

*King's student
perspectives*

Natural Sciences (Biological)

*Jenny, 3rd year
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Natural Sciences is a big subject, with 15-20 students per year at King's, so that makes it easy to find friends and settle in when you first arrive. The college system means you also get to meet lots of people from other subjects too, which makes life more interesting.

When I applied for Natural Sciences, I thought I wanted to do Chemistry. I've recently finished my final year, and I ended up specialising in Genetics, which I think demonstrates a real strength of the course- you get to try a range of subjects in first year and find out what they're like at university before you focus on just one subject. I found the biological subjects in particular were quite different to Biology in school, and much more interesting!

What first year options did you take?

In first year, everyone has to take three science options and one maths option. I took Evolution & Behaviour, Biology of Cells, Chemistry and Mathematical Biology.

Evolution and Behaviour (E&B) was my favourite- we watched lots of clips from David Attenborough programmes in lectures, and learnt about weird things

that some animals have evolved to do. For example, did you know that male clownfish change sex when the dominant female clownfish dies? That would have made 'Finding Nemo' a very different film if it was biologically accurate...

We also learnt some more theoretical stuff about evolution, a lot of which is explained in quite an accessible and interesting way in popular science books. I'd recommend

reading something like 'The Selfish Gene' by Richard Dawkins (don't worry, although he has some controversial views on religion, he's quite good when he sticks to talking about biology) or something by Sean Carroll or Stephen Jay Gould. They're interesting to read, will give you an idea of the kind of things in the course, and should help to prepare you for first year E&B. Not to mention that reading around your subject is the kind of thing that looks good on a university application form.

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As for my other options, I found Biology of Cells to be a lot of work, with endless names of genes and enzymes to learn, but if you learn it well in first year, it'll make your life much easier for courses in later years. It's really worth going over your notes and doing a bit of revision over the Christmas and Easter vacations to try and remember all you've learnt during the term.

Mathematical Biology is more interesting than it sounds. The maths isn't that much harder than A level, the difficult bit is working out what to do, and what the answer means in a biological context. Mathematical Biology is also the subject where it really pays to take good notes in lectures (so why they schedule the lectures for Saturday mornings I'll never know...).

Chemistry is really well taught in first year- the best lecturers I've ever had were in first year Chemistry. That's really important, because some parts of the course are hard to teach (like thermodynamics) and some can be a bit dry (like reaction mechanisms). After first year, I decided I didn't like physical chemistry much, and I'd rather learn about clownfish!

And after first year?

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I based my second year choices on what would best prepare me for what I'd then decided I wanted to do in third year: Genetics. I really enjoyed my final year. The genetics department is really small and friendly; students and lecturers are on first-name terms, and each year the Part II students put on a Christmas panto, with students doing impressions of the lecturers!

In final year, you also get to do your own project in most NatSci courses, and genetics is no exception. I ended up studying the rate of spread of an STI between ladybirds (read: I ended up spending 8 weeks watching ladybirds have sex). The idea was to potentially use the STI to control populations of the invasive Harlequin ladybird, as the infection makes the ladybirds sterile. If ladybirds aren't your thing, there are loads of projects to choose from- for example, a friend of mine from King's spent the term making genetically engineered bacteria which produce different coloured pigments, so you can make pictures out of living bacteria!

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What is the workload like?

The workload in first year is pretty intense. Whichever options you choose, you can expect 12 hours of lectures, 4 hours of supervisions, and around 12 hours of practicals each week. On top of that, your supervisors will set you work to do - ranging from maths problems to essays- which will add up to roughly 12 hours' work each week, although it can be quite

variable. Lectures are always in the morning, and unfortunately most first year NatScis have lectures on a Saturday morning.

Don't worry though, you can still find time to enjoy yourself and do other things! I did coxing twice a week (the cox is the one who sits in a rowing boat, steering and shouting at the rowers) and went to formal hall most Wednesday nights.



Jenny on the river bank with rowing friends

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Do you have to go far?

All the lectures and practicals for Biology are about a five minute walk from Kings. In first year, it took me longer to get out of my building than it took to walk from the front door of my building to the lecture hall! The Chemistry department is a bit further away, but even that's only fifteen minutes' walk.

What about books and journals?

The college library has all the books you'll need, and if there does happen to be a book you need which they don't have, or even if they don't have enough copies of the book you need, they'll usually buy you a new copy, and you'll have it within a day or two. Also, the standard

loan period is a term, and you can renew your books after that - so you shouldn't need to buy any books. I got through three years without buying a single one!

What are supervisions like?

Supervisions were a bit scary to start off with, because they can be a lot like the admissions interviews, and in fact some of the people who interviewed me later became my supervisors. They get less scary really quickly once you get to know your supervisor a bit better, and also once you realise that your supervision partner doesn't know all the answers either!

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Supervisions are also really useful because unlike the interviews, it's also your chance to ask your supervisor about anything from the lectures you haven't understood. That makes it really worthwhile looking through your lecture notes from the week before the supervision, and I always put a big red question mark next to the bits I don't understand, so I remember to ask about them.

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All the supervisors are experts in their field, and even the post-grad students are usually at the cutting edge of research: I've heard two of my supervisors interviewed on the BBC about their research, and another two have had papers published in 'Nature'. In some cases, your supervisor will be your lecturer, which can be a bit of a double-edged sword. On the bright side, they know the answer to any question you have, because they gave the lecture (and in some cases they discovered what they're lecturing you on). On the other hand, if you weren't in their lecture, or you fell asleep... things can get a little awkward!

I found supervisions most useful for maths and chemistry, where your supervisor sets you questions to answer (a lot like school homework) because for those subjects, practice makes perfect, so it really helps to have someone to look over your answers and explain where you went wrong.

In biological subjects, your supervisor will usually give you a choice of essay titles, and give you feedback on your essay in the next supervision. An average supervision essay is about 1000 words, and as a BioNatSci you'll do around two per week... it's something you get used to!

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And practicals?

As well as lectures and supervisions, science subjects also have practical classes, which usually last a whole afternoon and happen weekly or fortnightly. These are more similar to the kind of experiments done in research labs than the practicals you'll be used to from school.

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They try to make the practicals interesting, by giving you a problem to solve: you might work out which bacterial strain caused a pretend disease epidemic, or determine the pattern of inheritance of the white eyes in fruit flies, for example.

Practicals are usually assessed in some way, either by answering a set of questions at the end of the practical and submitting that, or by a written exam at the end of the year, where you have to interpret experimental data similar to what you've done in practicals. The practicals are designed to illustrate what you've learnt in lectures, and although afternoons with practicals can seem to last forever, if you've got a good lab partner they can be fun.

Interviews

The one piece of advice I'd give to somebody thinking of applying for Natural Sciences is not to take anything for granted about what you might be asked in the interview. For example, I didn't expect to be asked any maths questions in my biological interview, so that came as a bit of surprise! With hindsight, perhaps this was a bit naive, as maths makes up $\frac{1}{4}$ of the first year, and I was studying maths at A level. They did ask whether I'd covered the topic in A level maths before they asked the question though, so don't worry about admitting you don't know or haven't covered something.

There might not be a single right answer.

In the interview, you can be asked some quite open-ended questions. For these kinds of questions, there might not be a single right answer. The interviewers will be trying to see how you think, so just say what you think, or what you can work out, even if it's not a full answer.

Don't worry if you get stuck; the interviewer might give you a hint, or a bit more information, until hopefully you get it in the end.

A note to current King's Natural Scientists

If you would like to write about your experiences of studying Natural Sciences at King's for our prospective students to read, please email Kristy in the Admissions Office for further details:
undergraduate.admissions@kings.cam.ac.uk.

