DEPARTMENT OF
**COMPUTER
SCIENCE**
UNDERGRADUATE STUDY

WARWICK
THE UNIVERSITY OF WARWICK

CONTENTS

Our Department of Computer Science offers a thriving community of excellence across the breadth of Computer Science: from the teaching you receive on your first day, to our cutting-edge research affecting the lives of people across the globe.

5TH **IN THE UK** FOR COMPUTER SCIENCE
(THE COMPLETE UNIVERSITY GUIDE 2025)

99% **OF RESEARCH** RATED WORLD-LEADING OR INTERNATIONALLY EXCELLENT
(2021 RESEARCH EXCELLENCE FRAMEWORK, THE MOST RECENT GOVERNMENT RESEARCH ASSESSMENT)

=4TH **IN THE UK** FOR COMPUTING RESEARCH
(2021 RESEARCH EXCELLENCE FRAMEWORK, THE MOST RECENT GOVERNMENT RESEARCH ASSESSMENT)

TYPICAL SALARY RANGE
£30,000
TO **47,000**

15 MONTHS AFTER GRADUATING
(DERIVED FROM UNIVERSITY OF WARWICK'S FULL-TIME DEPARTMENT OF COMPUTER SCIENCE GRADUATES DURING 2018-2020 IN DISCOVER UNI, SOURCE: GRADUATE OUTCOMES SURVEY)

**PROFESSOR
YULIA TIMOFEEVA**

Head of Department

Computer Science is a dynamic and rapidly evolving field that shapes the future of technology, industry, and society. It offers tools and techniques to solve complex problems, design advanced software, and create new ways of interacting with the world around us.

Welcome to our Department of Computer Science, a vibrant and friendly community where innovative research meets world-class education. Our department stands at the forefront of research and teaching excellence, consistently ranked highly in the Research Excellence Framework (REF), reflecting our commitment to advancing knowledge and driving innovation in the digital world. We have leading experts dedicated to exploring the limitless possibilities of computer science, from theory and foundations, artificial intelligence and data analytics to computer security and software development.

In addition to our main BSc (three years) or MEng (four years) Computer Science course, we offer a number of courses jointly developed and run with other top departments at Warwick: BSc/MEng Computer Systems Engineering course (with the School of Engineering), BSc/MEng Discrete Mathematics course (with Warwick Mathematics Institute) and BSc Computer Science with Business Studies course (with Warwick Business School). Our curriculum is designed to provide students with a solid foundation in theoretical principles while fostering practical skills and creativity.

We invite you to explore more about our department and educational offerings and consider shaping your future in the exciting world of computer science with our vibrant and inclusive community of academics and students.

DR CLAIRE ROCKS

Director of
Undergraduate Studies

The Warwick Department of Computer Science is a consistently top-ranked department, which is known for combining excellence in research with high quality teaching and learning. We have built up a reputation for being a friendly and supportive department that encourages students from a wide range of backgrounds to achieve their potential.

The landscape of our discipline is changing rapidly, and advances in Artificial Intelligence and Machine Learning are changing our lives and transforming other science disciplines. In response to this, we have recently been through a curriculum review to ensure we are delivering a rigorous and comprehensive education, preparing students for successful careers in academia, industry, and beyond. Through engaging lectures, hands-on labs, and small-group seminars, we focus on the theories, principles, and practical applications of computer science, providing the understanding required to adapt to change in a rapidly evolving industry.

Whether you're passionate about algorithms, software engineering or artificial intelligence, we pride ourselves on equipping students with the knowledge, skills and confidence required to make the best possible start in their careers and to have an impact in the wider world. This is why our students are sought after by premier graduate employers, including those in technology, engineering, financial services, and government.

Beyond the lecture room, the University offers a wealth of extracurricular activities. Whatever it is you have a passion for, I'm sure one of the various clubs, societies, and events on offer will be a hit.

WHY COMPUTER SCIENCE AT WARWICK?

FROM THE FIRST GENERATION TO THE FUTURE

Founded in 1967, we are one of the oldest and most established Computer Science departments in the UK. We are incredibly proud of our heritage in educating generations of computer scientists who have gone on to advance a science that now permeates every aspect of our society.

EQUIPPED FOR TECHNOLOGY PRESENT AND FUTURE

Our focus is on the principles and underpinnings of computer science, an understanding of which will give you the ability to adapt to change and new developments throughout your career. In short, while we teach using many of the latest technologies, our emphasis on fundamentals will prepare you to engage with new technologies emerging in the future. We believe this is crucial for our constantly evolving industry.

ACCESS THE TOOLS YOU NEED, WHENEVER YOU NEED THEM

The department provides 24/7 access to dedicated computing laboratories. Each of these is equipped with high specification workstations and comfortable spaces for group work and collaboration. This is in addition to specialised hardware and software for student projects.

TEACHING FROM THE CUTTING-EDGE

We are currently ranked fourth in the UK for computing research*, which means that you will be taught by staff who are leaders in their field through innovative teaching that draws on their research expertise.

GREAT MINDS THINK ALIKE

Our department attracts the brightest computing minds which means that you will have the chance to work alongside and collaborate with like-minded students and academics in a relaxed and friendly environment. Support is always at hand and we make every effort to ensure each of our students receives outstanding tuition and the opportunity to develop according to their own interests.

READY FOR THE WIDER WORLD

We pride ourselves on equipping students with the knowledge, skills and confidence required to make the best possible start in their careers and to have an impact in the wider world. This is precisely why our students are sought after by premier graduate employers, including those in technology, engineering, financial services and government.

*Research Excellence Framework 2021

OUR COURSES

Our degree courses attract highly qualified students and provide them with a theoretical foundation in established areas of their discipline, as well as the opportunity to apply what they learn to industrially relevant problems throughout their degree.

This combination enables students to pursue careers in a diversity of sectors, regardless of which of our courses they decide to study.

"The computer science course run by DCS is the best among UK universities. If you are looking for an interesting course with the best balance of practical and theoretical syllabi, class-leading staff and building facilities - look no further than Warwick's DCS."

Daniel
Computer Science BSc with
Intercalated Year student 2015-2019

COURSE STRUCTURE

The structure of our degrees is intended to allow students to tailor their studies to their own interests.

On all of our courses you will study a mix of core and optional modules in each year of your degree. Typically you will have fewer core modules and increasing freedom to choose from a broad range of optional modules as you progress through your studies.

As well as choosing options from the subjects you have chosen to study, for example Computer Science and Engineering or Maths, you will also have the opportunity to choose some options from other disciplines. This includes, for example, modules taught by Warwick Business School and the Departments of Philosophy and Modern Languages.

We find this degree structure ensures students get maximum enjoyment from their time at Warwick, and graduate with a unique knowledge and skill set which helps distinguish them as they enter the world of work or further study.

COMPUTER SCIENCE

BSc Computer Science
3 years | UCAS code: G400

MEng Computer Science
4 years | UCAS code: G403

Computer Science is an exciting and challenging discipline which covers a broad and continually growing range of fields, and is now seen in nearly every aspect of our everyday lives.

Whatever your knowledge of computing or programming, our course begins with the fundamental mathematical and scientific foundations of computer science, equipping you with the knowledge and understanding required to face any technological challenge.

Our course enables you to develop technical skills in areas such as software engineering, algorithm analysis, machine learning and system design, as well as giving you experience of project management, research and scientific methods. Working closely with industry leaders, you will have opportunities to develop industrially relevant subject knowledge and transferable skills, such as communication, teamwork and planning, which are highly valued by employers.

Many of these skills are further developed through the third year individual project, which students often find to be a highlight of their degree. You will bring together everything you have learned and apply it to a challenge of your choice under the supervision of world-leading academics.

If you follow the MEng course you will have the opportunity to broaden and deepen your understanding through the study of more advanced modules and through the application of this learning in a significant group project. The group project is also an opportunity to develop your research and teamwork skills in an environment similar to what you may experience as you progress to work or further study.

All applicants for our Computer Science course will be required to take the TMUA admissions test, except for applicants who are eligible for a Contextual Offer (please see below).

Typical offers:
A level: A*A*A to include A* in Mathematics
IB: 39 with 7,6,6 in three Higher Level subjects to include 7 in Higher Level Mathematics ('Analysis and Approaches' only)

We also give out lower contextual offers to some eligible UK based applicants, to find out more visit: **warwick.ac.uk/study/undergraduate/apply/contextual-offers**

Accreditation: This degree is accredited by BCS, The Chartered Institute for IT, fully meeting the educational requirement for Chartered Information Technology Practitioner (CITP) registration.

3 or 4 years?
Students are offered the flexibility to transfer between the BSc and MEng courses until the end of their second year, subject to academic performance. Therefore if you are unsure which degree path is right for you, pick either and you can change your mind later.
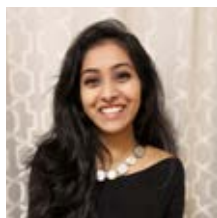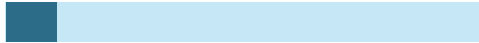
CORE COMPUTER SCIENCE

OPTIONAL MODULES

PROJECT WORK

"When I came to visit the campus I had the opportunity to meet the staff and other undergraduate students from the Department of Computer Science. Seeing their passion and enthusiasm for this degree convinced me this was the place to be and two and a half years in, I am feeling confident and loving my degree!"

Gowri
Computer Science MEng Graduate - 2021

CORE MODULES

YEAR 1
Programming for Computer Scientists
Design of Information Structures
Sets and Proofs
Computer Organisation and Architecture
Professional Skills
Logic and Automata

YEAR 2
Operating Systems and Computer Networks
Database Systems
Algorithms
Software Engineering
Linear Algebra and Calculus
Probability and Statistics

YEAR 3
Computer Science Project
Project Management for Computer Scientists
(MEng only)

YEAR 4 (MEng only)
Group Project

EXAMPLES OF OPTIONAL MODULES
Functional Programming; Computer Security;
Artificial Intelligence; Cyber Security; Web
Development Technologies; Data Analytics;
Machine Learning; Responsible Computing.

For more examples of Computer Science
modules see:
warwick.ac.uk/dcs/teaching/modules

COMPUTER SYSTEMS ENGINEERING

BEng Computer Systems Engineering
3 years | UCAS code: G406

MEng Computer Systems Engineering
4 years | UCAS code: G408

Typical offers:
A level: AAA to include A in Mathematics (BEng) or A*AA to include A in Mathematics (MEng)
IB: 36 points including 6 in Higher Level Mathematics ('Analysis and Approaches' only) (BEng) or 38 to include 6,6,6 in three Higher Level subjects including 6 in Higher Level Mathematics ('Analysis and Approaches' only) (MEng)

We also give out lower contextual offers to some eligible UK based applicants, to find out more visit: **warwick.ac.uk/study/undergraduate/apply/contextual-offers**

Computer Systems Engineering is a fully integrated degree taught jointly by the Department of Computer Science and the School of Engineering.

This degree focuses on the design of computer systems and their real-time applications, with an emphasis on special-purpose computing technologies including mobile devices and sensors, wireless networks, robotics and wearable technology.

You will receive a firm grounding in the principles of computer science, which is complemented by the knowledge and skills you will gain as an electronics engineer, with specific emphasis on digital electronics, low-power systems, communications, control, real-time operation, and intelligent systems.

This combined knowledge will give you the ability to apply state-of-the-art computer science methods

Accreditation: This degree is accredited by BCS, The Chartered Institute for IT, fully meeting the educational requirement for Chartered Information Technology Practitioner (CITP) registration.

3 or 4 years?
Students are offered the flexibility to transfer between the BEng and MEng courses until the end of their second year, subject to academic performance. Therefore if you are unsure which degree path is right for you, pick either and you can change your mind later.

in designing and building high-performance embedded systems.

In your third year you will undertake an individual project, where you will have the opportunity to apply your knowledge fundamentals of computer science and digital systems to a topic of your choice under the supervision of world-leading academics from Computer Science and Engineering.

If you follow the MEng course you will stay on for a fourth year to study more advanced material and participate in an interdisciplinary Engineering group project, which will help advance your research and development skills in a team environment closer to what you may experience as you progress to work or further study. In all years of your study, you can take optional modules from both departments to further strengthen your unique cross-disciplinary expertise.
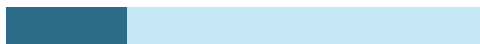
If you study the 3-year variant of this course you may choose to have your degree awarded as a BEng or a BSc.
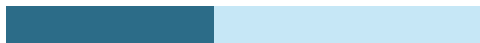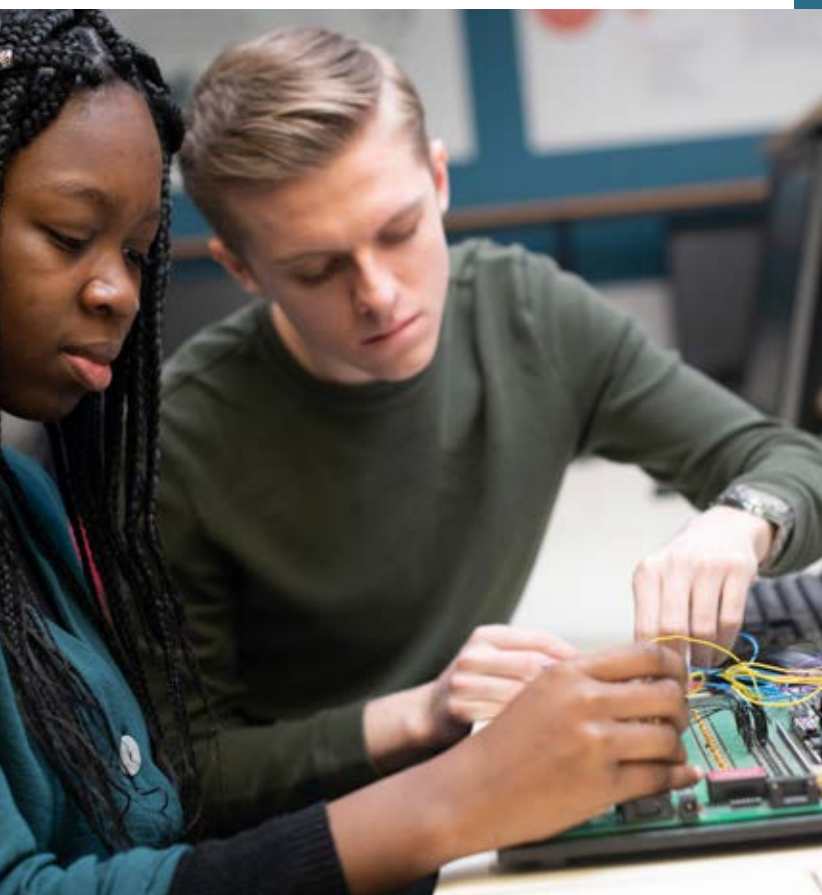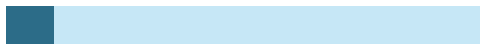
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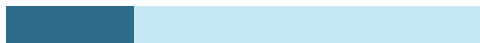
CORE ENGINEERING

OPTIONAL MODULES

PROJECT WORK

CORE MODULES

YEAR 1
Programming for Computer Scientists
Design of Information Structures
Computer Organisation and Architecture
Professional Skills
Electrical and Electronic Circuits
Engineering Mathematics
Systems Modelling, Simulation and Computation

YEAR 2
Operating Systems and Computer Networks
Advanced Computer Architecture
Software Engineering
Engineering Mathematics and Data Analytics
Analogue Electronic Design
Digital Systems Design

YEAR 3
Computer Systems Engineering Project
High Performance Embedded Systems Design
Project Management for Computer Scientists
(MEng only)

YEAR 4 (MEng only)
Group Project

EXAMPLES OF OPTIONAL MODULES
Computer Security; Engineering Design; Artificial
Intelligence; Signal Processing; Intelligent
System Design; Sensor Networks and Mobile
Data Communications; Fundamentals of Modern
VLSI Design; Automation and Robotics; High
Performance Computing; ASICS, MEMS and Smart
Devices; Biomedical Imaging and Medical Devices;
Quantum Computing.

For more examples of Computer Science
modules see:
warwick.ac.uk/dcs/teaching/modules

DISCRETE MATHEMATICS

BSc Discrete Mathematics
3 years | UCAS code: G190

MEng Discrete Mathematics
4 years | UCAS code: G4G3

Our Discrete Mathematics course combines the study of computer science and mathematics. It focuses on studying the mathematical structures which form the foundations of computing and its modern applications.

The course is taught jointly by the Department of Computer Science and the Warwick Mathematics Institute, both world-leading in their fields, making it the ideal choice for talented mathematicians with an interest in technology.

Our course is designed to allow you to develop your skills in both mathematics and computer science, covering areas such as software engineering, combinatorial analysis, formal proof and algorithmic analysis. However it is the combination of these skills, enabling students to both analyse and solve problems in an abstract sense and realise solutions through computer software, which makes graduates from this course highly employable.

Warwick is also home to the Centre for Discrete Mathematics and its Applications (DIMAP), a multidisciplinary research centre for discrete modelling, algorithmic analysis and combinatorial optimisation. This means you will be working alongside internationally renowned academics at the centre of the latest research breakthroughs.
In your third year you will work alongside academics on an individual project, where you will apply your skills to an area of your choice under the supervision of our world-leading academics. In your third and, if following the MEng, fourth years you will be exposed to cutting-edge research and focus on more advanced and exciting areas at the interface of computer science and mathematics.

All applicants for our Discrete Mathematics course will be required to take the TMUA admissions test, except for applicants who are eligible for a Contextual Offer (please see below).

Typical offers:
A Level: A*A*A to include A* in Mathematics
IB: 39 with 7,6,6 in three Higher Level subjects including 7 in Higher Level Mathematics ('Analysis and Approaches' only)

We also give out lower contextual offers to some eligible UK based applicants, to find out more visit: **warwick.ac.uk/study/undergraduate/apply/contextual-offers**
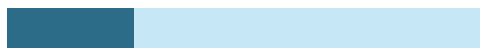
3 or 4 years?
Students are offered the flexibility to transfer between the BSc and MEng courses until the end of their second year, subject to academic performance. Therefore if you are unsure which degree path is right for you, pick either and you can change your mind later.
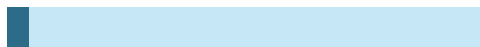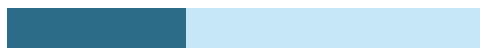
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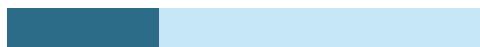
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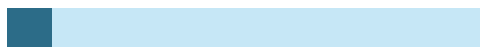
CORE STATISTICS

OPTIONAL MODULES

PROJECT WORK

"The most exciting module I took at Warwick was most certainly the Machine Learning module. This area of technology is growing quickly and I love how it's applicable to areas which mean a lot to me, such as healthcare and education. I now work as a Software Engineer at a fintech startup in London – an interest that was shaped by my whole experience of being a student in the Computer Science department at Warwick. The modules, the staff and my peers all contributed to my seeing the value of building useful products using code and subsequently pursuing this as a career."

Caleb
Discrete Mathematics with Intercalated
Year BSc student 2014-2018
Now Software Engineer

CORE MODULES

All students complete Refresher Mathematics before the start of term, a 0 credit module designed to reinforce your existing mathematical knowledge.

YEAR 1
Programming for Computer Scientists
Design of Information Structures
Introduction to Discrete Mathematics
Logic and Automata
Linear Algebra
Calculus 1
Calculus 2
Sets and Numbers
Introduction to Probability

YEAR 2
Combinatorics
Algorithmic Graph Theory
Algorithms
Introduction to Mathematical Statistics
Metric Spaces (MEng only)

YEAR 3
Discrete Mathematics Project
Complexity of Algorithms
Approximation and Randomised Algorithms
Combinatorics II (MEng only)

YEAR 4 (MEng only)
There are no core modules

EXAMPLES OF OPTIONAL MODULES
Professional Skills; Functional Programming; Computer Security; Artificial Intelligence; Data Analytics; Neural Computing; Computer Graphics; Groups and Rings; Combinatorial Optimisation; Introduction to Number Theory; Stochastic Processes; Matrix Analysis and Algorithms; Mathematics of Machine Learning.

For more examples of Computer Science modules see:
warwick.ac.uk/dcs/teaching/modules

DATA SCIENCE

BSc Data Science
3 years | UCAS code: 7G73
MSci Data Science
4 years | UCAS code: G304

Typical offers:
A Level: A*A*A to include A* in Mathematics and A* in Further Mathematics *or* A*AA to include A*A (in any order) in Mathematics and Further Mathematics and one of the following: 2 in STEP or 6.5 in TMUA *or* A*A*A*A to include A*A (in any order) in Mathematics and Further Mathematics. Where an applicant is unable to study A level Further Mathematics, they may be considered for the offer A*A*A* including Mathematics *or* the offer A*AA with A* in Mathematics plus grade 2 in any STEP/6.5 in TMUA.

IB: 39 overall to include 7 in Higher Level Mathematics 'Analysis and Approaches' *or* 38 overall to include 6 in Higher Level Mathematics 'Analysis and Approaches' and one of the following: 2 in STEP or 6.5 in TMUA *or* 38 overall to include 7 in Higher Level Mathematics 'Applications and Interpretations' and one of the following: 2 in STEP or 6.5 in TMUA.

We also give out lower contextual offers to some eligible UK-based applicants, to find out more visit: **warwick.ac.uk/study/undergraduate/apply/contextual-offers**

CORE MODULES

All students complete Refresher Mathematics before the start of term, a 0 credit module designed to reinforce your existing mathematical knowledge.

YEAR 1
Programming for Computer Scientists
Design of Information Structures
Mathematical Programming I
Vectors & Matrices
Calculus 1
Calculus 2
Sets and Numbers
Introduction to Statistical Modelling
Probability 1
Probability 2

Data Science is concerned with how we gain knowledge from the vast volumes of data generated daily in modern life, from social networks to scientific research and finance, and the sophisticated computing techniques required to do this.

Our Data Science degree, the first undergraduate degree of its kind in the UK, is delivered jointly by the Departments of Computer Science and Statistics, with some modules being taught by specialists from the Warwick Mathematics Institute.

This flexible course gives you opportunities to develop your computing, statistical and mathematical skills while solving real-world problems as you study the theory and processes behind large-scale data analysis and its applications.

You will develop expertise in specialist areas of machine learning, data analytics and algorithmic complexity, and acquire skills in analytical thinking, cross-disciplinary communication, and mathematical and statistical modelling. The unique skill set you will develop is hugely in-demand in both industry and research, and you will find yourself thoroughly prepared for the vast range of career opportunities that are consequently available to you.

YEAR 2

Database Systems
Algorithms
Software Engineering
Stochastic Processes
Mathematical Methods for Statistics &
Probability
Probability for Mathematical Statistics
Mathematical Statistics
Linear Statistical Modelling with R

FINAL YEARS

The third (final) year of the BSc allows you to
forge a strong curriculum through a selection
of more advanced modules in statistics and
computer science, such as machine learning
and Bayesian forecasting. It also includes a
Data Science Project, which is your opportunity
to showcase and expand your data-analytic
knowledge and skills. The third year of the MSci
also includes a module whose aim is to prepare
you for the statistical investigative cycle from
problem formulation to the communication
of conclusions. The fourth (final) year of MSci
offers a range of advanced modules from across
Data Science, and you also choose a Master's
level dissertation project from a wide selection
of topics.

EXAMPLES OF OPTIONAL MODULES

Artificial Intelligence; Games and Decisions;
Data Analytics; Neural Computing; Machine
Learning; Approximation and Randomised
Algorithms; Mobile Robotics; Computer
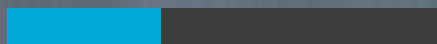Graphics; Professional Practice of Data
Analytics

For more information, please see:
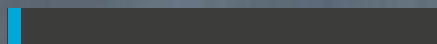**warwick.ac.uk/fac/sci/statistics/courses/datsci**

CORE COMPUTER SCIENCE
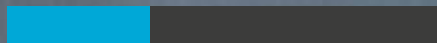
CORE STATISTICS
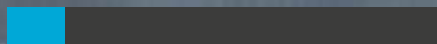
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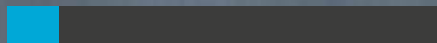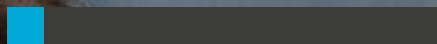
CORE BUSINESS

OPTIONAL MODULES

PROJECT WORK

COMPUTER SCIENCE WITH BUSINESS STUDIES

BSc Computer Science with Business Studies
3 years | UCAS code: GN42

All applicants for our Computer Science with Business Studies course will be required to take the TMUA admissions test, except for applicants who are eligible for a Contextual Offer (please see below).

Typical offers:
A Level: A*A*A to include A* in Mathematics
IB: 39 with 7,6,6 in three Higher Level subjects to include 7 in Higher Level Mathematics ('Analysis and Approaches' only)

We also give out lower contextual offers to some eligible UK based applicants, to find out more visit: **warwick.ac.uk/study/undergraduate/apply/contextual-offers**

Our Computer Science with Business Studies course is run jointly with the Warwick Business School (WBS), one of the leading business schools in Europe.

You will spend the first two years of your degree studying core modules in Computer Science, with additional optional modules selected from both computing and business topics. Following this, your third year will be spent studying in the Business School, where you will learn about business and management practices. As with our Computer Science course, no prior knowledge of computer science or programming is required.

Through studying the role of technology in the modern business environment, you will gain rigorous computer science and business expertise which can be applied to utilising technology to meet real-world business goals.

You will gain technical skills in software engineering and system design, as well as an understanding of how these impact organisations. Software engineering projects conducted throughout your degree are taught in conjunction with industry professionals and give you the opportunity to test your skills against real-world problems. Alongside a range of technical skills, you will have opportunities to develop business and industrial knowledge with relevant real-world skills, including those in communication, planning and management.

CORE COMPUTER SCIENCE

CORE BUSINESS

OPTIONAL MODULES
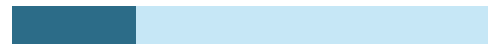
PROJECT WORK
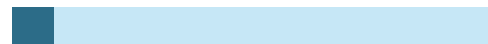
"The courses on offer at Warwick helped highlight the areas of computer science I found most interesting. The opportunity to take more modules at the start of a term to establish which courses were best suited and then retain the most interesting ones to me was very helpful."

Will
Computer Science
BSc student, 2014-17
Now Software Engineer
at The Hut Group

CORE MODULES

YEAR 1
Programming for Computer Scientists
Design of Information Structures
Sets and Proofs
Computer Organisation and Architecture
Professional Skills
Logic and Automata

YEAR 2
Operating Systems and Computer Networks
Database Systems
Algorithms
Software Engineering
Linear Algebra and Calculus
Probability and Statistics

YEAR 3
In third year you will select from an extensive list of WBS modules. Some may be linked to prerequisite modules.

EXAMPLES OF OPTIONAL MODULES
Functional Programming; Web Development Technologies; Computer Security; Advanced Computer Architecture; Artificial Intelligence; Foundational modules in Finance, Accounting, Entrepreneurship, Marketing and Management; Design Thinking for Digital Innovation; Improving Process Performance; Consumer Behaviour; International Business Strategy; The Practice of Operational Research.

For more examples of Computer Science modules see:
warwick.ac.uk/dcs/teaching/modules

APPROACHES TO LEARNING

All our degree programmes offer a level of flexibility so that you can tailor your degree to the subjects that interest you most, meaning our students' can have different experiences of teaching and learning during their time at Warwick.

Although each student's experience may differ, there are some elements of teaching and learning that all students are likely to experience at some point during their time in our department.

This page gives an overview of some of the opportunities and experiences, as well as the huge levels of support available to students on our courses.

If you are considering the Data Science degree, we advise visiting the Department of Statistics webpages for more information about teaching, learning and assessment on this degree programme.
warwick.ac.uk/statistics

"I've found that the staff in the department are friendly and willing to help with any problems you have, and it's great that every student has a personal tutor they can go to for advice. The facilities are also excellent and you almost always have access to a workstation no matter how late or early you are working!"

Cameron
Computer Science
BSc Graduate
- 2020

SUPPORT

As a department we are committed to offering each student a personalised experience and extensive support throughout their time at university.

On arrival at Warwick you will be allocated a dedicated Personal Tutor, an academic from within the department who you will be encouraged to meet with on a regular basis. Your personal tutor can offer support and guidance for all matters relating to your academic progress or personal wellbeing. Additional academic support is also offered by our teaching staff who have dedicated open office hours in which you can go to them should you have questions relating to any of the course content.

Our students often find their peers also provide a great source of support, encouragement and, of course, friendship throughout their degree, and we encourage students to work together on revising study materials. Our student Computing Society also offers academic and professional skills support through regular programming workshops, academic talks with industry professionals as well as hosting gaming and other social events. In addition, the university's Wellbeing Support Services provide

a range of support to help students develop useful skills and resources for navigating student life.

TEACHING

Our courses offer a balance of core material delivered through lectures, small-group seminars and hands-on laboratory sessions. Lectures are large group lessons in which an academic will speak for usually around an hour on a particular subject. Seminars offer an often complimentary smaller group session where you will have a chance to build on topics introduced in lectures, while laboratory sessions provide opportunities to apply your learning and develop your practical skills under the support of supervision staff.

Approximately a quarter of your time is spent in timetabled classes, with the remainder being used for private study, completing

assignments or projects, and practical work in the dedicated computing laboratories which are open 24/7.

ASSESSMENT

Your performance on most modules will be assessed by a combination of coursework and written examination. The coursework may be individual or group work involving programming, research, writing and/or presentations. Typically in the third and fourth years of some of our courses, depending on which degree path you follow, project work is fully assessed by a presentation and project reports.

Each year contributes to the final degree classification, typically in the ratio of 10:30:60 for a BSc degree and 10:20:35:35 for an integrated Master's degree, dependent on degree stream.

RESEARCH SPOTLIGHTS

Take a look at some of the exciting research our academics are working on to get an idea of the challenges and progress being made in the sector right now.

AI TOOL DEVELOPED TO HELP GRADE CANCER BASED ON CELL DIVISIONS

In numerous cancer types, counting the number of cells undergoing division, known as mitotic figures, serves as a key indicator of cancer aggressiveness, or grade. This information helps inform treatment pathways, making it a crucial asessment tool. Traditional mitosis counting is both time-consuming and plagued by poor reliability. To address this, scientists have developed a new tool, MitPro, which uses AI to count and profile mitosis.

Histofy, a spin-out company from The University of Warwick that is a leading developer of AI solutions for pathology, has engineered the tool to accurately profile mitosis throughout the entire tumour sample. This identifies the most suitable areas for further analysis.

The tool enhances the current standard of care for grading various cancers, such as breast cancer and sarcomas, by accurately identifying dividing cancer cells. In this context, an elevated count of dividing cells indicates a fast-growing or highly aggressive tumour.

Traditionally, pathologists perform this cell counting, but due to time constraints, it is limited to a small portion of the tumour. With the power of AI, MitPro can count these dividing cells more accurately and over the entire tumour, providing a better indication for the cancer grade and leading to enhanced patient care and management.

Professor David Snead, Chief Medical Officer at Histofy, and a Consultant Pathologist at the University Hospitals Coventry and Warwickshire (UHCW) said: "Despite its paramount importance, mitosis assessment can be laborious and suffers from reproducibility issues. We are thrilled to introduce MitPro, a solution that not only improves current practice, but also enables detailed profiling of cell proliferation across the entire tumour." Chief Technology Officer at Histofy, Simon Graham, Department of Computer Science at the University of Warwick, said: "AI holds tremendous potential in facilitating better cancer care. MitPro helps to improve current grading systems across a range of cancers by more accurately assessing the rate in which cancer cells are dividing."

LEARNING TO FORGET – A WEAPON IN THE ARSENAL AGAINST HARMFUL AI

Society is now abuzz with modern AI and its exceptional capabilities; we are constantly reminded of its potential benefits, across so many areas, permeating practically all facets of our lives – but also its dangers.

In an emerging field of research, scientists are highlighting an important weapon in our arsenal towards mitigating the risks of AI – 'machine unlearning'. They are helping to figure out new ways of making AI models known as Deep Neural Networks (DNNs) forget data which poses a risk to society.

The problem is re-training AI programmes to 'forget' data is a very expensive and arduous task. Modern DNNs such as those based on 'Large Language Models' (like ChatGPT, Gemini, etc.) require massive resources to be trained – and take weeks or months to do so. They also require tens of Gigawatt-hours of energy for every training programme, some research estimating as much energy to power thousands on households for one year.

Machine Unlearning is a burgeoning field of research that could remove troublesome data from DNNs quickly, cheaply and using less resources. The goal is to do so while continuing to ensure high accuracy. Computer Science experts at the University of Warwick, in collaboration with Google DeepMind, are at the forefront of this research.

Professor Peter Triantafillou, Department of Computer Science, University of Warwick, recently co-authored a publication 'Towards Unbounded Machine Unlearning'. He said: "DNNs are extremely complex structures, comprised of up to trillions of parameters. Often, we lack a solid understanding of exactly how and why they achieve their goals. Given their complexity, and the complexity and size of the datasets they are trained on, DNNs may be harmful to society.

DNNs may be harmful, for example, by being trained on data with biases – thus propagating negative stereotypes. The data might reflect existing prejudices, stereotypes and faulty societal assumptions – such as a bias that doctors are male, nurses female – or even racial prejudices.

DNNs might also contain data with 'erroneous annotations' – for example, the incorrect labelling of items, such as labelling an image as being a deep fake or not.

Alarmingly, DNNs may be trained on data which violates the privacy of individuals. This poses a huge challenge to mega-tech companies, with significant legislation in place (for example GDPR) which aims to safeguard the right to be forgotten – that is the right of any individual to request that their data be deleted from any dataset and AI programme.

Our recent research has derived a new 'machine unlearning' algorithm that ensures DNNs can forget dodgy data, without compromising overall AI performance. The algorithm can be introduced to the DNN, causing it to specifically forget the data we need it to, without having to re-train it entirely from scratch again. It's the only work that differentiated the needs, requirements, and metrics for success among the three different types of data needed to be forgotten: biases, erroneous annotations and issues of privacy.

Machine unlearning is an exciting field of research that can be an important tool towards mitigating the risks of AI.

STUDY ABROAD, INTERNSHIPS AND PLACEMENTS

We offer a variety of opportunities to students on all of our courses to enhance their degree with industrial experience or study abroad*.

Each of our degree courses has an 'intercalated year' option. This allows you to spend a sandwich year (between two years of your degree) studying abroad or working in industry, which will be reflected in your degree title. The intercalated year is taken between the 2nd and 3rd years of a 3-year degree course. In the case of a 4-year degree course, the year can be taken between 2nd and 3rd years or between the 3rd and 4th years.

STUDY ABROAD

Study abroad offers the opportunity to experience teaching and learning at another world-leading institution. The university has excellent relationships with a range of institutions around the world and offers a variety of opportunities which students may apply to if they wish. In addition to benefitting from a rich cultural experience, students returning from studying overseas exhibit an international profile that is attractive to potential employers. Furthermore, the department has an established exchange programme with the Hong Kong University of Science and Technology (HKUST), which students may apply for. If successful, students following a 4-year degree can choose whether to take the year as intercalated or as a replacement for the third year of their degree**.

INDUSTRIAL PLACEMENTS

We provide support for students wishing to spend a year in industry by promoting opportunities, hosting careers fairs and offering one-to-one sessions with our departmental careers advisor.

During your year in industry you will be supported by your personal tutor and our Industrial Liaison Team, and students working in the UK are visited by academic representatives to review their development during the year. Students who take a year-long industrial placement return with a deeper appreciation of the application of their discipline and often develop final-year project ideas based on their experience. Additionally, it is common for students to obtain an offer of a graduate role in their host company on completion of their degree.

Our students have spent successful internships at companies including Accenture, ARM, Bank of America, British Telecom, Cisco, Google, GSK, IBM, Intel, Microsoft, Reuters and Unilever.

Regardless of whether you decide to take an intercalated year, there are ample opportunities to gain real-world experience through shorter internships which the department promotes and offers support with. These programmes usually take place during the summer vacation, allowing you to apply your knowledge and skills in an industrial setting.

*Subject to visa regulations and availability at partner institutions. Study abroad opportunities are awarded selectively.
**Data Science students are unable to study at HKUST as a replacement for the third year of their degree.

CAREERS

Our graduates are highly sought after by premier graduate employers, who appreciate the rigour and industrial relevance of our degree courses.

This means that our students have a great deal of freedom in deciding on their career path, with the majority having a host of exciting options open to them on graduation. Sectors popular with our students include software engineering, technical consultancy and financial services.

We work closely with the university's Student Opportunity service to offer guidance and support on graduate employment, including application reviews, interview preparation and one-to-one advice. We also have a dedicated departmental careers advisor. In addition to the University's careers fairs, our students benefit from departmental careers events including our annual flagship "Computing Your Career", where we host multi-national organisations with whom we have long-standing partnerships.

"The core computer science fundamentals that I was taught in the first and second year were crucial to my success during my placement. In particular the focus on teaching adaptability as my internship required very quickly picking up unseen projects, languages and solutions, working with them to deliver to a deadline and move on."

Eliot
Computer Science MEng student
with Intercalated Year as an IoT Technical
Sales Specialist at Intel Corporation

95%
GRADUATES IN GRADUATE EMPLOYMENT/FURTHER STUDY WITHIN 15 MONTHS OF GRADUATION
(THE GUARDIAN UNIVERSITY LEAGUE TABLE 2024 FOR COMPUTER SCIENCE AND INFORMATION SYSTEMS)

6TH
MOST TARGETED UNIVERSITY
BY UK'S TOP EMPLOYERS
(THE GRADUATE MARKET 2024, HIGH FLIERS RESEARCH LTD)

WIDENING PARTICIPATION

We are committed to supporting students from diverse and under-represented backgrounds to study at Warwick and make the most of their university experience. We do this in a range of ways, including through our contextual admissions policy which is designed to ensure fairness in our admissions processes by taking into consideration widening participation (WP) indicators related to socio-economic and educational disadvantage.

Once at Warwick, we offer students from WP backgrounds the opportunity to access financial support, work experience, internships, and meet like-minded people through the WP Student Network, and the Warwick Scholars Programme.

To find out more, please visit:

warwick.ac.uk/study/
outreach/whatweoffer/
undergraduateactivities/

FUNDING OPPORTUNITIES & SCHOLARSHIPS

The university offers scholarships and funding opportunities to students from various backgrounds. A scholarship is a prestigious award designed to support you in your academic pursuits. These awards provide a unique way for recipients to advance their education while having some of the means provided for by the scholarship. Our scholarships aim to empower students to reach their full potential in their academic study of Computer Science and beyond.

To find out more, please visit:

warwick.ac.uk/fac/sci/dcs/admissions/undergraduate/funding-opportunities/

PARENTS AND SUPPORTERS

SUPPORTING YOUR CHILD AT WARWICK

We understand that the wellbeing of your child is extremely important to any parent, and coming to university can be a big adjustment, both for your child and for you. At the University of Warwick, we fully understand this and are committed to providing a supportive, positive, and safe environment for all.

Sometimes students can encounter personal difficulties, but the University has a number of specialist support services to aid students through challenging times and enable them to fulfil their potential.

WELLBEING

Wellbeing Support Services help your child develop the personal resources and skills to navigate student life. We provide a range of support including both practical and emotional support for students' wellbeing and helping them access other services from self-help resources to email counselling and therapy groups.

For 24/7 support, students can use their student emails to access 'Togetherall' which is an online platform offering digital mental health services from the help of trained clinicians and a community of peers. Whether they feel stressed, lonely, or just not themselves, this platform provides your children with a safe space to share their experiences and thoughts anonymously.

ACCOMMODATION AND LIVING SUPPORT

When your child lives on campus during their first year, our Residential Community Team will live alongside them the whole way. They will be there to chat to or help them adjust to living away from home and getting the balance right between social and academic life. Our team is there to support them as they manage the "everyday life" stuff. We are happy to help with a range of different concerns, such as accessing wellbeing support, flatmate conflicts, general stress, anxiety, and homesickness to name a few.

SAFETY

The Community Safety department is a team of individuals dedicated to protecting the safety and security of everyone who lives, works and studies at the University. They have an on-Campus presence 24 hours a day, 365 days a year to provide pastoral support to everyone within our community. They also offer useful advice on how to stay safe both on and off campus. You can rest assured that your child will be safe with us at the University of Warwick.

ACADEMIC SUPPORT

Students will have a personal tutor within their academic department who will provide regular support and advice, whilst being available for regular catch-ups to discuss their progress and any questions they may have. They can offer students tips on course topics, academic writing support and can give personal support to a degree, but for more personal issues, our Wellbeing Support Services are available to help.

WHAT YOU CAN DO TO SUPPORT YOUR CHILD AT UNIVERSITY

Especially when students start at University, the adjustment process can take time. Experience shows us that one of the biggest concerns for new undergraduate students is making friends. A degree of anxiety is a normal part of life, particularly when faced with new situations.

Whilst they may feel like they are in the minority, we can assure you, they are not. Most students will adjust within a number of weeks, but if your child is still struggling, please encourage them not to come home as this may be worse for them. Instead encourage them to find support at Warwick, which they can get through our Wellbeing Support Services team and on our online Wellbeing Portal. Remind them to also take care of themselves as having a healthy sleep, diet and exercise routine is really key for an all-round positive student experience.

View more student support advice for parents and guardians:
warwick.ac.uk/services/wss/parents

RUTH

Computer Science MEng student
2010-2014
Now Senior Site Reliability Engineer
(SRE) at Google

My job is to run really large distributed systems that are fast and reliable. Emergency response and mitigation is a critical part, but most of the time we work on "projects". Projects include things like writing automation, for example for releases or capacity management, writing monitoring systems, consulting with developers on launches or designs, or changing some part of the system itself, for example the load balancing algorithm. I currently work in London on Google Cloud Compute Engine and have previously worked on Google Calendar and security and privacy infrastructure.

Whilst at Warwick I interned at Google twice, the first as a developer in London and the second time as an SRE in Zurich. I really enjoyed the second internship so decided to come back full time as an SRE. I find distributed systems very interesting and have a lot of fun thinking of ways in which something could break, but I also enjoy the diverse kinds of work we do.

The official goal of my job is "to automate myself out of the job". I really like this goal and also hold it personally as something I would like to accomplish - it's about never having to do repetitious work anymore, and getting the system to run and fix itself.

My favourite module at Warwick was Neural Computing. At a first glance it doesn't seem directly relevant to my job, but I think it is - Neural Computing was about studying how brains function and ways of artificially mimicking this. Distributed systems can go wrong in so many ways, and often have such unexpected side effects that diagnosing a problem requires similar skills. Neural Computing inspired me to investigate problems logically and with an open mind.

HAMISH

Computer Science BSc student
2014-2017, Computer Science
MSc student 2017-18
Now Big Data Developer at Barclays

I am mostly doing platform engineering of the data science and surrounding platforms my team have created and own within Barclays. There is a bit of data analytics and science mixed in where feasible to allow for me to understand the structure of the bank's data, where and how it is stored.

I gained several skills from my time studying Computer Science at Warwick including how to network, how to be more social, improved organisation and time management and most of my coding ability and knowledge that I utilise now. All of this, alongside my own motivation, self-taught skills and work with start-ups and as a web development contractor have helped me get to where I am today.

There were some really interesting modules that I got to choose from during my time at Warwick, and the content is updated according to the current technology, so it feels like you are ready to help advance fields of research by the time you get to your dissertation. I particularly liked the first year Web Development module as it allowed me to start working towards becoming a web development contractor whilst continuing to study my degree in later years. I did much of this work for The Boar, the student newspaper, and was actually able to open a company with a few friends doing web development which allowed us to earn some money while still at university.

Looking forward I am hoping that my own start-up business will become a success. In my job I would like to understand more about distributed systems and how our current internal platforms fully work so that in future I can help others gain a similar knowledge and feel empowered to take on any job and any role regardless of their background.

DANIELLE

Data Science BSc student
2014-2017
Now Software Engineer
at Accenture

I develop software for Accenture and their clients depending on which project I'm on. Currently, I'm specialising in writing Python code for a Cloud Platform solution taking advantage of AWS technologies.

My degree definitely helped me get offers for interviews and assessment centres because it offers a unique experience. I can also proudly say that I'm the first ever female in the UK to have an undergraduate degree in Data Science! The feeling I had when I found out I had passed my degree and got a job offer, it was incomparable, it's one of the proudest moments of my life.

I am now motivated by many different things, I work with some incredible people and they have taught me so much since university and I think it's the fact that I can work with these people that motivates me from day to day.

I've also discovered I have an eye for the creative side, and as such I have created several bespoke websites for my friends and family because I have a growing passion for front-end development. Personal goals I have in my job are to be able to curate a portfolio of my creative achievements, I've found I'm really empowered through UI/UX (User-Interface/User-Experience) design, because not only should it make sense (there's a whole science behind it), it should be beautiful too.

In fact, it was the Social Informatics module that I took at Warwick, which looks at the science behind HCI (Human Computer Interaction) and includes a project task to design a working online shop-front, that was probably one of the biggest influences that piqued my interest in front-end design.

CHARLIE

Computer Science BSc
student 2012-2015
Now Deployment Strategist
at Palantir Technologies

By focusing on the principles and underpinnings of computer science, my time at Warwick helped to equip me with the ability to continuously adapt to new developments throughout my career. The emphasis on fundamentals prepared me to engage with any technology, and not just what was relevant during my studies. Most notably, the group software engineering project undertaken with an international industrial partner was particularly good at giving an insight into how theoretical concepts taught throughout the course can be applied in a real-world software engineering environment.

I now work as a Deployment Strategist, working directly with customers to deliver value from their data, and ensure they're using our products as effectively as possible to solve problems. I'm focused on helping to create the best user experience for our customers to work with data, enabling them to answer complex questions without requiring them to master querying languages, statistical modelling, or the command line.

I always knew that I wanted to work closely with customers, in a role where I can see the direct output of my work. Through undertaking summer internships and having a strong focus on technical fundamentals in my degree, I was able to find the right role for me.

My advice to anybody starting out at Warwick would be to, alongside expanding your technical abilities, make sure you take all of the opportunities that are thrown at you to help develop industrially relevant subject knowledge and transferable skills, such as teamwork, communication, and planning.

HOW TO APPLY

Everything you need to know about applying to Warwick is on our web pages. There is up-to-date information about:

- How to apply
- Writing your personal statement
- Key dates and deadlines
- How we process your application
- After you've applied

If you are made and accept an offer, and meet any outstanding conditions, we will confirm your place and look forward to warmly welcoming you at the start of your life here at Warwick.

OVERSEAS APPLICANTS

At Warwick, we welcome applications from across the globe, and have dedicated teams available to advise and support, as well as a global network of Agents and Representatives.

CONTEXTUAL OFFERS

We're committed to supporting students from diverse and under-represented backgrounds. We do this in a variety of ways, including through our contextual admissions policy which is designed to ensure fairness in our admissions processes.

FEES AND FUNDING

We want to ensure that, wherever possible, financial circumstances do not become a barrier to studying at Warwick. We provide extra financial support for qualifying students from lower income families.

ACCOMMODATION

We manage approximately 7,500 self-catered rooms on campus for different budgets and requirements. Living on campus in your first year gives you the opportunity to meet people and form friendships whilst never being more than a short distance from your lectures or our amazing campus facilities. At Warwick, you'll enjoy the freedom of independent living with the security of knowing you're surrounded by people who can support you.

CHAT TO OUR STUDENTS ON UNIBUDDY

If you have questions about living and studying at Warwick, speak to our current students to get answers on:

- Campus life
- Accommodation
- Study support, wellbeing and more

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