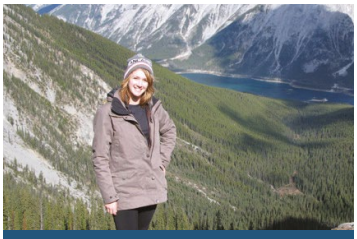
+ Creative Geographies: Place, Space and the Geographies of Imagination
+ Food and Agriculture in the 21st Century
+ Political Ecology
+ Spatial Data Analysis
+ Governing Socio-Ecological Systems in Tropical Asia Field Course
+ Geographies of Transformation in the Global South
+ Health Geographies
+ Challenging Cities in the 21st century
+ The Politics of Urban Futures: Field Course
+ Teaching, Outreach and Public Engagement

Geography Pathways

Physical Geography

You will learn about the main components of our 'Earth-system', how environments have changed in the past, what controls the dynamics of environments in the present, and how we can predict changes in the future. All this is studied in the context of an interconnected planet.

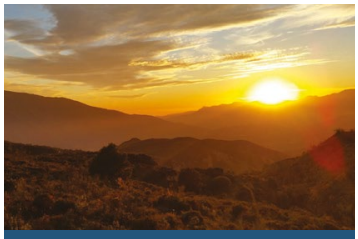
Available for selection as part of the Environmental grouping



Year 1

Core modules

+ Reading the landscape
+ Introducing Research in Geography



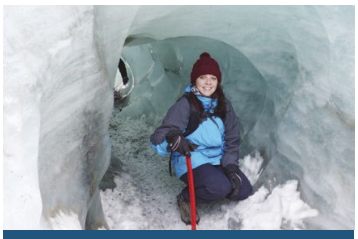
Year 2

Core modules

+ Interdisciplinarity and Employability in the Natural Sciences 1
+ Living with the landscape
+ Physical Geography in Practice

Optional modules

+ Glaciology
+ Geographical Data Science
+ Sustainable Hebrides: Field Course
+ Soil Science



Year 3

Core modules

+ Interdisciplinarity and Employability in the Natural Sciences 2
+ Dissertation

Optional modules

+ Spatial Data Analysis
+ Eco-innovation for sustainable development
+ Interdisciplinary Conservation Science
+ Environmental Pollution: Management and Remediation
+ Governing Socio-Ecological Systems in Tropical Asia Field Course
+ Cryosphere in a Changing Climate
+ Sustainable Agriculture
+ Managing the Energy Transition
+ Teaching, Outreach and Public Engagement

Mathematics Pathways

Single Mathematics Pathway

A Level Requirements: Mathematics (at grade A or above)

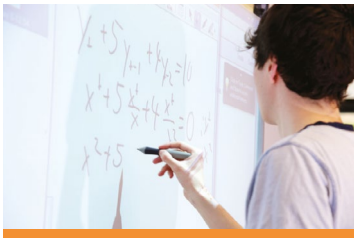
This pathway builds a strong foundation in mathematical methods, logic, and statistical analysis, alongside essential computing skills in R and Python. As you progress, you'll explore specialist modules in areas such as linear algebra, multivariate calculus, machine learning, and AI. You'll learn to apply mathematical tools to real-world problems and develop solutions using advanced analytical techniques.

Available for selection as part of the Environmental, Pure Sciences, Medical Sciences and Engineering groupings

Year 1

Core modules

+ Matrices and Calculus
+ Probability and Statistics



Year 2

Core modules

+ Interdisciplinarity and Employability in the Natural Sciences 1
+ Multivariate Probability and Statistics
+ Applied Data Science

Optional modules

+ Linear Algebra

Year 3

Core modules

+ Interdisciplinarity and Employability in the Natural Sciences 2
+ Natural Sciences Mathematics Project

Optional modules

+ Graph Theory and Algorithms
+ Statistical Inference
+ Supervised Learning
+ Stochastic Processes
+ Medical statistics
+ Environmental Statistics
+ Mathematical Finance
+ Dynamic Modelling
+ Mathematical Education
+ Teaching, Outreach and Public Engagement

Mathematics Pathways

Mathematics of Artificial Intelligence

A Level Requirements: Mathematics (at grade A or above)

This pathway builds a strong foundation in mathematical methods, logic, and statistical analysis, alongside essential computing skills in R and Python. As you progress, you'll explore specialist modules in areas such as linear algebra, multivariate calculus, machine learning, and AI. You'll learn to apply mathematical tools to real-world problems and develop solutions using advanced analytical techniques.

Double Weighted Pathway

Available for selection as part of the Environmental grouping

Year 1

Core modules

+ Matrices and Calculus
+ Probability and Statistics
+ Mathematical Modelling and Programming
+ Multivariate Calculus

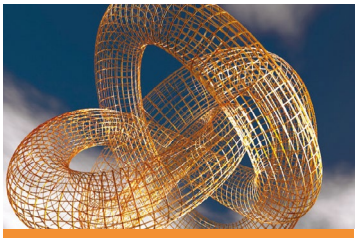
Year 2

Core modules

+ Interdisciplinarity and Employability in the Natural Sciences 1
+ Multivariate Probability and Statistics
+ Mathematics of Artificial Intelligence

Optional modules

+ Linear Algebra
+ Applied Data Science



Year 3

Core modules

+ Interdisciplinarity and Employability in the Natural Sciences 2
+ Natural Sciences Mathematics Project

Optional modules

+ Graph Theory and Algorithms
+ Supervised Learning
+ Stochastic Processes
+ Medical statistics
+ Environmental Statistics
+ Mathematics of Deep Learning
+ Dynamic Modelling
+ Mathematical Education
+ Teaching, Outreach and Public Engagement

Mathematics Pathways

Pure Mathematics

A Level Requirements: Mathematics (at grade A or above)

If you prefer to focus your studies on maths, we also offer a double-weighted Pathway that allows you to study the subject in greater detail. This incorporates the topic areas listed in the Single Mathematics Pathway and gives you the opportunity to concentrate on theoretical problems. As a double-weighted Pathway you can only take one other Pathway with this option.

Double Weighted Pathway

Available for selection as part of the Pure Sciences grouping

Year 1

Core modules

+ Matrices and Calculus
+ Probability and Statistics
+ Logic and Discrete Mathematics
+ Symmetry and Sequences

Year 2

Core modules

+ Interdisciplinarity and Employability in the Natural Sciences 1
+ Real Analysis
+ Linear Algebra
+ Complex Analysis
+ Abstract Algebra

Year 3

Core modules

+ Interdisciplinarity and Employability in the Natural Sciences 2
+ Natural Sciences Mathematics Project

Optional modules

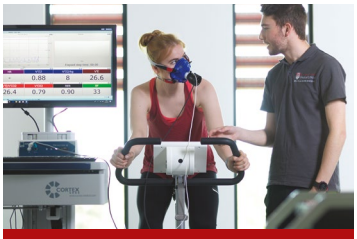
+ Metric Spaces and Topology
+ Hilbert Spaces
+ Commutative Algebra
+ Mathematical Cryptography
+ Representation Theory
+ Graph Theory and Algorithms
+ Knots and Geometry
+ Linear Systems
+ Mathematical Education
+ Mathematical Education Placement
+ Teaching, Outreach and Public Engagement

Health and Medicine Pathways

Human Physiology

If you are interested in science and physical education, this Pathway provides a solid foundation in application and performance modules. These will help to increase your understanding of the functions and regulations of the human body and physiological integration of the systems.

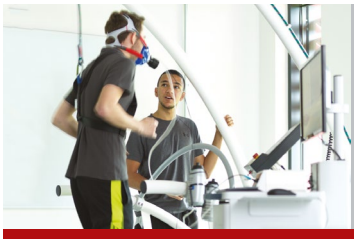
Available for selection as part of the Medical Sciences grouping



Year 1

Core modules

+ Physiology and Metabolism Unlocked
+ Fuel for Life: Nutrition Science



Year 2

Core modules

+ Interdisciplinarity and Employability in the Natural Sciences 1
+ Molecules to Muscles: I ntegrative Human Physiology
+ Conquer the Data: Research Methods and Statistical Mastery

Optional modules

+ Breaking Boundaries: Debates Shaping Sports and Exercise Science
+ Sports and Exercise Medicine: Patient to Performer

Year 3

Core modules

+ Interdisciplinarity and Employability in the Natural Sciences 2
+ Cutting-Edge Science: Research Dissertation in Sports and Exercise Science
+ Life at the Extremes: Environmental and Exercise Physiology

Optional modules

+ Optimise Health: Transform Outcomes from Patient to Population
+ Maximise Elite Performance: Redefining Excellence
+ Engaging the Public: Power in Science Communication

Physics Pathways

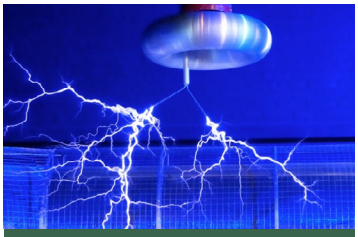
Physics (Single/Double)

A Level Requirements: Mathematics and Physics (at Grade A or above)

You will gain a working knowledge and understanding of the physics of fluids and solids, especially their thermal and electrical properties, with an emphasis also on computing, classical mechanics and quantum physics.

Double Weighted Pathway: This Pathway requires a set of first year maths-based modules, either through the Physics Department or the School of Mathematical Sciences (under the Single Mathematics (statistics) Pathway, on page 28). As such, students taking Physics can only take one other Pathway in addition to either of the supporting Maths Pathways.

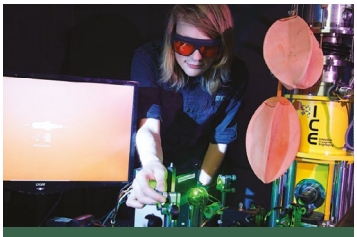
Available for selection as part of the Environmental and Pure Sciences groupings



Year 1

Core modules

+ The Physical Universe
+ Fields, Matter and Quantum Physics
+ Mathematical Skills 1
+ Mathematical Skills 2



Year 2

Core modules

+ Interdisciplinarity and Employability in the Natural Sciences 1
+ Introduction to Experimental Laboratories
+ Properties of Matter

Optional modules

+ Electromagnetic waves and optics
+ Quantum mechanics and atomic physics
+ Mathematical Techniques in Physics
+ Physics Modelling Project
+ Properties of Matter
+ Stellar and Nebular Astrophysics

Year 3

Core modules

+ Interdisciplinarity and Employability in the Natural Sciences 2
+ Physics Group Project
+ Astrophysics Group Project
+ Space Physics
+ Theoretical Physics Group Project
+ Field Theory in Quantum Mechanics

Optional modules

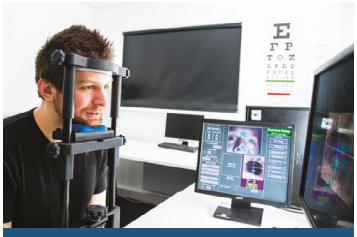
+ Quantum Technology
+ Relativity, Nuclear and Particle Physics
+ Space Physics
+ Field Theory in Quantum Mechanics
+ Low Temperature & Semiconductor Laboratory
+ Astrophysical Data Lab
+ Condensed Matter Physics
+ Further Particle Physics
+ Cosmology
+ Teaching, Outreach and
+ Public Engagement

Psychology Pathways

Psychology

This pathway will provide you with a broad overview of the main themes in psychology where you will explore theories, evaluate scientific research, and learn to construct formal arguments. Alongside this you will develop practical skills to support research in psychology such as experimental design, data analysis and report writing.

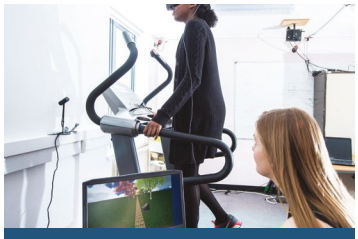
Available for selection as part of the Medical Sciences grouping



Year 1

Core modules

+ Introduction to Developmental and Neuro-psychology
+ Introduction to Cognitive and Social Psychology



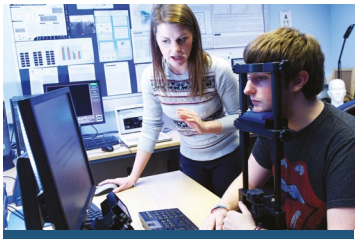
Year 2

Core modules

+ Interdisciplinarity and Employability in the Natural Sciences 1
+ Cognitive Psychology
+ Social Psychology

Optional modules

+ Developmental Psychology
+ Cognitive Neuroscience



Year 3

Core modules

+ Interdisciplinarity and Employability in the Natural Sciences 2
+ Natural Sciences Interdisciplinary Research Project

Optional modules

+ Cognition: From Laboratory Research to Everyday Behaviour
+ The Lying Brain: The Neuroscience of Hallucinations, Delusions, and Disorders of Consciousness Across Populations.
+ Current Directions in Social Psychology
+ Forensic and Criminological Psychology
+ Measuring Minds: Innovations in Developmental Psychology
+ Clinical Psychology
+ Cyberpsychology
+ Teaching, Outreach and Public Engagement

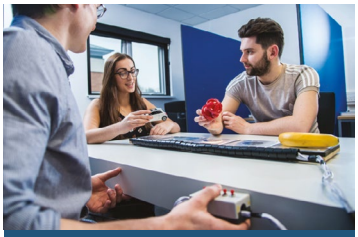
Psychology Pathways

Psychology with BPS accreditation

This double-weighted Pathway allows you to study psychology and receive accreditation from the British Psychological Society. It can only be taken alongside one other Pathway and cannot be taken by MSci students intending to study abroad due to the accreditation regulations.

Double Weighted Pathway:

Available for selection as part of the Medical Sciences stream



Year 1

Core modules

+ Introduction to Developmental and Neuro-Psychology
+ Introduction to Cognitive and Social Psychology
+ Introduction to Psychological Research
+ Foundations of Psychological Research

Year 2

Core modules

+ Interdisciplinarity and Employability in the Natural Sciences 1
+ Cognitive Psychology
+ Social Psychology
+ Experimental Methods for Psychology
+ Qualitative and Quantitative Methods for Psychology

Year 3

Core modules

+ Interdisciplinarity and Employability in the Natural Sciences 2
+ Psychological Dissertation
+ Cognitive Neuroscience
+ Developmental Psychology

How to *reach us*

By road

From the north or south, leave the M6 motorway at Junction 33 and take the A6 north towards Lancaster for about 2 miles. The University is on the right.
For SatNav use LA1 4YW.

By rail

There are direct rail links between Lancaster and many of the UK's major cities and airports. The single journey between London and Lancaster takes between 2.5 and 3 hours. Buses and taxis are available from just outside the station.

By coach and bus

Lancaster city is on the national coach network; National Express coaches call at the University. A number of local buses run from Lancaster bus station to the University every 5 minutes on weekdays.

Further details can be found at **lancaster.ac.uk/travel**

Find out more

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