Computer Science and Philosophy Information Sheet for entry in 2016

Artificial intelligence (AI), logic, robotics, virtual reality: fascinating areas where Computer Science and Philosophy meet. There are many others, since the two disciplines share a broad focus on the representation of information and rational inference, embracing common interests in algorithms, cognition, intelligence, language, models, proof and verification.

Computer scientists need to be able to reflect critically and philosophically about these, as they push forward into novel domains. Philosophers need to understand a world increasingly shaped by technology, in which a whole new range of enquiry has opened up, from the philosophy of AI, to the ethics of privacy and intellectual property.

Some of the greatest thinkers of the past - including Aristotle, Hobbes and Turing - dreamed of automating reasoning and what this might achieve; the computer has now made it a reality, providing a wonderful tool for extending our speculation and understanding.

The study of Philosophy develops analytical, critical and logical rigour, and the ability to think through the consequences of novel ideas and speculations. It stretches the mind by considering a wide range of thought and thinkers on subjects as fundamental as the limits of knowledge, the nature of reality and our place in it, and the basis of morality. Computer Science is about understanding computer systems 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.

Both subjects are intellectually exciting and creative. The degree combines analytical and technical knowledge with rhetorical and literary skills, and the chance to study within two internationally-acclaimed academic departments.

Computer Science and Philosophy can be studied for three (BA degree) or four years (Master of Computer Science and Philosophy). Everyone applies for the four-year course and chooses their exit point at the beginning of their third year.

The first year covers core material in both subjects, including a bridging course studying Turing's pioneering work on computability and artificial intelligence. Later years include a wide range of options, with an emphasis on courses near the interface between the two subjects. The fourth year allows the study of advanced topics and an in-depth research project.

Computer Science and Philosophy at Oxford

Computer Science and Philosophy is a new degree, with its first students having started in 2012, the centenary of Alan Turing's birth. It can be studied for three years (a BA) or four years (Master of Computer Science and Philosophy). You choose at the beginning of your third year whether to stay on for the additional fourth year.

The first year of the degree covers core material in both subjects, including a bridging course studying Turing's pioneering work on computability and artificial intelligence. Later years include a wide range of options, with an emphasis on courses near the interface between the two subjects.

The fourth year provides you with the opportunity to study advanced topics and to undertake a more in-depth research project.

A typical weekly timetable

For the first two years, your work is divided between lectures (about ten a week), tutorials in your college (two or three a week), and Computer Science practical classes (about one session a week). In your third and fourth years the Philosophy courses continue similarly, but most Computer Science courses are run as classes in the department rather than tutorials.

<table>
<tr><td colspan="2">1st year</td></tr>
<tr><td>Courses

Courses
Computer Science
Functional programming
Design and analysis of algorithms
Imperative programming
Discrete mathematics
Probability
Philosophy
General philosophy
Elements of deductive logic
Turing on computability and intelligence</td><td>Assessment

Five written papers, plus Computer Science practicals</td></tr>
<tr><td colspan="2">2nd year</td></tr>
<tr><td>Courses

Computer Science (50%)
Models of computation
Options including:
Advanced data structures and algorithms
Compilers</td><td>Assessment

Two Computer Science papers, plus Computer Science practicals (including a group design practical)</td></tr>
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• Concurrent programming • Logic and proof • Object-oriented programming Philosophy (50%) Many options including • Knowledge and reality • Early Modern philosophy • Philosophy of science • Philosophy of mind • Ethics	
3rd year	
Courses Computer Science (25–75%) Options including: • Computational complexity • Computational learning theory • Computer-aided formal verification • Computers in society • Intelligent systems • Knowledge representation and reasoning Philosophy (25–75%) Options including: • Philosophical logic • Philosophy of cognitive science • Philosophy of mathematics • Philosophy of logic and language and many others	**Assessment** Six three-hour written papers, including at least one in Computer Science and at least three in Philosophy, plus Computer Science practicals

4th year

Courses

Computer Science

Advanced options including:

- Advanced security
- Automata, logic and games
- Computational linguistics
- Concurrent algorithms and data structures
- Machine learning
- Optional Computer Science project

Philosophy

Advanced options in Philosophy. Optional Philosophy thesis

In the 3rd and 4th years, students can choose where to focus their studies, and the 4th year can be entirely Computer Science or entirely Philosophy.

Assessment

For Computer Science options, written paper or take-home exam, plus practicals; for Philosophy options, three-hour written paper plus 5,000-word essay

Lists of options 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