

# G400: Computer Science



Undergraduate BSc 2019

## Essentials

<b>UCAS code</b>	G400
<b>Degree</b>	BSc
<b>Professional accreditation</b>	Accredited by the British Computer Society, the Chartered Institute for IT for the purposes of fully meeting the academic requirement for registration as a Chartered IT Professional. Accredited by BCS, The Chartered Institute for IT on behalf of the Engineering Council for the purposes of partially meeting the academic requirement for a Chartered Engineer. Accredited by BCS, The Chartered Institute for IT on behalf of the Science Council for the purposes of partially meeting the academic requirement for registration as a Chartered Scientist. This programme is accredited by BCS, The Chartered Institute for IT for the award of Euro-Inf Bachelor Quality Label on behalf of EQANIE (European Quality Assurance Network for Informatics Education) as satisfying the outcomes of First Cycle Programmes specified by the Euro-Inf Framework Standards and Accreditation Criteria for Informatics Degree Programmes.
<b>Mode of study</b>	Full Time
<b>Duration</b>	3 years
<b>Location</b>	Durham City ( <a href="http://www.durham.ac.uk/study/location/durham.city">www.durham.ac.uk/study/location/durham.city</a> )
<b>A-Level</b>	A*AA
<b>BTEC</b>	D*DD
<b>International Baccalaureate</b>	38
<b>Alternative qualifications</b>	<ul style="list-style-type: none"> <li>• Other UK qualifications (<a href="http://www.dur.ac.uk/resources/undergraduate/UKequivalencies2017-18.pdf">www.dur.ac.uk/resources/undergraduate/UKequivalencies2017-18.pdf</a>)</li> <li>• EU qualifications (<a href="http://www.dur.ac.uk/resources/undergraduate/apply/EUequivalencies2017-18.pdf">www.dur.ac.uk/resources/undergraduate/apply/EUequivalencies2017-18.pdf</a>)</li> <li>• International qualifications (<a href="http://www.dur.ac.uk/international/country.information/">www.dur.ac.uk/international/country.information/</a>)</li> </ul>
<b>Contextual Offers</b>	You may be eligible for an offer which is one or two grades lower than our standard entry requirements. Find out more ( <a href="http://www.durham.ac.uk/study/ug/apply/contextualoffers/">www.durham.ac.uk/study/ug/apply/contextualoffers/</a> ).
<b>More information</b>	Still have questions? ( <a href="http://www.durham.ac.uk/study/askus/">www.durham.ac.uk/study/askus/</a> )
<b>Department(s) Website</b>	<a href="http://www.durham.ac.uk/computer.science">www.durham.ac.uk/computer.science</a>

## Course Summary

### Description

#### Year 1

You will undertake five computer science modules, which cover programming, the characteristics of computers and computing systems, and the mathematical foundations of the subject. You will also be introduced to the concept and philosophy of computational thinking and explore cutting-edge technological applications of recent research. All students undertake an elective module, which may be from elsewhere within the Department, Faculty or University. Students completing the first year will have had a thorough introduction to the fundamentals of computer science and to the principles, practices and methodologies that make computer science unique as a scientific subject. You will also have had a glimpse at aspects of computer science research that have enabled major technological advances in society.

#### Compulsory modules

- Programming
- Computational Thinking
- Algorithms and Data Structures
- Computer Systems
- Mathematics for Computer Science

#### Year 2

You will study six modules covering a core set of topics. One module Software Engineering (double module) involves a team software development project and enables you to usually work with external organisations and gain practical software development experience. Other compulsory topics include, for example, computer networks, parallel and distributed computing, concurrency, data structures, algorithms and complexity, image processing, different programming paradigms, systems programming, security, human-computer interaction, aspects of artificial intelligence, and computer graphics. The topics undertaken in the second year will prepare you with an excellent grounding in a wide range of fundamental subjects within computer science, ready for subsequent specialisation in your final third year. By the end of the second year, you should be in a position to make informed judgments as to which particular aspects of the subject you might wish to focus on.

#### Compulsory modules

- Networks and Systems
- Programming Paradigms
- Software Engineering
- Software Methodologies
- Theory of Computation

## Year 3

A key element of the third year is the individual project (which is a double module). This is undertaken under the direct supervision of a member of staff and gives you the opportunity to tackle a specific computing task in much greater depth than is possible for other modules. At the end of the project, you will write a technical paper describing your findings. You are given a considerable amount of choice as to the subject of your projects; indeed, you can suggest specific projects yourselves. In addition, you will get to choose the four other modules that you undertake in your final year.

A range of modules is offered (many reflecting current research interests of staff) for example, previous modules have included: theoretical computer science, software and software systems, computing methodologies, applications and contemporary computer science (with the latter topic engaging with modern research within computer science that is highly relevant to current technological advances and applications). There is also the opportunity to follow specific modules offered such as a module involving the teaching of computer science in schools, giving an early taste of teaching computer science to those interested in pursuing it as a career or on other career pathways where a public understanding of science is required.

We review course structures and core content (in light of e.g. external and student feedback) every year, and will publish finalised core requirements for 2019 entry from September 2018.

## Study Abroad

Computer Science is an international discipline and living and working in another country is a valuable addition to your CV. We are part of the SOCRATES/ERASMUS and University Exchange programme, which encourages you to study for part of your course in a university worldwide. You can request to transfer onto the BSc Computer Science (with Year Abroad (G408) programme at the beginning of your second year and will spend the third year studying at another EU or worldwide university, and then return to Durham for your final year.

Further information on these study abroad opportunities can be found at here ([www.dur.ac.uk/international/studyabroad/](http://www.dur.ac.uk/international/studyabroad/))

## Placement Year

You may be able to take a work placement. Find out more ([www.durham.ac.uk/placements/](http://www.durham.ac.uk/placements/)).

## Course Detail

To find out more about the modules available to students studying at Durham University please click here ([www.durham.ac.uk/resources/faculty.handbook/degrees/frameworks/g400.pdf](http://www.durham.ac.uk/resources/faculty.handbook/degrees/frameworks/g400.pdf)).

**Please note:** Current modules are indicative. Information for future academic years may change, for example, due to developments in the relevant academic field, or in light of student feedback.

## Admissions Process

### Subject requirements, level and grade

In addition to satisfying the University's general entry requirements, please note:

- Grade A in Mathematics at A level or equivalent is required
- Typical IB score 38 to include 766 in higher level subjects. Higher level grade 6 in Mathematics is required
- We accept BTEC qualifications minimum DDD but this MUST be accompanied by an A grade at A level Mathematics (or equivalent)
- We welcome applications from those with other qualifications equivalent to our standard entry requirements and from mature students with non-standard qualifications or who may have had a break in their study. For more information contact our Admissions Selectors
- If you do not satisfy our general entry requirements, the Foundation Centre offers multidisciplinary degrees to prepare you for a range of specified degree courses
- We do not include General Studies or Critical Thinking as part of our offer
- If you are an international student who does not meet the requirements for direct entry to this degree, you may be eligible to take an International Foundation Year pathway programme at the Durham University International Study Centre  
([www.durhamisc.com/?ch=uniweb&cc=signposting&cid=uniweb&utm\\_source=signposting&utm\\_medium=signposting&utm\\_campaign=uni](http://www.durhamisc.com/?ch=uniweb&cc=signposting&cid=uniweb&utm_source=signposting&utm_medium=signposting&utm_campaign=uni))
- We are pleased to consider applications for deferred entry.

### Science A levels

Applicants taking Science A levels that include a practical component will normally be required to take and pass this as a condition of entry. This applies only to applicants sitting A levels with an English examination board.

### English Language requirements

Please check requirements for your subject and level of study ([www.durham.ac.uk/learningandteaching.handbook/1/3/3/](http://www.durham.ac.uk/learningandteaching.handbook/1/3/3/))

### How to apply

[www.durham.ac.uk/undergraduate/apply](http://www.durham.ac.uk/undergraduate/apply)

### Information relevant to your country

[www.durham.ac.uk/international/country.information/](http://www.durham.ac.uk/international/country.information/)

## Fees and Funding

### Full Time Fees

<b>EU Student</b>	£9,250.00 per year
<b>Home Student</b>	£9,250.00 per year
<b>Island Student</b>	£9,250.00 per year
<b>International non-EU Student</b>	£24,300.00 per year

The tuition fees shown for **home and EU** students are for one complete academic year of full time study and are set according to the academic year of entry. Fees for subsequent years of your course may rise in line with an inflationary uplift as determined by the government.

The tuition fees shown for **overseas** students are for one complete academic year of full time study, are set according to the academic year of entry, and remain the same throughout the duration of the programme for that cohort (**unless otherwise stated**).

Please also check costs for colleges and accommodation ([www.durham.ac.uk/undergraduate/accommodation/costs/](http://www.durham.ac.uk/undergraduate/accommodation/costs/)).

### Scholarships and funding

[www.durham.ac.uk/undergraduate/finance](http://www.durham.ac.uk/undergraduate/finance)

## Career Opportunities

### Department of Computer Science



#### Of these students who graduated in 2017:

- **95%** are in paid employment or further study 6 months after graduation

#### Of those in employment:

- **100%** are in graduate level employment
- Median salary £27,000

(Source: Destinations of Leavers from Higher Education (DLHE) survey of 2016/17 graduates. The DLHE survey asks leavers from higher education what they are doing six months after graduation. Full definitions for the DLHE Record can be found here: [www.hesa.ac.uk/support/definitions/destinations](http://www.hesa.ac.uk/support/definitions/destinations))

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**Our graduates leave with excellent career prospects, demonstrated by our Graduate Prospect score for 2018 being 95%. With a variety of placement and development opportunities available during your time here, you are able to customise your experience and work with sought after companies.**

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## Professional accreditation

Both the BSc Computer Science Programme and the BSc Software Development for Business have been re-accredited by BCS, The Chartered Institute for IT ([www.bcs.org/](http://www.bcs.org/)) satisfying the educational requirement for Chartered IT Professional (CITP) and partial fulfilment of the educational requirement for the Chartered Scientist (CSci) and Chartered Engineer (CEng) registration.

Our MEng programme has also been accredited for satisfying the educational requirement for Chartered IT Professional (CITP) and in partial fulfilment of the educational requirement for the Chartered Scientist (CSci) registration.

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## Work experience & placements

A number of unique work placements are available to students during their time with us with a range of sought after companies - from BAE Systems Applied Intelligence ([www.baesystems.com/en/cybersecurity/home](http://www.baesystems.com/en/cybersecurity/home)) to Data Interchange ([www.datainterchange.com/us/Home](http://www.datainterchange.com/us/Home)) and Waterstons ([www.waterstons.com/](http://www.waterstons.com/)), who regularly recruit students.

Placements usually occur over the summer vacation, between second and third year, and third and fourth, although we are regularly approached by organisations requesting our students for projects year round. Summer 2017 sees out students holding summer internships in organisations such as: Adobe Research in San Francisco, Dell in Shanghai, Google in Dublin, TripAdvisor, Sky, Amazon, Ericsson, Microsoft, London Stock Exchange plus many others.

Some students choose to stay with us over the summer and become part of a research team. If this is your preference there are BP and Nuffield awards as well as college scholarships available for summer placements in the university to help support you. This provides you with a taste of what it is to conduct research full time, excellent preparation for your final year research project.

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## Employment development opportunities

The University's Careers, Employability and Enterprise Centre (CEEC) ([www.durham.ac.uk/careers/](http://www.durham.ac.uk/careers/)) works extremely closely with us to ensure that current students, and graduates, receive information and vacancies relevant to your needs.

CEEC also offer innovative talks to make sure you receive the most relevant and up to date advice about professions in the field of Computer Science.

Computer Science at Durham continues to work closely with the Department of Engineering, and the Industrial Partnership Committee (IPC) ([community.dur.ac.uk/ecs.ipc/](http://community.dur.ac.uk/ecs.ipc/)), which connects us to approximately 30 industrial partners from organisations with local, national and international footprints.

## **Open days and visits**

### **Pre-application open day**

Pre-application open days are the best way to discover all you need to know about Durham University. With representatives from all relevant academic and support service departments, and opportunities to explore college options, the open days provide our prospective undergraduates with the full experience of Durham University.

Please see the following page for further details and information on how to book a place:  
[www.durham.ac.uk/opendays](http://www.durham.ac.uk/opendays)

### **Discover Durham Tours**

Discover Durham tours offer a brief introduction to the University. The tour begins at one of our undergraduate colleges, where you will receive an introductory talk from a member of college staff, followed by a tour of the college by current students.

[www.durham.ac.uk/undergraduate/live/visit/discoverdurham](http://www.durham.ac.uk/undergraduate/live/visit/discoverdurham)

### **Overseas Visit Schedule**

[www.durham.ac.uk/international/office/meetus](http://www.durham.ac.uk/international/office/meetus)



## Department Information

### Department of Computer Science

#### Overview

Our graduates are empowered to lead this process of societal and technological change in the decades to come. Durham University offers Computer Science courses that are exciting, challenging and technologically relevant, covering topics from the foundations of how computers work and how to efficiently manipulate data, up to the state of the art, such as systems for image analysis, object tracking and DNA analysis or the mathematical exploration of the limits of computing.

There is continuing demand for high-quality Computer Science graduates, and our graduates embark on careers across a wide spectrum of companies around the world.

#### Rankings

- 96% of our Computer Science students said they were satisfied overall with their course in the *National Student Survey 2017* (sector-wide average 79%)
- 95% of our graduates leave with excellent career prospects *The Complete University Guide Graduate Prospect Score 2018*
- 4th in *The Complete University Guide 2018*.

#### Staff

For a current list of staff, please see the School's web pages ([www.dur.ac.uk/ecs/people/](http://www.dur.ac.uk/ecs/people/)).

#### Facilities

The Department has recently undergone a multi-million pound refurbishment of offices and PC labs which provide students with modern state-of-the-art computing facilities. There are study areas within the Department where students can use their own laptops or lab-based machines; both here and also within colleges, a laptop can be used to access the Department and University resources through the University-wide computing network.

#### Website

[www.durham.ac.uk/computer.science](http://www.durham.ac.uk/computer.science)

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