Oxford undergraduate CS Course

## Course structure 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.

## YEAR 1 COURSES

* Core courses (100%):
  + Continuous mathematics
  + Design and analysis of algorithms
  + Digital systems
  + Discrete mathematics
  + Ethics and responsible innovation
  + Functional programming
  + Imperative programming
  + Introduction to formal proof
  + Linear algebra
  + Probability

## YEAR 2 COURSES

* Core courses (50%):
  + Algorithms
  + Compilers
  + Concurrent programming
  + Models of computation
  + Group design practical
* Current options (50%) include:
  + Computer architecture
  + Computer graphics
  + Computer networks
  + Databases
  + Artificial intelligence
  + Logic and proof

## YEAR 3 COURSES

* Current options (67%) include:
  + Computational complexity
  + Machine learning
  + Computer security
  + Computer-aided formal verification
  + Geometric modelling
  + Knowledge representation and reasoning
  + Lambda calculus and types
  + Principles of programming languages
* Optional project work (33%)\*

## YEAR 4 COURSES

* Current options (62%) include:
  + Advanced topics in machine learning
  + Automata, logic and games
  + Advanced security
  + Categories, proofs and processes
  + Computational game theory
  + Computational learning theory
  + Concurrent algorithms and data structures
  + Database systems implementation
  + Probabilistic model checking
  + Probability and computing
  + Quantum software
  + 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*](http://www.cs.ox.ac.uk/admissions/undergraduate/courses/computer_science.html)*.*

MSc Computer Science

## Course outline

The academic year is split into three terms of eight weeks but work on the MSc course continues throughout the year and is not restricted just to term time. During the three terms of the course, you will choose from modules on various aspects of computer science. Most modules will last for one term and will be between 16 to 24 lectures. In addition, all modules will have problem classes and some may also have practical sessions associated with them. In the third term (Trinity term) you will undertake a dissertation.

A typical week for a student taking three courses in each of the first two terms may be as follows:

• Lectures - eight hours

• Tutorial classes - three hours

• Practicals - four hours

• Self-directed study, including preparatory reading, problem sheets, revision of material - 20 hours

Total - 35 hours

The split of work may differ depending on whether a course has practicals associated. This should be taken as a guide only.

Examples of modules offered:

• Advanced Security

• Advanced Topics in Machine Learning

• Quantum Computer Science

• Categories, Proofs and Processes

• Computational Complexity

• Database Systems Implementation

• Computational Learning Theory

• Probabilistic Model Checking

## Supervision

The allocation of graduate supervision for the course is the responsibility of the Department of Computer Science and it is not always possible to accommodate the preferences of incoming graduate students to work with a particular member of staff. Under exceptional circumstances a supervisor may be found outside the Department of Computer Science.

Assessment

For the taught modules, the mode of assessment shall be either written assignment or written examination, dependent on the module you are taking.

A dissertation, completed independently under the guidance of an expert supervisor, on a topic of your choice and approved by the supervisor and MSc Course Director will be submitted by the end of Trinity Term.

## Graduate destinations

Potential graduate destinations for the MSc include:

• PhD/DPhil research

• Software Developer or Software Architect