



UNIVERSITY OF
CAMBRIDGE

Natural Sciences 2024 Entry





What is Natural Sciences?

The rigid scientific disciplines of the past are blurring and the Natural Sciences Tripos* reflects that there are no hard boundaries between the different sciences.

Why study Natural Sciences?

Natural Sciences is the framework within which most of the sciences are taught in Cambridge and allows you to study a range of both biological and physical sciences.

The flexibility of Natural Sciences means you can:

- Study a range of new and familiar areas in the sciences before deciding what to specialise in.
- Discover the interconnections between apparently discrete subjects.
- Gain experience of using a range of different scientific methods.



"Being taught by your subject's leading minds is an experience in itself, and who can explain ideas better than the people who actually came up with them?"

**Nick,
Natural Sciences Student**



Why Study Natural Sciences?

Study science as it is in the real world

Biological problems are increasingly being solved using techniques which require an understanding of physics and chemistry, just as the more pressing problems being addressed by chemists and materials scientists require an understanding of biology. The Natural Sciences course can provide you with experience in a range of different scientific disciplines that will enable you to make links between those disciplines.

Choice

A significant proportion of students change direction within the Natural Sciences framework and end up specialising in a different area to the one they anticipated at the outset of the course. Indeed, because students choose three options in the second year, a definite area to focus on is only required when students enter the third year of study.

New Subjects

Try out new subjects which are not normally studied in schools, such as Materials Science, Earth Sciences and Genetics.

Why study at Cambridge?

Whether you are studying liquid crystals, ion channels in cell membranes, black holes or holes in the ozone layer, the world class University of Cambridge is one of the most exciting places to study for a science degree.

We have some of the world's best scientists, teaching and researching at the very forefront of current scientific knowledge, and tackling some of the most important challenges of today - and tomorrow.

We'll be teaching you not only to become a scientist, but to become one who progresses their area of science over the coming years; someone with their own ideas and opinions who initiates rather than imitates.

How can a Cambridge Natural Sciences graduate share the same level of knowledge as those from a single science course?

Our graduates are expected to have achieved the same standard and depth in their final year subject as graduates from narrower courses elsewhere for three reasons:

- Our students are some of the most able and work very hard.

- We provide them with world class teaching and learning facilities.
- The range of subjects studied in the first two years provides a broader ranging foundation for the final year specialism than single subjects elsewhere.

Transferable skills

The flexibility of the Natural Sciences course will not only give you a broad scientific background and an in-depth knowledge of the subject in which you finally specialise, but will also enable you to acquire a wide variety of all important transferable skills that are greatly in demand by employers in all sectors, for example:

- Intellectual skills (e.g. critical thinking, analysis, problem solving)
- Communication and presentation skills (including written skills)
- Organisational skills (e.g. independent work, time management)
- Interpersonal skills (e.g. teamwork, negotiation, delegation)
- Research skills (e.g. data management, critical analysis)
- Numeracy and computer literacy



Teaching

Lectures and Seminars

Lectures provide a foundation for your studies and provide an opportunity to hear about a topic from an expert—in many cases, experts who are working in the forefront of scientific research. You may even find that you hear about recent research long before it is available in a textbook!

Seminars are less formal than lectures and provide an opportunity to discuss a particular topic with a smaller group of students, led by an academic.

Practicals

Practicals are an important part of all Natural Sciences subjects, as they demonstrate the real-life aspects of the lectures. Practical classes will be at the heart of your learning process but they will be very different to the experiments and manipulations you may have done at school up to now. During your course, practicals might involve techniques ranging from microscopy, through to computer modelling and could involve the use of complex electronic equipment.



Supervisions

Supervisions are small-group teaching sessions led by a specialist in the subject you are studying. Supervisions are one of the distinctive features of teaching at Cambridge and will enable you to keep up with the fast pace that is required by the NatSci course.

Supervisions will give you a chance to clarify anything you are not certain about, to discuss advanced topics, to engage in in-depth problem-solving, and to explore topics that particularly interest you. You will probably find supervisions both useful and challenging. You will usually be expected to prepare some work for each supervision so, as well as increasing your scientific knowledge, they will also develop your written and oral communication skills.

"The third year research project helps you to see if you want a career in research and the lab experience is highly appreciated by employers and institutes."

Sophia, Natural Sciences Student

Original Work and Research Projects

As a Natural Sciences student you will be expected to produce an original piece of work, in the form of a research project, dissertation or both. Many students undertake at least one research project in the third or fourth year. This may give you a chance not only to make a genuine contribution to current scientific knowledge—it's not uncommon for project work to be published in scientific literature—but also to discover whether a career in research would be right for you.

Field Trips

Some subjects will require you to go on a field trip or course, whilst for others they may be optional. Popular field trips currently include a first year Earth Sciences trip to the Isle of Arran, a second year Plant Sciences visit to Portugal and a third year Tropical Field Course to Panama organised by Zoology.

For more information about costs, visit this webpage:

www.natsci.tripos.cam.ac.uk/prospective-students/costs



Name: Phattharaporn

First year subjects: Earth Sciences, Computer Sciences, Mathematics, Physics

Final year specialisation: Astrophysics

Describe NatSci in 5 words:

Life-changing, new horizons, great combinations



Name: Milena

First year subjects: Biology of Cells, Chemistry, Physiology of Organisms, Mathematical Biology

Final year specialisation:

Pharmacology

Describe NatSci in 5 words:

Challenging, inspiring, flexible, eye-opening, fulfilling



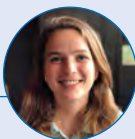
Name: Shreshth

First year subjects: Physics, Chemistry, Materials Science, Mathematics

Final year specialisation: Physics

Describe NatSci in 5 words:

Broad, challenging, engaging, diverse, flexible



Name: Ella

First year subjects: Physiology of Organisms, Biology of Cells, Evolution and Behaviour, Mathematical Biology

Final year specialisation: Pathology

Describe NatSci in 5 words: rigorous, personalised, eye-opening, sociable, academic



Name: Hao Zhe

First year subjects: Mathematics, Physics, Chemistry, Materials Science

Final year specialisation: Materials Science

Describe NatSci in 5 words:

The hard work pays off



Careers

What can I do with a Natural Sciences Degree?

A good degree from Cambridge opens a great number of doors, and a broad based course like Natural Sciences is excellent preparation for many careers in a huge variety of areas, not just the scientific sphere. The skills you develop here will make you highly employable in a range of fields.

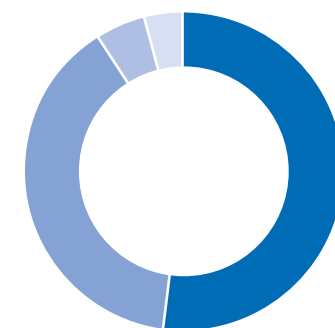
In 2018 graduates joined these sectors...

- Research (Science)
- IT Sector
- Banking and Investment
- Accountancy and Tax
- Arts and Recreation
- Communication Business
- Engineering and Architectural Consultancy
- Manufacturing, Utilities and Power
- Public Service

Making Connections

It is perhaps not surprising that many of our graduates go on to research careers in both academia and industry, in this country and abroad. Locally, the University has good contacts with research institutes and with the large number of hi-tech and science based companies whose establishment in the area has been promoted by the University in recent years.

90%
of graduates were employed after six months or progressed to further study*



- In employment – **52%**
- In further study – **39%**
- Travelling/unavailable for work – **5%**
- Still seeking employment or study – **4%**

Pathways through the course

Students are only asked to choose their options after being successfully admitted on to the course. You will not need to make these decisions prior to making an application. As you progress through each year of your study, your College-based Director of Studies will help you choose which pathway will suit you the best.



Year 1 (Part IA)

Choose three subjects from

- Biology of Cells
- Chemistry
- Earth Sciences
- Evolution & Behaviour
- Materials Science
- Physics
- Physiology of Organisms

AND

Choose one from

- Mathematical Biology
- Mathematics

Year 2 (Part IB)

Choose three subjects from

- Biochemistry & Molecular Biology
- Biology of Disease
- Cell & Developmental Biology
- Chemistry A
- Chemistry B
- Earth Sciences A
- Earth Sciences B
- Ecology, Evolution & Conservation
- Evolution & Animal Diversity
- History & Philosophy of Science
- Materials Science
- Mathematical and Computational Biology
- Mathematics
- Neurobiology
- Pharmacology
- Physics A
- Physics B
- Physiology
- Plant & Microbial Sciences
- Quantitative Environmental Science

Years 3 & 4 (Parts II and III)

Choose one subject to specialise in

- Astrophysics*
- Biochemistry*
- Chemistry*
- Earth Sciences*
- Genetics
- History & Philosophy of Science*
- Materials Science*
- Pathology
- Pharmacology
- Physics*
- Physiology, Development & Neuroscience
- Plant Sciences
- Quantitative Climate and Environmental Science (Part III only)*
- Systems Biology (Part III only)*
- Zoology

OR

Choose a broad science course

- Biological & Biomedical Sciences
- Physical Sciences

Find more information about each subject at:

www.undergraduate.study.cam.ac.uk/courses/natural-sciences

Admissions and Subject Requirements

Entry Requirements

Typical Offer:

A Level A*A*A

IB 40-42 points with 776 at Higher Level

Other Qualifications see: www.study.cam.ac.uk

Subject Requirements

You need to have a strong knowledge base across a wide range of science/mathematics subjects. You must have A Level Mathematics and A Levels in two other science subjects to apply. Most applicants have at least three of the following A Levels (or equivalent):

- Biology
- Chemistry
- Mathematics
- Physics

Year 1 (Part IA) Options and Subject Requirements

Many options in the first year have individual A Level (or equivalent) subject requirements. This means the number of options you have will be affected by your choices at A Level. Taking additional science/mathematics AS levels may strengthen your application and increase the number of subjects you will be able to take. Some second and third year subjects also have recommended A Levels.

The next page outlines individual requirements for each option offered in the first year.

Which maths course?

There are two mathematics courses in the first year to choose from; Mathematics and Mathematical Biology.

Your Director of Studies will advise you on what will be the most appropriate mathematics course for you. This might be based on the subjects you have chosen in your first year and on the level of mathematics you have reached prior to starting the course. However, if you study Physics, you must also study Mathematics.

Choose THREE from

A Level Requirements

Other

Biology of Cells

Highly Desirable: Chemistry

Useful: Biology

Chemistry

Essential: Chemistry (Mathematics is also essential to continue to Chemistry A in Part IB)

Highly Desirable: AS or A Level Mathematics

Earth Sciences

Essential: At least two of Physics, Chemistry, Biology and Mathematics

No previous knowledge of the subject required.

Evolution and Behaviour

Highly Desirable: A Level Biology

Materials Science

Essential: Mathematics and either Chemistry or Physics

No previous knowledge of the subject required.

Physics

Essential: A Level Physics and Mathematics, or Mathematics and Further Mathematics, including the section on Mechanics.

Useful: AS or A Level Further Mathematics

Physiology of Organisms

Useful: Biology and/or Physics

Plus ONE from

Mathematics

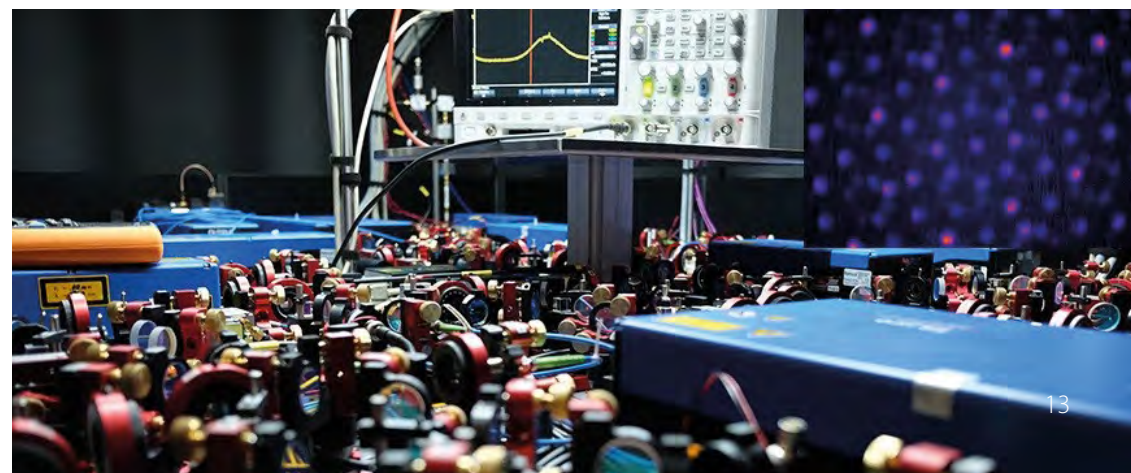
Essential: Mathematics

Essential if you are taking Part IA Physics.

Mathematical Biology

Highly Desirable: Mathematics

Students with GCSE Mathematics can take the course but are required to do some self study before arrival in Cambridge.



Options Year 2 (Part IB)

Opposite are the prerequisite subjects for Part IB courses. Please note that some unusual subject combinations are not possible due to timetabling restrictions.



Choose THREE from

Part IA subjects

Biochemistry and Molecular Biology

Essential: Biology of Cells

Recommended: Knowledge of A Level Chemistry is assumed

Biology of Disease

Recommended: Biology of Cells and/or Physiology of Organisms

Cell and Developmental Biology

Essential: Biology of Cells

Chemistry A

Essential: Chemistry and either Mathematics (preferred) or Mathematical Biology

Recommended: Physics, Materials Science

Chemistry B

Essential: Chemistry

Recommended: Biology of Cells

Earth Sciences A

Essential: Earth Sciences

Earth Sciences B

Essential: Earth Sciences

Ecology, Evolution & Conservation

Recommended: Evolution and Behaviour, Physiology of Organisms, A Level Biology

Evolution & Animal Diversity

Recommended: Evolution and Behaviour in particular, Biology of Cells and Physiology of Organisms are helpful

History and Philosophy of Science

Materials Science

Recommended: Materials Science

Mathematical and Computational Biology

Recommended: IA Mathematics or Mathematical Biology mark minimum of 55.

Mathematics

Essential: Mathematics

Recommended: Physics

Neurobiology

Recommended: Physiology of Organisms is particularly helpful, or one other biological subject

Pharmacology

Essential: Any of Biology of Cells, Chemistry or Physiology of Organisms, A Level Biology and/or Chemistry

Physics A

Essential: Physics and Mathematics

Physics B

Essential: Physics and Mathematics

Physiology

Recommended: Physiology of Organisms, Biology of Cells, A Levels in Biology, Chemistry, and/or Physics.

Plant and Microbial Studies

Recommended: One or more of Biology of Cells, Physiology of Organisms, Evolution and Behaviour

Quantitative Environmental Science

Options Year 3 & 4 (Parts II and III)

Most students choose to specialise in ONE subject in Year 3 (Part II). However, there is an opportunity to take a more general course—Biological and Biomedical Sciences, or Physical Sciences—in which you would choose two subjects from a wider range of options. Successful completion of the third year leads to the award of a BA degree, whilst successful completion of the fourth year leads to the award of a MSci degree.

Due to the amount of laboratory space available, there is some restriction in numbers for some of the Part II subjects so, although the majority of students are able to progress to their first choice Part II Subject, this cannot be guaranteed.

Specialist Subject	Part I subjects
Astrophysics *	Recommended: Part IB: Physics A, Physics B and Mathematics
Biochemistry*	Essential: Part IB: Biochemistry and Molecular Biology or Cell and Developmental Biology
Chemistry*	Essential: Part IB: Chemistry A and Chemistry B
Earth Sciences*	Essential: Part IB: Earth Sciences A and/or Earth Sciences B
Genetics	Recommended: Part IA: Biology of Cells and/or Evolution and Behaviour and/or Part IB: Cell and Developmental Biology
History and Philosophy of Science*	Recommended: Part IB: History and Philosophy of Science
Materials Science*	Essential: Part IB: Materials Science
Pathology	Recommended: Part IB: Biology of Disease
Pharmacology	Essential: Part IB: one biological subject or Chemistry A and/or B Recommended: Part IB Pharmacology
Physics*	Essential: Part IB: Physics A and Physics B



Continued	Part I subjects
Physiology, Development and Neuroscience	Recommended: Part IA: Physiology of Organisms. Part IB: Physiology and/or Neurobiology and/or Cell and Developmental Biology
Plant Sciences	Recommended: Any Part IA or Part IB biological subject
Quantitative Climate and Environmental Science (Part III only)*	Essential: IB Quantitative Environmental Science or IB Mathematics
Systems Biology (Part III only)*	Essential: Part IA: Mathematics or Mathematical Biology or Part IB: Mathematics
Zoology	

* This subject can be taken for a fourth year (Part III) leading to a MSci degree. These are typically chosen by students wishing to pursue a career in academic or commercial research. For requirements for progression onto Part III subjects visit <http://www.natsci.tripos.cam.ac.uk/students/fourth>

Further Information

Natural Sciences Course Details

🌐 www.natsci.tripos.cam.ac.uk

✉ natsci@admin.cam.ac.uk

Studying at the University of Cambridge and General Admissions Guidance

✉ www.study.cam.ac.uk/undergraduate

Further Questions

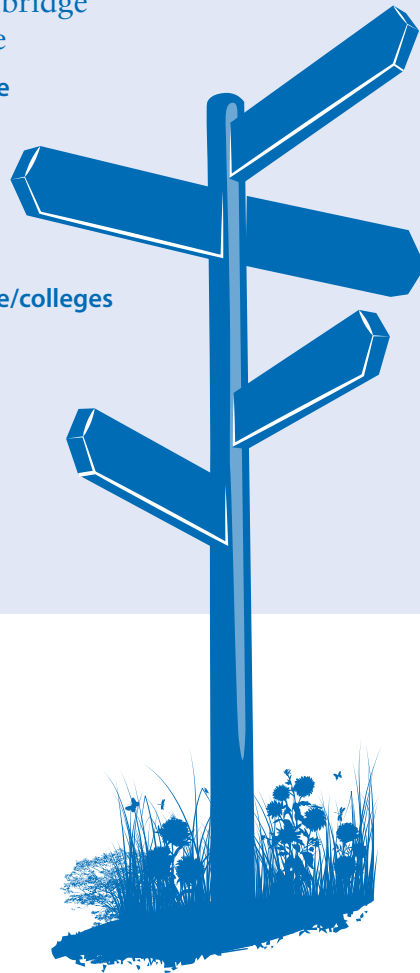
Please get in touch with any of
the college admissions offices:

🌐 www.study.cam.ac.uk/undergraduate/colleges

OR

Cambridge Admissions Office

✉ admissions@cam.ac.uk



Notes



"I have loved studying Natural Sciences for the past three years, as I have found all of the different courses interesting individually, and the links between them have really deepened my understanding. In first year, I enjoyed the crossovers between my three science courses, which really helped my understanding of those concepts, as I had them explained to me from multiple angles."

Rachel



For more information contact one of the College admissions offices or:

Cambridge Admissions Office
01223 333308
admissions@cam.ac.uk

www.undergraduate.study.cam.ac.uk

Details are correct at the time of printing May 2023 but should be checked against the NatSci website for the most up-to-date information