You will learn about cutting-edge developments in Computer Science and develop transferable skills. The School is highly rated for teaching and research with excellent staff and top class facilities.

- Excellent reputation for teaching and research.
- Excellent student:staff ratio of about 12:1.
- State-of-the-art facilities for our students.
- Almost all of our academic staff teach and tutor undergraduates each year.
- Our courses are challenging but very rewarding.

What will I study?
Our courses are designed to ground you in both the theory and practice of Computer Science. You will learn to think and solve problems logically; understand the fundamental principles of how computing systems work, and be exposed to significant new technologies as well as teamwork.

In the first two years, you will learn the basic concepts behind Computer Science and several different programming languages. Alongside Computer Science in the first year of your studies, you will be required to study at least one additional subject. In the second year, you can continue with this other subject or focus entirely on Computer Science.

You will be able to build a degree programme around your interests and study specialist areas such as artificial intelligence, human-computer interaction, computer security, video games, data encoding, databases, and operating systems. These options in the final two years allow you to explore the intellectual frontiers of Computer Science by studying more advanced and cutting-edge topics.

You will learn to work in teams on projects of significant size and using state-of-the-art software engineering methods.

Each programme contains both a year-long team project and a dissertation that allows you to work on a project under the supervision of a member of staff. Throughout your studies you will have 24 hour access to our state-of-the-art laboratories and common areas that are the heart of the thriving community that is Computer Science at St Andrews.

First year
You will take two compulsory courses. The first one is an introduction to object-oriented modelling and programming using Java.

The second explores various aspects of data storage, processing and analysis. In addition, you can study an optional Computer Science course per semester and will take one or two courses from another subject.

Our courses include weekly tutorials which provide a small group teaching environment that helps deepen your engagement with the topics studied and prepares you for the practical assignments and exams.

Second year
You will be introduced to fundamental algorithms, data structures and ideas about formal languages at the heart of modern software. You will then develop skills in programming...
Computer Science

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admissions-cs@st-andrews.ac.uk

in C, systems programming, digital logic and low-level computer organisation.

In addition, you will take two more courses, which can be chosen from Computer Science or another subject. You will attend weekly tutorials for your Computer Science courses.

Third and fourth years (Honours)
You will be introduced to Turing machines, non-determinism and pushdown automata, followed by study of decidability, simulation and the Halting problem. We will also cover modelling, system property specification using temporal logics, and more applied approaches to software specification and verification through the use of model checkers. You will apply software engineering concepts and practices to a substantial software engineering project as part of a team. This course runs through both semesters in third year and will prepare you for the workplace, where collaboration with others is essential.

In your final year, you will undertake a substantial software engineering project using professional development techniques. You will design, specify and construct a medium-sized software system, or undertake a formal development and proof of such a system, under the guidance of a member of staff.

In addition to the compulsory courses, you will choose from a wide variety of advanced options. Here is a sample of Honours topics, which have been offered in previous years: artificial intelligence, component technology, computational complexity, computer architecture, computer graphics, computer security, concurrency and multi-core architectures, constraint programming, data communications and networks, data encoding, databases, distributed systems, human computer interaction, logic and software verification, operating systems, programming language design and implementation, video games.

In addition, there is an option to ‘dip up’ by taking Masters level classes.

Integrated Masters (five years)
The third and fourth years of the programme are as already described, except that you will not do a dissertation in the fourth year.

During your final year you will be able to take a number of courses at Masters level, providing advanced training in Computer Science. In previous years these have included: language and computation, software engineering practice, critical systems engineering, software architecture, human computer interaction principles and methods, interactive software and hardware, data-intensive systems, information visualisation and visual analytics.

You will also spend one semester of your final year dedicated to undertaking a major software engineering or research project, under the guidance of an individual supervisor.

Direct entry into second year
Well-qualified school leavers with prior programming experience may be able to apply for entry directly into the second year of these programmes.

You will take an accelerated version of one of the second year courses, which includes necessary background material from our first year courses.

Study abroad
Computer Science students participate in the University-wide St Andrews Abroad programme. Computer Science students are only able to study abroad for the full academic year. Semester placements are not available. For information about study abroad options, please see: www.st-andrews.ac.uk/study-abroad

Careers
A degree in Computer Science will allow you to enter into technical, academic, financial or commercial posts. Most companies and organisations are heavily invested in computer systems, and this has created a demand for many different specialisations in computer technology.

Graduates from Computer Science go on to find careers as business analysts, systems architects and analysts, software developers, testers and verifiers, technical writers, IT trainers and user advisers, and project managers.

Many of our graduates undertake further study, here or elsewhere. We offer a range of options including MSc, EngD and PhD level degrees.

“I chose to study Computer Science because it is both fun and challenging, every project we do is like having a huge puzzle to solve. The support we get is also great, from the research being carried out in the School to the hackathons, I can get any support I need for my studies. Our tutors are immensely helpful and the labs are fitted with cutting-edge technology.”

Markus (Hong Kong)