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Computer Science and Philosophy Course Information Sheet for entry in 2024

If you enjoy mathematical problem-solving, would like to learn about computing and artificial intelligence, but also have wider interests in life and the universe then this degree might be for you!

Computer systems now have huge impact on almost every aspect of our lives: social, commercial, educational, even political. Throughout academia and industry, they provide the media of communication and data processing, and increasingly – through artificial intelligence – solve problems that go beyond our human intellectual capabilities.

All this raises huge philosophical issues, both ethical (e.g. data privacy, algorithmic risk assessment, robot behaviour, legal regulation and responsibility) and social (e.g. impact on employment, healthcare, public discourse and democracy). Navigation through this minefield of problems requires a new generation of thinkers who both understand computing technology, and are able to think critically about its consequences.

Artificial intelligence also raises a host of more theoretical issues, such as:

- the nature of reason
- its relation to logic
- how far rationality can be mechanised
- and whether such qualities as autonomy, free will and mental activity can be shared by inanimate systems.

These are all deep questions going back to antiquity. But in our world they have become more than theoretical, as powerful automated reasoning – a dream of philosophers from Aristotle to Hobbes, Leibniz, Boole and Turing – has now at last become a reality.

Future philosophers, to engage effectively with such issues, need to take account of – and ideally harness for themselves – the power of artificial intelligence.

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.

The study of philosophy develops analytical, critical and logical rigour, applied within a wide range of extremely valuable skills:

- analysing and organising diverse information
- understanding different points of view
- arguing a case
- imagining novel possibilities and thinking through their consequences.

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It stretches the mind by considering a wide range of ideas on questions as fundamental as the limits of knowledge, the nature of reality and our place in it, and the basis of morality.

Both subjects are intellectually exciting and creative, and they have many mutual connections. The degree combines analytical and technical knowledge with discursive, writing and research skills, offering the chance to study with top academics from two internationally acclaimed departments.

Computer Science and Philosophy can be studied for three years (BA) or four years (Master of Computer Science and Philosophy).

Students do not need to choose between the three-year and four-year options when applying. Instead, 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).

A typical week

For the first two years, your work is divided between about eight lectures and two to three college-based tutorials each week, alongside Computer Science practical classes – usually one session per week.

In the second year you will take part in a Computer Science group design practical, which may be sponsored by industry.

In your third and fourth years, Philosophy continues to be taught through tutorials, while there are classes in the department for most Computer Science courses.

Most tutorials, classes, and lectures are delivered by experts in their field. 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 <ul style="list-style-type: none">• Computer Science:<ul style="list-style-type: none">○ Functional programming○ Design and analysis of algorithms○ Introduction to proof systems○ Imperative programming○ Discrete mathematics○ Probability• Philosophy: Core courses may include: | ASSESSMENT <p>Three Computer Science examinations</p> <p>Two Philosophy examinations</p> |



YEAR 1

- General philosophy
- Philosophical topics in logic and probability
- Alan Turing on computability and intelligence

YEAR 2

COURSES

- **Computer Science core courses (25%):**
 - Models of computation
 - Algorithms and data structures
 - Group design practical
- **Computer Science options (25%):**
 Current options include:
 - Compilers
 - Databases
 - Artificial intelligence
 - Logic and proof
 - Computer architecture
- **Philosophy (50%):**
 Current options include:
 - Knowledge and reality
 - Early modern philosophy
 - Philosophy of science
 - Philosophy of mind
 - Ethics

ASSESSMENT

Between four and six Computer Science examinations (according to student's choice)

YEAR 3

COURSES

- **Computer Science (25–75%):**
 Current options include:
 - Computational complexity
 - Machine learning

ASSESSMENT

Between five and nine examinations, including at least three in Philosophy

YEAR 3

- Computer-aided formal verification
- Principals of programming language
- Knowledge representation and reasoning

- **Philosophy (25–75%):**
Current options include:
 - Ethics of artificial intelligence
 - Philosophical logic
 - Philosophy of cognitive science
 - Philosophy of mathematics
 - Philosophy of logic and language
 - Philosophy thesis

YEAR 4

COURSES

- **Computer Science:**
Current advanced options include:
 - Advanced security
 - Computational game theory
 - Computational learning theory
 - Concurrent algorithms and data structures
 - Graph representation learning
 - Ethical computing in practice
 - Optional computer science project

- **Philosophy:**
 - Advanced options in philosophy
 - Optional philosophy thesis

The courses listed above are illustrative and may change. A full list of current options is available on the [Computer Science website](#).

ASSESSMENT

Computer Science: one examination (or take-home exercise) per course

Philosophy: for each course a three-hour written examination and 5,000-word essay

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. For further information, please see the University's [Terms and Conditions](#).

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Fees

These annual fees are for full-time students who begin this undergraduate course here in 2024.

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) | £48,620 |

Note: 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 are 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](#) pages for more information.

Living costs

Living costs for the academic year starting in 2024 are estimated to be between £1,345 and £1,955 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. For further details please visit our [living costs webpage](#).

Living costs breakdown

| | Per month | | Total for 9 months | |
|-------------------------------------|---------------|---------------|--------------------|----------------|
| | Lower range | Upper range | Lower range | Upper range |
| Food | £315 | £495 | £2,835 | £4,455 |
| Accommodation (including utilities) | £745 | £925 | £6,705 | £8,325 |
| Personal items | £190 | £320 | £1,710 | £2,880 |
| Social activities | £40 | £95 | £360 | £855 |
| Study costs | £35 | £85 | £315 | £765 |
| Other | £20 | £35 | £180 | £315 |
| Total | £1,345 | £1,955 | £12,105 | £17,595 |

In order to provide these likely living costs (which are rounded to the nearest £5), the University and the Oxford SU 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 current economic climate and high national rate of inflation make it very hard to estimate potential changes to the cost of living over the next few years. When planning your finances for any

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future years of study in Oxford beyond 2024-25, it is suggested that you allow for potential increases in living expenses of around 5% each year – although this rate may vary depending on the national economic situation. UK inflationary increases will be kept under review and the [living costs webpage](#) updated.

[Additional Fees and Charges Information for Computer Science and Philosophy](#)

There are no compulsory costs for this course beyond the fees shown above and your living costs.