If you require an accessible version of the document, please contact Undergraduate Admissions by email (uao.comms@admin.ox.ac.uk) or via the online form (http://www.ox.ac.uk/ask).

Computer Science Course Information Sheet for entry in 2022

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 can be studied for three years (BA) or four years (Master of Computer Science). The fourth year allows the study of advanced topics and an in-depth research project. Students do not need to choose between the three-year and four-year options when applying to the course; all students apply for the four-year course, and then decide at the start of the third year whether they wish to continue to the fourth year (which is subject to achieving a 2:1 at the end 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 strong mathematical ability, which you will develop into skills that can be used both for reasoning rigorously about the behaviour of programs and computer systems, and for applications such as scientific computing. 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.

A typical week

During the first part of the course, your work will be divided between about ten lectures and two tutorials each week, in addition to about two practical sessions. In tutorials you will 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 of up to ten people on more specialised topics. In the second year you will take part in a group design practical, which may be sponsored by industry. In Years 3 and 4 about a third of your time is spent working on your chosen individual project. Most tutorials, classes, and lectures are delivered by staff who are tutors in their subject. Many are world-leading experts with years of experience in teaching and research. Some

teaching may also be delivered by postdoctoral researchers or postgraduate students who are studying at doctorate level.

To find out more about how our teaching year is structured, visit our Academic Year page.

Course structure

YEAR 1	

COURSES
• Core courses (100%):
   o Continuous mathematics
   o Design and analysis of algorithms
   o Digital systems
   o Discrete mathematics
   o Ethics and responsible innovation
   o Functional programming
   o Imperative programming
   o Introduction to formal proof
   o Linear algebra
   o Probability
	ASSESSMENT
	Four exam papers

YEAR 2	

COURSES
• Core courses (50%):
   o Algorithms
   o Compilers
   o Concurrent programming
   o Models of computation
   o Group design practical
• Current options (50%) include:
   o Computer architecture
   o Computer graphics
   o Computer networks
   o Databases
   o Artificial intelligence
   o Logic and proof
	ASSESSMENT
	Eight exam papers

YEAR 3	

COURSES
 • Current options (67%) include:
     o Computational complexity
     o Machine learning
     o Computer security
     o Computer-aided formal verification
     o Geometric modelling
     o Knowledge representation and reasoning
     o Lambda calculus and types
     o Principles of programming languages
 • Project work (33%)
	ASSESSMENT
	 Six exam papers plus project report

YEAR 4	

COURSES
 • Current options (62%) include:
     o Advanced topics in machine learning
     o Automata, logic and games
     o Advanced security
     o Categories, proofs and processes
     o Computational game theory
     o Computational learning theory
     o Concurrent algorithms and data structures
     o Database systems implementation
     o Probabilistic model checking
     o Probability and computing
     o Quantum computer science
     o Requirements
 • Project work (38%)
 	
 The courses listed above are illustrative and may change. A full list of current options is available on the Computer Science website.
	ASSESSMENT
	 Five take-home exams or written papers plus project report

The University will seek to deliver this course in accordance with the description 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. These may include significant changes made necessary by a pandemic (including Covid-19), epidemic or local health emergency. For further information, please see the University's Terms and Conditions. For the latest information on the University's Covid-19 response and how it affects students please go to the Oxford University Covid-19 Response site.

Fees

These annual fees are for full-time students who begin this undergraduate course here in 2022.

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

Please note that while the University sets out its annual fees as a single figure, this is a combined figure for both your University and college fees. More information is provided in your Terms and Conditions.

Fee status	Annual Course fees
Home (UK, Republic of Ireland, Channel Islands & Isle of Man)	£9,250
Overseas (including most EU students– see Note below)	£39,010

Please refer to the Undergraduate fee status and the Oxford and the EU pages for more information.

Note: Following the UK's departure from the EU, most EU students starting a course in 2022/23 will pay fees at the 'Overseas' rate. Irish nationals living in the UK or Ireland, EU, other EEA, and Swiss nationals who have been granted settled or pre-settled status in the UK under the EU settlement scheme will be eligible for 'Home fee' status and student loan support, subject to meeting residency requirements. We will contact you directly if we need further information from you to determine your fee status.

Please refer to the Undergraduate fee status and the Oxford and the EU pages for more information.

Living costs

Living costs for the academic year starting in 2022 are estimated to be between £1,215 and £1,755 for each month you are in Oxford. Our academic year is made up of three eight-week terms, so you would not usually need to be in Oxford for much more than six months of the year but 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	£290	£410	£2,610	£3,690

	Per month		Total for 9 months	
Accommodation (including utilities)	£680	£810	£6,120	£7,290
Personal items	£135	£260	£1,215	£2,340
Social activities	£45	£120	£405	£1,080
Study costs	£45	£100	£405	£900
Other	£20	£55	£180	£495
Total	**£1,215**	**£1,755**	**£10,935**	**£15,795**

In order to provide these likely living costs, the University and the Oxford University Students' Union conducted a living costs survey to complement existing student expenditure data from a variety of sources including the UK government's Student Income and Expenditure Survey and the National Union of Students (NUS). The likely lower and upper ranges above are based on a single student with no dependants living in college accommodation (including utility bills) and are provided for information only. In addition to reviewing the information above, you should fully consider and research your personal likely living costs.

When planning your finances for future years of study at Oxford beyond 2022-23, you should allow for an estimated increase in living expenses of 3% each year.

Additional Fees and Charges Information for Computer Science
There are no compulsory costs for this course beyond the fees shown above and your living costs.