Computer Science Information Sheet for entry in 2016

What is Computer Science?

Computer Science is about understanding computer systems and networks at a deep level. Computers and the programs they run are among the most complex products ever created; designing and using them effectively presents immense challenges. Facing these challenges is the aim of Computer Science as a practical discipline, and this leads to some fundamental questions:

- How can we capture in a precise way what we want a computer system to do?
- Can we mathematically prove that a computer system does what we want it to?
- How can computers help us to model and investigate complex systems like the Earth's climate, financial systems or our own bodies?
- What are the limits to computing? Will quantum computers extend those limits?

The theories that are now emerging to answer these kinds of questions can be immediately applied to design new computers, programs, networks and systems that are transforming science, business, culture and all other aspects of life.

Computer Science at Oxford

Computer Science can be studied for three (BA degree), or four years (Master of Computer Science). The fourth year allows the study of advanced topics and an in-depth research project. Everyone applies for the four-year course and chooses their exit point at the beginning of the third year.

The course concentrates on creating links between theory and practice. It covers a wide variety of software and hardware technologies and their applications. We are looking for students with a real flair for mathematics, which you will develop into skills that can be used both for applications such as scientific computing, and more importantly for reasoning rigorously about the specific behaviour of programs and computer systems. You will also gain practical problem-solving and program design skills; the majority of subjects within the course are linked with practical work in our well-equipped laboratory.

Course outline

Computer Science can be studied for three years, leading to the award of a BA degree, or for four years, leading to the award of Master of Computer Science. The fourth year of the Master of Computer Science degree provides the opportunity to study advanced topics and undertake a more in-depth research project. You do not need to decide between these options when you apply; you can choose at the beginning of your third year whether to stay for either one more year or two.

A typical weekly timetable

During the first part of the course, your work is divided between lectures (about ten a week), tutorials (about two a week), and practical classes (about two sessions a week).

In tutorials you discuss ideas in depth with an experienced computer scientist, usually with just one or two other students. You will be expected to spend a considerable amount of time developing your

own understanding of the topics covered in lectures, answering questions designed to check your understanding, and preparing for tutorials. As the course progresses, you will also begin to work in small classes (up to ten people) on more specialised topics. In the second year you will take part in an industry-sponsored group design practical. In years three and four, about a third of your time is spent working on your chosen individual project.

1st year

Courses

Core courses:

- Continuous maths
- Design and analysis of algorithms
- Digital systems
- Discrete mathematics
- Functional programming
- Imperative programming
- Introduction to formal proof
- Linear algebra
- Probability

Assessment

Five written papers, plus practicals

2nd year

Courses

Core courses (50%):

- Object-oriented programming
- Concurrent programming
- Models of computation
- Logic and proof

Options (50%) including:

- Computer architecture

Assessment

Four written papers, plus practicals (including a group design practical)

- Computer graphics - Compilers - Concurrency - Advanced data structures and algorithms - Databases - Computer networks	
3rd year	
Courses Options (67%) including: - Computational complexity - Computational learning theory - Computer security - Computer-aided formal verification - Geometric modelling - Intelligent systems - Knowledge representation and reasoning - Lambda calculus and types - Principles of programming languages Project work (33%)	**Assessment** Three written papers, plus practicals and project
4th year	
Courses Options (67%) such as: - Automata, logic and games - Categories, proofs and processes	**Assessment** Five written papers, plus practicals and project

- Computational linguistics - Computer animation - Concurrent algorithms and data structures - Database systems implementation - Machine learning - Probabilistic model checking - Probability and computing - Quantum computer science - Software verification - Theory of data and knowledge bases Project work (33%)	

Lists of options offered in the 2nd, 3rd and 4th years are illustrative only, and may change from time to time.

Further information about all of our courses:www.cs.ox.ac.uk/computerscienceatoxford

The University will seek to deliver each course in accordance with the descriptions set out above. However, there may be situations in which it is desirable or necessary for the University to make changes in course provision, either before or after registration. For further information, please see the University's Terms and Conditions.

Fees

These annual fees are for full-time students who begin this undergraduate course here in 2016.

Fee Status	Tuition fee	College fee	Total annual fees
Home/EU	£9,000	£0	£9,000
Islands (Channel Islands & Isle of Man)	£9,000	£0	£9,000
Overseas	£22,515	£7,135	£29,650

Information about how much fees and other costs may increase is set out in the University's Terms and Conditions.

Living Costs

Your living costs will vary significantly dependent on your lifestyle. These are estimated to be between £970 and £1,433 per month in 2016-17. Undergraduate courses usually consist of three

terms of eight weeks each, but as a guide you may wish to budget over a nine-month period to ensure you also have sufficient funds during the holidays to meet essential costs.

Living costs breakdown

	Per month		Total for 9 months	
	Lower range	Upper range	Lower range	Upper range
Food	£265	£298	£2,384	£2,673
Accommodation (including utilities)	£469	£667	£4,221	£6,002
Personal items	£119	£244	£1,073	£2,187
Social activities	£60	£107	£539	£960
Study costs	£36	£73	£314	£661
Other	£19	£44	£197	£410
Total	£970	£1,433	£8,727	£12,894

30 October 2015