



Welcome to Cambridge – and the Natural Sciences Tripos

By studying Natural Sciences at Cambridge, you will become a **scientist** - and not just a physicist, geologist or geneticist. The broad-based course will help you bridge the gaps between traditional boundaries of science. Cambridge has a strong tradition of teaching science in this way - the Tripos has existed in some form or other for well over 100 years. Science constantly changes and develops and therefore the courses that are offered do so as well.

The Natural Sciences course not only gives you the opportunity to select those subjects which most interest you, it allows you to change direction each year if you so wish. In your third year, you would normally choose to focus on one subject only - but the possibility still exists for you to maintain a broad study of the sciences.

LEARNING AND TEACHING - METHODS AND MECHANISMS

The Natural Sciences course is both intensive and challenging, but we will provide you with an excellent learning environment in which to rise to this challenge. You will find that you have a full and structured timetable, and that you will be exposed to new ways of learning and studying. Each course will approach the teaching of material in different ways and you will be exposed to many different learning environments and conventions. You will also have support from supervisors and Directors of Studies to help you develop the most suitable way of working for you. **To survive and thrive, you will need to be organised and self-disciplined.**

Most courses use three approaches to teaching:

1. LECTURES

Lectures are arranged for the whole class and define the content and scope of the course. They do not necessarily teach you everything you need to know, but provide the framework for you to investigate topics further, through other forms of teaching (practical work, supervisions) and through self-directed reading.

It is important that you attend the lectures and learn to engage with the information being given. You should arrive ready to make notes of the salient points and determine which areas of the lecture are less clear to you, so that you can follow these up later.

2. PRACTICAL WORK

Practical work, be it laboratory work, field work, or examples classes, usually serves to illustrate topics from the lectures and to equip you with the skills needed to apply those concepts in a practical or experimental way. You should approach all practical work with a positive attitude and seek to

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learn from the examples or experiments. Sessions are not designed simply to give you something else to do; there is a purpose behind each class - and you should make sure you understand what that is.

In order to make best use of your time, it is often sensible to read up on the session before you arrive; if handouts are provided in advance, this is usually the reason. During the class, make use of the demonstrators provided; ask them for advice and help.

Practical work may be continually assessed. If you have to write up an experiment in the class, make sure you understand what is expected of you - don't waste time on "whistles and bells". If you write up the experiment after the class, do it soon after the session so that if you have problems, you can go back to the lab and ask for help, or talk to your supervisor. Don't leave it until the night before it is due in; if you do have problems, it's then too late to find the help you need.

3. SUPERVISIONS

Supervisions are small-group teaching sessions arranged through your College. Most supervisions are taught by a member of your College and in groups of two or three. This is your opportunity to go over again material from the lectures and practical classes and clarify any points you are unclear of.

Supervisions are a unique learning opportunity - and you should learn to use them well. You should aim to tailor supervisions to your needs. Be prepared to ask your supervisor to depart from his or her timetable and answer your questions. Supervisions are your best opportunity to clear up any confused points from either lectures or practical classes and are a good way of assessing your understanding and progress.

Make sure you prepare for your supervisions; do the work set and hand it in well before time. Again, supervision work is not designed just to give you something to do. If you have problems, hand in what you can and, if appropriate, provide notes on where you had difficulties. It all helps the supervisor to know what the supervision should cover. Prepare questions to ask the supervisor - and make sure that they are answered! **The more you participate in supervisions, the more you will get out of them.**

In return, supervisors are expected to mark the work you have handed in - and prepare for the supervision as well. Don't be afraid to contact your Director of Studies if the supervisions are not working for you.

STILL FEELING LOST?

Don't be afraid to ask for help. Talk to your colleagues - you will probably find you are not alone if you are missing something. Work in pairs or groups to solve supervision problems. Talk to students in the years above you, the lecturers, your supervisors, postgraduates in College - in short, anyone who might be able to help. Everybody finds the Natural Sciences Tripos hard - people who say they don't are either lying or kidding themselves.

Finally, it is important to realise that the style of work here is very different to that you have experienced at A-level or equivalent qualifications. End-of-year examinations are very different too. Marks of over 80% are very rare - the average is more like 60%. To aid you in putting your marks in context, the marking schemes for the examinations are published on the NST website.

HOW HARD SHOULD I WORK?

In the first year, you will have a substantial amount of timetabled work. There are twelve hours of lectures each week, four hours of supervisions and probably twelve hours of practical work. On top of that, you will need to prepare for supervisions and practical classes – that’s probably another 12 hours. Altogether, this comes to a forty-hour week - just like a full-time job. You can therefore expect to work for a part of most evenings and on weekends.

You will need to develop good time management skills! Reserve the most difficult tasks for those times when you know you work well. Try to stick to a routine to work more effectively and avoid distractions. The trick is to fit your other activities around your academic work - and not the other way round. If you have your work under control, you will be able to enjoy yourself much more than if you are constantly behind and missing deadlines.

Use the Vacations to consolidate the term’s work. You should expect to devote a significant part of your Vacation to study, especially the Easter Vacation, which is the start of the run up to exams.

GENERAL TIPS AND FURTHER HELP

1. Attend all timetabled lectures, classes and practicals; make this your top priority and fit everything else around that.
2. Prepare a personal timetable and schedule of times for preparation and revision.
3. Use whatever means necessary to remove distractions and temptations; consider working in the College library rather than your room to make yourself "unavailable".
4. Be careful about which textbooks you buy; try them out first using College or Departmental libraries until you find ones that suit you best.
5. Keep fit and healthy – schedule time for relaxation and exercise.
6. Networking - academically and socially - is important. Get yourself noticed and involved in College and Departmental activities; always reply to formal invitations - before and after events.

USEFUL LINKS

The following links are sources of extra advice and support:

The Natural Sciences Tripos website:	http://www.natsci.tripos.cam.ac.uk/
Cambridge Students website:	http://www.cambridgestudents.cam.ac.uk/
Moodle: Virtual Learning Environment	https://www.vle.cam.ac.uk/
The University Counselling Service:	www.counselling.cam.ac.uk/
Cambridge University Students’ Union (CUSU):	https://www.cambridgesu.co.uk/
Including: the Student Advice Service:	https://www.cambridgesu.co.uk/support/advice/
Examinations and Study Skills:	https://www.cambridgesu.co.uk/support/advice/academic/

Calculators, lab coats and safety glasses notice

Most equipment and materials for practical classes will be provided free of charge: there are, however, some items which you may need to purchase and you will be advised of these in the appropriate course documentation.

All students reading subjects from the Natural Sciences Tripos are likely to need to buy a University-approved **calculator** and a **lab coat**.

- Lab coats can be purchased from the Yusuf Hamied Department of Chemistry, Part IA laboratory (09:00-12:00 & 14:00 -17:00 Tuesday 4 October). They cost about £13-£16 - payment by card only.
- Safety glasses are a requirement for certain practical classes, and it is recommended that you purchase your own pair. Safety glasses will be available for sale at the same time as lab coats at an approximate cost of £4-7.
- For Natural Sciences Tripos examinations Parts IA, IB, II and III (where a calculator is allowed), you will be permitted to use only the standard University calculator CASIO fx 115 (any version), CASIO fx 570 (any version) or CASIO fx 991 (any version). Each such calculator must be marked in the approved fashion.

Standard University calculators, marked in the approved fashion, will be on sale at the beginning of Full Michaelmas Term 2022 at around £25 for the fx991ES plus from the Yusuf Hamied Department of Chemistry, Part IA Laboratory preparation room **or** from the Main Stores in the Bragg Building at the Cavendish for around the same price. You are strongly advised to purchase a calculator at the beginning of term.

Students already possessing a CASIO fx 115 (any version) or CASIO fx 570 (any version) or Casio fx991 (any version) will be able to have it marked appropriately, at no cost in the Yusuf Hamied Department of Chemistry, Part IA Laboratory. Calculators meeting these criteria can be marked in term time from Thursday 6 October right up to the beginning of the exam period, not just in the Michaelmas term.