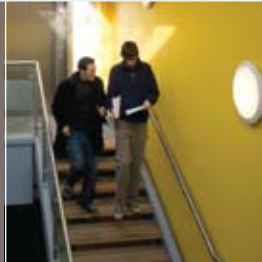
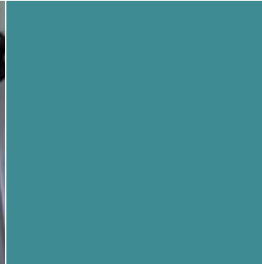


# STUDYING COMPUTER SCIENCE AT OXFORD

"There is a fantastic learning environment at Oxford and everyone is friendly, down to earth and ready to lend a helping hand when you get stuck."

Karina Sharples, 3rd year student





# Why Computer Science?

*Computer Science is about learning and understanding the mathematical, scientific and engineering principles underlying every kind of computing system, from mobile phones and the internet, via systems that interpret natural language, to the supercomputers that forecast tomorrow's weather or simulate the effects of disease on the human heart.*

To be a successful Computer Science student, you will need a curiosity about how things work, and the ability to use mathematics to solve problems creatively. Our course starts with the fundamentals of computers and programming, so it is not necessary to have studied these subjects before coming to Oxford.

As a university subject, Computer Science goes far beyond the IT you can study at school; just as a course on transport engineering would go beyond what you might learn in your driving lessons or a car maintenance class.

Our graduates go on to careers in many fields that need an understanding of computer systems, what they can (and cannot) do, and how to design them, from computer manufacturers and software firms to management consultancy, finance or teaching. But whatever you do after leaving Oxford, our Computer Science degree offers you the chance to spend three or four years studying a fascinating subject in one of the world's most beautiful and interesting cities.



## WHY OXFORD?

You may already know you want to study Computer Science at university, but be wondering what are the features that make the Oxford course especially attractive. Many of the advantages of Oxford are the same for every subject:

- *the excellent facilities both for academic work and for sporting, artistic, creative and social activities;*
- *the unsurpassed support that you will enjoy by joining an Oxford college;*
- *the outstanding mix of people you will meet, both the world-leading academics who will teach you, and the extraordinarily talented students in every subject who you will live and work with, and who will become your friends for life.*

The Oxford Computer Science course allows you to concentrate on studying Computer Science from the start of the course. There are lectures during the first year designed to lay the mathematical foundations for the work you will do later in the course, but we don't require you to spend 50% or more of your first year on other subjects outside Computer Science.

## MATHEMATICS AND COMPUTER SCIENCE

This joint degree gives you the chance to combine Computer Science with advanced study of Pure Mathematics, and will suit you if you are interested in using computers to solve mathematical or scientific problems, or in the deeper mathematical basis of Computer Science itself.

# Profiles – snapshots of our students



## **TOM PERRY**

**2nd year Computer Science, St John's College**  
Mosslands High School, Wirral. Maths,  
Further Maths, Physics and Biology A-level

*I chose Oxford because of its tutorial system and its outstanding reputation as a leading institute in Computer Science.*

*The course has proved to be better than I had imagined; it is well structured, giving a good basis in maths and programming, before broadening to allow you to pursue your fields of choice.*

*Overall I think Oxford provides me with the perfect student life.*



## **KARINA SHARPLES**

**3rd year Mathematics and Computer Science, Somerville College**  
Reigate Grammar School. Maths, Further Maths, Physics and Economics A-level

*There is a fantastic learning environment at Oxford and everyone is friendly, down to earth and ready to lend a helping hand when you get stuck.*

*There is so much going on in Oxford that it's hard to decide on what to do!*

*Oxford is full of opportunities, both academic and otherwise – the challenge is to take full advantage of both simultaneously!*

## **ANNE-MARIE IMAFIDON**

**3rd year Mathematics and Computer Science, Keble College**  
The Latymer School, East London. Maths, Further Maths,  
French and ICT A-level

*The course has been amazingly flexible and I have enjoyed the benefits of having the best of both worlds – the ability to choose any mathematical module or computing module to suit my interests. The highlights of the course have been studying Databases last term and finding out more about robots in the Intelligent Systems module.*

*Lastly the tutorial system means you can get all the help you need and it keeps you on your toes!*



## **DAN SURMAN**

**2nd year Computer Science, Oriol College**  
Henry Box School, Witney. Maths, Further Maths, Chemistry and Physics A-level





*I chose the course because I wanted to be taught the principles that underpin programming languages, allowing me to easily learn new languages when required.*

*The course is well structured and well taught, which is fortunate as I find it very demanding. A particular highlight of the course so far is the Concurrent Programming lecture series which explains how to write programs, using different techniques, that correctly solve problems in the field of concurrency.*

*As well as studying I also play football for the college first XI, badminton, basketball and pool.*

# Your week in Oxford – a rough guide

As a Computer Science student in Oxford, your week will be divided between study – based partly in the Computing Laboratory and partly in your college – and social, cultural and sporting activities.

	MORNING	AFTERNOON	EVENING	
MONDAY	 <p><b>Lectures</b> bring together students from all colleges to hear about some aspect of Computer Science, often from a world expert on that part of the subject. The lectures naturally concentrate on the principles behind how computer systems work so that what you learn will continue to be useful long after you have graduated. Our students typically attend ten or twelve lectures a week.</p>		<p><b>Food</b> plays an important role in life, in Oxford as everywhere else. Lunch and dinner in college provide you with an opportunity to get together with friends. Sometimes you will be grabbing a bite to eat before rushing off to do something else, but other times you will want to linger and enjoy the unique atmosphere of your college hall.</p>	
TUESDAY		<p><b>Project work:</b> In the third year of the degree, and again in the optional fourth year, you will have the opportunity to make a more extensive exploration of some of the ideas from your course by doing a project. This will count for about a quarter of the exam marks in the year. You will have a project supervisor to guide your work, and might meet with them once a fortnight.</p>		
WEDNESDAY	<p><b>Tutorials</b> are based in colleges, and are an opportunity for you and a fellow student to spend an hour discussing some aspect of Computer Science with a tutor. In your own time, you will write solutions to a set of problems, and your tutor will mark your work and then discuss it with you for an hour. Students typically have two or three tutorials or classes each week.</p>		<p><b>Sport:</b> Oxford provides unequalled facilities for sport at every level, from the boat race to your college darts team. If you can play a sport at international level, then there will be opportunities to do that; but equally, if you just like to kick a football around occasionally, there will be a place for you in one of your college's teams.</p>	
THURSDAY		<p><b>Problem classes:</b> In later years of the course, you will also take part in small classes for the specialised topics that you have chosen to study as options in your degree. These small classes allow students to be taught by tutors with specialist knowledge in the topic, including experts with a world-wide reputation and enthusiastic young researchers.</p>		
FRIDAY			<p><b>Practicals</b> give you an opportunity to work on real programs that reflect the principles you have learned, and allow you to become familiar with up-to-date computing and programming technology. One week you might be exploring the methods used to make neural networks learn to recognise faces; another week you might be building a compiler for your own programming language, guided by a member of staff. Practical work might occupy two afternoons a week.</p>	
SATURDAY		<p><b>Drama, politics, music:</b> Oxford offers unsurpassed opportunities to get involved in activities outside the confines of your subject, and most students have one or more passions that they pursue with others of the same persuasion, either within their college or together with students from other colleges. At eight weeks, Oxford terms are very short, but somehow you will find the time to fit it all in.</p>	<p><b>Time off:</b> Oxford is packed with ways to relax with friends and enjoy yourself. Every college has a bar, and college bops are a good way to unwind at the end of term. Oxford has plenty of student-oriented pubs, restaurants and clubs, and for those who can be lured away by the bright lights, London is little more than an hour away by bus.</p>	
SUNDAY			<p><b>Sleep:</b> You will still find time for this occasionally. All colleges offer you a room in college for at least your first and third years, and most for your whole time in Oxford. So you won't have to find somewhere to live before you come to Oxford.</p>	

# Our course – year by year



## First year

You will begin by studying the basics of Computer Science, starting with how to write a good computer program. Although you may have written programs as part of an A-level in IT at school, you will find that the approach we take to programming is quite different. Our emphasis is on explaining – often using mathematics – why it is that programs work correctly.

College tutors generally set informal tests after each vacation so you can check how you are doing. At the end of the year you will take five university exams.

## Second year

You will continue to study the core of Computer Science, but will start to choose optional courses in the areas that interest you most, such as artificial intelligence, programming languages and compilers, numerical computing, or a range of other specialised subjects.

You will take four exams at the end of the year: two on core subjects, and two on the options you have chosen.

## Third year

You will choose from a range of more advanced options, perhaps also choosing some additional options that you missed in the second year. You will also undertake an extended project, usually with the aim of developing a substantial computer program.

The year is assessed through a report on your project, and also three exam papers on the options you have taken. The marks from second and third year exams and from your project go together to make up your final degree classification.

## Fourth year

Some students choose to leave after three years, but others stay on to do more advanced work that leads to a Masters degree in Computer Science. If you stay for the fourth year, you will take about six advanced options, bringing you to the forefront of Computer Science and preparing you to work in advanced development or research. You will also do a more advanced and extensive project that may lead on to a subsequent research degree.

Most options are assessed by a take-home exam that you will complete during the vacations.

*Oxford University Computing Laboratory is one of the longest-established Computer Science departments in the country. During the past 60 years it has evolved from looking after the University's only computer at the time into its present role as the hub of teaching and research activities encompassing core Computer Science, computational biology, quantum computing, computational linguistics, information systems and software verification.*

*The Laboratory offers three- and four-year first degrees in Computer Science, and in Mathematics and Computer Science. In addition it offers one-year postgraduate Masters courses and opportunities for doctoral research.*

#### FOR MORE INFORMATION

Visit our website [www.comlab.ox.ac.uk/admissions](http://www.comlab.ox.ac.uk/admissions) for up-to-date information on the content of our courses, admissions requirements and opportunities to visit Oxford.

Come to one of our open days. We welcome visits from prospective students on a Saturday in May, on two consecutive days in late June or early July, and on one day in September. For details and group bookings, see the website.

Look at the University Prospectus, which tells you all you need to know to apply, and gives details of all the colleges that offer Computer Science as a subject.

If you have specific questions, contact the Computer Science tutor at one of the colleges via the admissions tutor of that college, or write to the Computing Laboratory's admissions officer at [admissions@comlab.ox.ac.uk](mailto:admissions@comlab.ox.ac.uk).

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