



Astrophysics   Biochemistry   Chemistry  
Genetics   Earth Sciences   History & Philosophy of Science  
Materials Science   Mathematics   Neuroscience   Pathology  
Pharmacology   Physics   Physiology, Development & Neuroscience  
Plant Sciences   Psychology (Experimental)   Zoology

### What is 'Natural Sciences'?

Natural Sciences is the framework within which most science 'subjects' are taught at Cambridge. It's often called 'NatSci', or the NST (Natural Sciences Tripos).

The Natural Sciences course at Cambridge includes choices from a wide range of both physical sciences (astrophysics, chemistry, earth sciences, materials science, physics) and biological sciences (biochemistry; genetics; neuroscience; pathology; pharmacology; physiology, development and neuroscience; plant sciences; psychology; zoology), as well as the history and philosophy of science. It does not include degrees in engineering, computer science, mathematics or medicine, which are offered as separate degree programmes although elements of these subjects may be touched upon.

### What's so special about studying science at Cambridge?

From liquid crystals to ion channels in cell membranes, from black holes to 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 want you to be part of this

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

We offer both physical and biological scientists a unique and demanding course that combines a broad first year with increasing specialisation in the second, and total specialisation in the third and, where available, fourth years.

### Why choose NatSci at Cambridge?

When it comes to choosing your degree, how do you know which subject to specialise in?

- Do you stay with something you've studied before?
- Do you welcome a fresh challenge and choose an area of science you know very little about?

At Cambridge you can do both.

When you come to Cambridge as a Natural Scientist, you have the huge advantage of being able to choose several from a range of scientific courses – you don't have to limit your focus to one area as you would on a single-subject science course elsewhere.

You won't be irreversibly labelled as a 'biological' or 'physical' scientist – let alone as a zoologist or a physicist – before you've had the experience of studying a variety of subjects, some of which you may not have explored before.

The rigid scientific disciplines of the past are blurring. Biological problems are increasingly being solved using techniques which require an understanding of physics and chemistry, while many of the most pressing problems being addressed by chemists and materials scientists require knowledge of biology. The Natural Sciences course reflects the fact that there are no hard boundaries between the different sciences.

Even if you're quite sure about the area you want to specialise in, the breadth of the first two years is extremely valuable in developing your understanding of important issues in other branches of science that complement and influence your specialism. Many students come to Cambridge expecting to specialise in one subject, but eventually choose something quite different having had the opportunity to first fully explore and discover where their interests and strengths lie.

### **The flexibility of Natural Sciences means you can:**

- **experience new areas of science**
- **find out what more familiar subjects are like at university level**
- **discover the interconnections between apparently diverse subjects**
- **gain an insight into different scientific methods**
- **postpone your decision to specialise until you're sure about the direction you want to take**

### **How many people apply for the course?**

Approximately 2,300 students apply for entry each year, of which around 645 are accepted. The male:female ratio is approximately 60:40. Further details are available at:

[www.cam.ac.uk/admissions/undergraduate/statistics/](http://www.cam.ac.uk/admissions/undergraduate/statistics/).

### **Can you tell me more about the course structure and how it works?**

NatSci is broad because you start by studying four subjects in the first year, at least one of which will probably be new to you, and one of which is an appropriate mathematics course. It's flexible because you can change direction as your interests develop. You may begin the course intending to be a physicist and end up as a molecular biologist or vice versa, or you may transfer to a completely different course such as Chemical Engineering or Management Studies.

### **Can I take new subjects I've never studied before?**

Yes. The course covers many subjects that are not normally studied at school/college, such as materials science, earth sciences, and genetics. In some cases, you'll need to have specific A Level (or equivalent) subjects (such as Chemistry or Mathematics) to take particular options.

### **Why is it a good idea to study a wider range of subjects in the first two years?**

A significant proportion of our students change direction within the framework of the NatSci course once they're at Cambridge. Often the change is fairly subtle, usually reflecting the availability of new subjects not taught at A Level (or equivalent), but in some cases the change can be significant. The number of students here who study a different final year science from the one they anticipated at the outset suggests that many students have benefitted from the opportunity to delay decisions about specialisation.

### **But how can Cambridge graduates have 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 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 and deeper foundation for the final year specialism than the narrower focus of single-subject courses elsewhere

### **What sort of jobs could a NatSci degree get me and what if I don't want a career in science?**

One of the most frequently-asked questions by students considering the Natural Sciences course is what it leads to afterwards. Obviously, a good degree from Cambridge opens many doors and a broad-based course like NatSci is excellent preparation for many careers in a huge variety of areas, not just in the scientific sphere. The ability to acquire knowledge and then use it, as well as the other transferable skills you will develop here, will make you highly employable in a wide range of fields (see below for more information about transferable skills).

It's perhaps not surprising that many of our graduates do go on to do research 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. However, many other graduates opt to change direction and follow careers in law, management, broadcasting, finance, teaching, the media, and so on.

Recent NatSci graduates from Cambridge have obtained positions as information scientists with pharmaceutical and chemical companies, curators in museums, producers of TV wildlife programmes, seismographers, and jazz pianists. They work in telecoms, biotechnology, agrochemicals, and as patent lawyers, hospital radiation physicists, merchant bankers, and scientific journalists. You can find additional data about graduate destinations online at: [www.admin.cam.ac.uk/univ/camdata/](http://www.admin.cam.ac.uk/univ/camdata/).

## How will I be taught?

Lectures, seminars, and practicals are arranged by the University and take place in various lecture theatres and laboratories throughout Cambridge. You will also have supervisions and undertake research projects and field trips (where relevant).

- **Lectures and seminars**

Lectures form the foundation of the teaching and will be the main way in which you start to learn about each subject. Lectures are more than simply note-taking sessions, as there's no substitute for actually hearing a real expert and enthusiast talk about the subject – it brings the work to life. However, the lecture is really just the starting point for the learning process which carries on in seminars and practicals, and especially in supervisions.

Seminars, where lecturers discuss a particular topic with smaller groups of students, are less formal than lectures and you'll be expected to participate and contribute actively to the discussions. The actual organisation and format of seminars will be determined by individual lecturers.

Many of the lecturers you'll have are working at the forefront of scientific knowledge, and will include the findings of recent research in a lecture or seminar long before they're available in any textbook. As such, lectures and seminars will enable you to acquire the very latest research information.

- **Practicals**

Practicals are an important part of all NatSci subjects as they demonstrate the real-life aspects of the lectures. Practical classes will be at the heart of your learning process but will bear little resemblance to the experiments and simple manipulations you might have done up until now. During your course, practicals might involve techniques ranging from microscopy, through computer modelling, to the use of complex electronic equipment. Laboratory facilities for practical work at Cambridge are exceptional, and are being improved all the time.

The practical classes will enable you not only to 'create facts' for yourself, but to understand the process by which this is achieved and develop the organisational skills required to complete experiments successfully.

- **Supervisions**

Supervisions are small-group teaching sessions (typically between two and four people) of about an hour in length with a specialist in the subject you're studying, who is often (though not always) a member of your College. Supervisions are one of the distinctive features of teaching at Cambridge and will enable you to keep up with the fast pace and high quality work that's demanded by the NatSci course.

This small-group teaching, organised by your Director of Studies, will provide you with a further opportunity to explore the subjects you'll be learning about in lectures and practicals. Supervisions will give you a chance to clarify anything you're not certain about, to discuss advanced topics, to engage in in-depth problem-solving, and to explore topics that particularly interest you.

You'll probably find the supervisions both useful and challenging. You'll usually be expected to prepare some work for each supervision so, as well as increasing your scientific knowledge, they'll also develop your written and oral communication skills.

- **Research projects**

As you progress through your course, your practical work will become more advanced and open-ended until you yourself are pushing back the boundaries of scientific knowledge.

Most Natural Sciences students are expected to undertake at least one research project, usually in their third or fourth year. This research, for which you'll be working with experts in the field, will 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 the scientific literature – but also to discover whether a career in research would be right for you.

- **Field trips**

Field trips are essential for some subjects and highly desirable for others. Where you go and what you do will obviously vary; popular field trips currently include an earth sciences trip to the Isle of Arran in the first year,

a field course in Portugal for second and third year plant scientists, and a tectonics field course in Greece for third year geological scientists.

- **Informal discussions**

Discussions are fundamental to the learning process at Cambridge. You should spend a great deal of time, particularly in the later years, thinking aloud with other students; with staff, research workers and visitors to the lab; and with other College members in your own and other subjects. These impromptu discussions and informal contacts can be one of the most valuable parts of the course.

## **Other than the course, what else will I get out of coming to Cambridge?**

- **A social life**

Naturally, what this will involve will be down to you but NatSci students play an active role in University and College life; on the sports field, in the concert hall, and being involved in and organising the many social activities that can make Cambridge life quite exhausting! Fitting everything in around your studies can be a balancing act, but everyone tends to develop their time management skills quickly and have a great time whilst they're here.

Studying science is a bit like a full-time job, with over 30 hours a week when you'll be timetabled to be at lectures, practicals or supervisions. Fortunately, most students enjoy the work and not only find it challenging and stimulating but also very sociable in itself – labs, unlike libraries, don't have 'Silence!' signs on the wall, but encourage discussion and co-operation. And, just like those people in a full-time job, you'll still have time for a great social life outside your work as well.

- **Transferable skills**

The flexibility of the NatSci course will not only give you a broad scientific background and 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 so much in demand by employers in all sectors, for example:

- intellectual skills, such as critical thinking, analysis, problem-solving
- communication and presentation skills, including written, oral, non-verbal
- organisational skills, such as independent working, managing time
- interpersonal skills, such as teamwork, negotiation, delegation, flexibility, adaptability
- research skills, including data management and analysis, critical analysis, specialist research methods
- numeracy
- computer literacy

You will also develop transferable skills through all the other activities you're involved with outside your course, for instance any sports or groups/clubs/societies, volunteer work and vacation placements/employment. For more information about transferable skills, visit the website at: [www.cam.ac.uk/about/natscitrip/students/tskills.html](http://www.cam.ac.uk/about/natscitrip/students/tskills.html).

## **Want to know more?**

You can find more details about the Natural Sciences course, such as the individual options (including current content) and information on the departments which contribute to the teaching, online at: [www.cam.ac.uk/natscitrip/](http://www.cam.ac.uk/natscitrip/). If you have any further questions about Natural Sciences please email us at: [natsci@admin.cam.ac.uk](mailto:natsci@admin.cam.ac.uk).

For more general guidance about how to apply to the University, entrance requirements and selection, please see the *Undergraduate Prospectus* or Undergraduate Admissions website. Your school or college should have a reference copy of the printed Prospectus and the information is also available on the website at: [www.cam.ac.uk/admissions/undergraduate/](http://www.cam.ac.uk/admissions/undergraduate/).

If you have any further questions, please get in touch with any of the College admissions offices (contact details available at: [www.cam.ac.uk/admissions/undergraduate/colleges/](http://www.cam.ac.uk/admissions/undergraduate/colleges/)) or the Cambridge Admissions Office.

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