Cardiff School of Computer Science & Informatics

Undergraduate Degree Programmes

Entry 2015

www.cs.cardiff.ac.uk
“One of the best institutions in Britain . . . this powerhouse of academic and research excellence boasts one of the best graduate employment rates in Britain. Students don’t just get any old job either - most secure degree level posts with decent starting salaries.”

Sunday Times University Guide 2013
Insider Information - Find out more ...

Want to know what life at Cardiff is really like? Our Insiders are real students studying a range of subjects. You can read their blogs, post comments, ask questions and message them on Facebook and Twitter.

To find out more: www.cardiff.ac.uk/thrive
Discover the Cardiff Experience

**A leading university . . .**

- You’ll be part of a Russell Group university - one of the UK’s world-class universities with global recognition.
- You can choose from more than 300 degree programmes. The Cardiff University degree is known and respected worldwide, with a substantial number accredited by the professions and other external bodies.
- You’ll benefit from outstanding teaching in a research-led environment.
- Staff include a Nobel Laureate and numerous Fellows of the Royal Society.

**in an outstanding city . . .**

- You’ll live in a friendly, compact and safe city, with all of your study, living and leisure needs within walking distance.
- Your money will go further at Cardiff with capital city attractions at affordable prices - including one of the lowest rates of all university cities for student accommodation.¹

**with able and motivated students . . .**

- You’ll be at a first choice university where demand for places is strong.
- You’ll be studying in an environment with other able and motivated students who have high grades at A-level or equivalent.
- You’ll be at an international university with students from more than 100 countries.

**who have excellent career prospects.**

- You can be confident of your future - in 2011/12, 93.7% of our students were employed or had entered further study within six months of completing their studies.²
- You’ll be in demand - Cardiff is among the top 25 universities targeted by employers seeking high calibre graduates.³

Notes
1. Moneysupermarket.com
The true cost of going to university 2012
2. HESA Destination of Leavers Survey 2012
3. High Fliers Research
The Graduate Market 2013
Welcome

The Cardiff School of Computer Science & Informatics offers a range of flexible and diverse degree programmes to suit the different expectations and aspirations of today’s students.

Based in Europe’s youngest capital city, we are blessed with a great location and excellent facilities for you to reach your full potential. Indeed, our students consistently vote us among the top three in the UK for learning resources and environment and we are seeing increasing international interest from students overseas wishing to join the School.

Now more than ever the prospects for employment post studying Computer Science and Information Systems remain very strong indeed. Across our BSc programmes, we offer the opportunity to study with a placement which allows students the opportunity to gain valued experience in paid employment. We are proud of our employability record and have recently seen our graduates move on to some of the major UK recruiters - you are welcome to check out what our alumni are doing on LinkedIn.

Alongside this our staff are technologists and computer scientists, being leaders in areas of their expertise and keen to share their skills, knowledge and understanding. Much of the research that our School undertakes is internationally leading and part of our mission is to share the excitement of discovery and the state of the art with our students.

If you want to learn more about life in our School, please feel free to join us on Facebook and Twitter. It would be a pleasure to see you in Cardiff, and on behalf of all staff here at the School of Computer Science & Informatics, may I wish you the best of luck with your future studies.

Professor Stephen Hurley
Head of School

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This brochure will provide you with more details of our programmes. We hope that they will give you more than just a flavour of what we have to offer you. However, we are always ready to answer any questions you may have, by telephone or email, or when you come to Cardiff to visit. You will find appropriate contacts at the end of this brochure.

Important information. Please read carefully.

The University offers the information contained in this brochure as a guide only. It does not constitute a contract and is not binding on prospective students, current students or the University. While the University makes every effort to check the accuracy of the factual content at the time of publication, some changes will inevitably occur in the interval between publication and the academic year to which the brochure relates (Entry 2015). For example, degree programmes may have changed in line with market and student demand, and research development. Applicants should not, therefore, rely solely on this brochure and should visit the website for up-to-date information concerning course content, accreditation, and entry requirements for the relevant academic year when considering applying to the University.

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@csicardiff
linkedin.com/groups/Cardiff-School-Computer-Science-Informatics

XXXXXXXXXXXXXXX
Cardiff: A capital city

“Cardiff is a popular student city, relatively inexpensive and with a good range of nightlife and cultural venues.”

*Times Good University Guide 2014*
Cardiff is a thriving and attractive city which is widely recognised as an outstanding place in which to live and study. It combines all the advantages of a compact, friendly and inexpensive location with the cultural and recreational facilities of a modern capital city.

Cardiff offers everything from the excitement of the city to the peace and tranquillity of the nearby coast and countryside. With its distinctive character, good quality of life, and growing national and international reputation, it hosts many high-profile cultural and sporting events, including international rugby, soccer, cricket and motor sport.

When it comes to entertainment, Cardiff is well-equipped to satisfy student needs. There is a multitude of cafes, pubs and nightclubs. The City is home to the world-renowned Welsh National Opera, it boasts prestigious concert venues such as the Wales Millennium Centre, St David’s Hall and the Motorpoint Arena, as well as the iconic Millennium Stadium, the National Museum and Gallery of Wales, several theatres and the historic Cardiff Castle.

Cardiff is the location for award-winning television productions, including Dr Who, Sherlock, Torchwood and Casualty, and the Dr Who Experience in Cardiff Bay is a popular new attraction.

The city is one of the UK’s best shopping destinations, a status enhanced by the opening of the £750 million St David’s Dewi Sant retail centre standing alongside pedestrianised shopping streets, indoor and outdoor markets, and a fascinating network of glass-canopied Victorian and Edwardian arcades.

Cardiff also has more urban green space than any other UK city, and offers easy access to the countryside, coast and mountains.

Lively, elegant, confident, cosmopolitan and ambitious are all words readily used to describe modern-day Cardiff. Together, the city and the University provide students with the ‘Cardiff Experience’, a lifestyle our students remember long after graduation.

Come and see for yourself...
Cardiff benefits from excellent road and rail links with Britain’s other major towns and cities. London, for example, is two hours by train, and the M4 links both the west and south of England, as well as west Wales. Travel to the Midlands and to the North is equally convenient. The journey by road from Birmingham, for example, takes only two hours. The main coach and railway stations are both centrally placed, and Cardiff also benefits from an international airport.

Don’t just take our word for it...
“Modern Cardiff combines the best of the old and the new... it has a relatively small population and is fairly inexpensive to live in. Close to the campus, the city centre has an array of shops and entertainment options to cater to all tastes and budgets.”
The Telegraph Guide to UK Universities 2012
Cardiff: A leading university

“Cardiff University is one of Britain’s leading teaching and research universities.”

Telegraph Guide to UK Universities 2014
Cardiff University has an international reputation for excellence in teaching and research, built on a history of service and achievement since 1883, and recognised by our membership of the Russell Group of leading research-led universities.

With attractive and compact campuses, excellent student accommodation, and a hugely popular Students’ Union, all within easy walking distance of each other in a thriving city, it is not surprising that Cardiff is a university of first choice among well-prepared applicants.

We admit approximately 5,000 undergraduate entrants each year, the majority of whom are school and college leavers, and have high grades at A-level or equivalent. While competition for entry is strong, Cardiff is an inclusive university with a good record on widening participation and fair access, and we welcome applications, irrespective of background, from everyone with the potential to succeed at Cardiff University.

The University’s Cathays Park campus is located in and around the impressive Portland stone buildings, parks and wide tree-lined avenues that form Cardiff’s attractive civic centre. The majority of academic schools are located here - just a few minutes’ walk from the city centre. The three academic schools offering healthcare courses (excluding Optometry and Pharmacy) are based at the Heath Park campus, approximately one mile away, which is also home to the University Hospital of Wales.

Although dating from 1883, Cardiff is focused on the 21st century, and has modern state-of-the-art buildings and facilities. The University has invested substantially in its estate in recent years and most academic schools have benefited from major refurbishment, including new and well-equipped laboratories, lecture theatres, libraries and computing facilities.

International opportunities are available via our Global Opportunity Centre. These include study, work and volunteering placements in 27 EU countries as well as international exchange opportunities. All students also have the opportunity to study a language in addition to their degree through the University’s Languages For All programme.

The University takes its environmental, safety and security responsibilities very seriously. It has comprehensive policies in place which are making great savings in energy consumption and, to support the safety and security of all members of the University community and their property, there is 24-hour security cover throughout the campus.

What the Guides say

“[Cardiff] University is the acknowledged leader of higher education in Wales. It is the Principality’s only member of the Russell Group of research-led universities and has two Nobel Laureates on its staff. It is our 2014 Best Welsh University.”

Times Good University Guide 2014

“The University is as confident and forward-looking as the city it’s located in, and has an excellent reputation for the quality of its teaching and research. Almost 60% of its research is ranked as world leading and it is a member of the Russell Group of leading universities.”

Guardian University Guide 2013
Living in Cardiff

As a fast developing capital city, Cardiff is a great place to be a student. It’s large enough to offer you an exciting variety of activities and entertainment, but small enough for you to feel comfortable in.

Accommodation

Cardiff offers guaranteed University accommodation, good quality and value, and a range of residences to suit individual preferences and budgets.

All first year undergraduates who apply during the normal UCAS admissions cycle (i.e. come to Cardiff as a firm or insurance applicant) are guaranteed a single occupancy place in University residences during the first year of study. Please see our website for full details: www.cardiff.ac.uk/residences

The University is continually investing in its student residences, and the views of students are taken into account at the design stage. Unusually for a civic university, most of our residences are within easy walking distance of lecture theatres, libraries, laboratories, the Students’ Union and city centre.

There are 14 different residences, providing more than 5,300 study bedrooms and students can apply for the residences which best suit their preferences, interests and budgets. Some 70% have en-suite shower and toilet facilities and all halls of residence have computer network connection points and access to Wi-Fi.

Fees depend on the facilities included and whether catered, part-catered or self-catered, but prices compare very favourably with those of other UK universities. Besides managing University property, the Residences Office maintains close links with the private sector and provides assistance to students seeking to rent or share houses or flats.

Student Life

The Students’ Union

Cardiff Students’ Union is one of the biggest, best and most active in Britain. Solus, the Great Hall and the Taf Bar are among the Union’s major attractions. Solus is the students’ own high quality nightclub, and is one of the largest in Wales. The Great Hall is a 1,500 capacity venue for major concerts and the Taf Bar is the Union’s very own ‘local’.

Other facilities include The Kitchen, CF10 café, a bank, a print shop, a hair salon and a bookshop. The Lounge offers IT and Skyping facilities, meeting rooms and a “chillout” area, as well as snooker tables and multi-faith prayer room. The Union also has its own letting agency and an Advice and Representation centre. In addition, it is home to CU TV and Xpress Radio (the students’ own TV and radio stations) and more than 200 cultural, political, religious, social and sporting societies.

Jobshop

Jobshop is the Union’s own student employment service and provides casual, clerical and catering jobs around the University to hundreds of students.
Living in Cardiff

More online at:
www.cardiff.ac.uk
www.cardiff.ac.uk/residences
www.cardiffstudents.com
www.cardiff.ac.uk/thrive

Students have access to a wide range of modern facilities, including Skype booths

What the Guides say

“A place in one of the University’s 5,300 single study bedrooms is guaranteed to all first year undergraduates applying through the normal UCAS admissions cycle.”
Guardian University Guide 2014

“The cost of living for a student in Cardiff is generally lower than elsewhere in the UK.”
The Independent A-Z University Guide 2014

“The Union offers an exciting entertainment programme, a comprehensive range of student support services and 150 clubs and societies.”
The Complete University Guide 2014

How to find the School

The Cardiff School of Computer Science & Informatics is located in the multi-million pound Queen’s Buildings complex in the centre of Cardiff, meaning we are right next to the city’s best shops, pubs, cinemas and other amenities. The site is also very close and easily accessed from the University halls of residence and the Student’ Union. We are housed in the same complex as the Cardiff School of Engineering and the Cardiff School of Physics and Astronomy.
The exciting and dynamic fields of Computer Science and Informatics underpin many aspects of modern life. Our stimulating and cutting-edge degree programmes will give you a real advantage in the job market, with a qualification highly regarded by employers and allow you to position yourself to take full advantage of future technological developments.

Teaching, Learning and Assessment
You will be taught through a combination of lectures and lab-based practical sessions for relevant modules, including programming. Further support mechanisms are used to help digest material such as example classes, tutorials and help sessions, amounting to a total of approximately 25 formal contact hours a week during year 1. Although the delivery mechanisms in years 2 and 3 mirror that of year 1, there are fewer formal contact hours at these latter stages in the programme as the skills and insights needed to take control of your own learning experience have been acquired.

Teaching is organised in modules, split over two semesters (Autumn: 14 weeks, Spring: 17 weeks); in each there are 11 teaching weeks, followed by weeks dedicated to revision, projects and exams.

Your progress in each module will be assessed during and/or at the end of the semester in which it is taught. All modules include assessments, which are intended to assist your understanding and to provide you and your allocated tutors a means of assessing your progress. Methods of final assessment vary from written examinations and assessed coursework, to a combination of both.

Friendly Staff and Support
At the start of the course you are allocated a personal tutor, who is an academic member of staff in the School and serves as a point of contact to advise on both academic and personal matters in an informal and confidential manner.

Your personal tutor will monitor your academic progress and will also supply references in support of any job applications that you make.

You will see your personal tutor at least every two weeks during your first year of study. During years 2 and 3 a reduced schedule of contact sessions is used, taking account of the increasing academic demands on you as you progress. Outside of scheduled tutor sessions, senior personal tutors run an open door policy, being on hand to advise and respond to any personal matters as they arise.

As a School, we pride ourselves on providing a supportive environment through which we are able to support our students with the majority of personal problems that arise. However, as in life, there are things that can crop up that require more specialist help.

The university provides a range of specialist services, all free of charge, that students can be referred to if needed. These encompass advice services covering health, careers, finances, counselling and personal development, to name a few.
Student Feedback Mechanisms
We believe that providing suitable feedback mechanisms is crucial to ensure that the best programmes of study are available to our students. The School has a student/staff panel consisting of members of teaching staff and elected student representatives who meet to discuss academic issues. Any issues that you feel need attention can be highlighted to your student representative, who will raise the query with the panel.

In conjunction with the work of the panel, all students are provided with an opportunity to complete feedback questionnaires at the end of the Autumn and Spring semesters. These mechanisms allow the School to constantly review courses and our students to receive best provision, delivered in a consistent manner, across all of our degree programmes.

Library Facilities
The School library is conveniently located in the Trevithick building, within the same complex as the School itself. Students can borrow up to 15 books at any one time, with a standard loan period of up to three weeks. Heavily demanded books, such as recommended texts, can usually only be borrowed for shorter periods of time. Some books can also be accessed electronically.

The library staff are on hand to offer specialist assistance and provide workshop training in information searching and literature research. The Trevithick Library also contains a PC room, 24 open access computers, self service issue/return, 24 hour book return and bookable group study rooms, each equipped with a plasma screen.

School Facilities
The school has 5 dedicated cross-platform laboratories, comprising Macs, Windows and Linux based machines, accessible solely by students from the School. The majority of these labs can be accessed on a 24/7 basis and provide our students with free printing facilities.

The University campus is covered by the Cardiff University Wireless Network, which is freely available upon registration to staff, students and invited guests offering flexible access to online resources via laptop, tablet and Wi-Fi enabled phones.

Our facilities are consistently rated among the top three of all computing schools in the UK, by students voting in the annual National Student Survey.

Recognising Achievement
As a School we encourage our students to perform to the best of their ability, and aspire to be the best they can be during their time with us. We are proud to recognise and reward outstanding achievements and dedication with our annual Student Prize Giving Event, in which hard working students are rewarded with prizes sponsored by major companies in the industry. This ties in with our strong links and reputation with major industry players, and provides our students with the opportunity to network and build up important future contacts.

More online at: www.cs.cardiff.ac.uk
School Life

We pride ourselves on our reputation of being a small, inclusive, friendly School, and recognise the importance of giving our students the opportunity to take part in extra activities if they wish. As the majority of our current students and successful graduates say, the more you put in during your time at university and get involved, the more you will get out of your experience with us.

Here is a taste of our School’s popular extracurricular activities which you will be warmly encouraged to join:

**Computer Club**

All students at the School of Computer Science & Informatics are welcome to attend its popular Computing Club. Now established for a number of years, the Club goes from strength to strength with an informal mix of students and staff who come together to discuss ideas and experiment with an interesting mix of exciting technologies. Students are encouraged to set their own project goals and take ownership for future tasks and developments within the Club. Current Club members are keen to encourage new students to go along and join them. Computer Club affords members lots of opportunities to benefit from various positive experiences in a relaxed and friendly environment where you can create from what you learn, and learn beyond your degree course, studying around your areas of interest and looking at research, using devices like Kinect, Arduino and Lego Mindstorm.

Relevant events and trips to companies are also organised, such as to IBM Hursley, Bletchley Park and Renishaw, which have proved to be hugely popular and beneficial to all students who have gone along. A student-led open-sourced Hackathon - in which teams share their skills and knowledge of computer programming to produce a program in a limited amount of time - has now become an annual fixture in the School’s calendar and grown year-on-year, with companies such as Box UK, GCHQ and IBM providing sponsorship for previous events.

Computer Science student Jamie Hall: “The Computing Club is great because it’s an opportunity to get to know students in other years, as well as staff we might not be lectured by and to socialise and work together on a weekly basis. It’s fantastic for enabling us to try out new things and learn more about what we’re interested in. I’ve learned so many interesting technologies and skills, while meeting new mates and getting the most out of my degree.”

Computer Science student James Nash: “It gives us the chance to explore any areas of the course that we find interesting, gaining knowledge of new subjects along the way. But most of all, I find Computer Club to be good fun, this is due to the other students and lecturers who attend, creating a friendly and welcoming atmosphere that encourages us to discuss any of our new ideas or thoughts. Also, the free tea and biscuits help, providing you get there early enough to claim the jammy dodgers.”

Second Year Computer Science student Daniel Cansdale on the Computer Club trip to IBM Hursley: “The trip was a great success providing all of those who attended with a valuable insight into IBM and the chance to talk to people doing jobs in our field. It was one of the most rewarding and stimulating activities I have undertaken whilst at university and has increased my ambition and desire to succeed tenfold!”
ComSci Society

The Computer Science and Informatics Society (ComSci) is an award winning society dedicated to the students of the Cardiff School of Computer Science and Informatics. It is designed to allow students to interact freely with each other outside of the academic environment. The aim is to provide students with the opportunity to socialise, network and gain greater knowledge about their chosen degree. And also to mix students across all degree schemes and years both within and outside the School of Computer Science & Informatics, allowing students interested in the subject and those currently studying a degree within the school to socialise together.

Matthew Jones, ComSci president 2013-14: “We aim to provide a fun environment with frequent socials and charity events to help students not only enjoy their time at university, but contact with the community and give a little back.”

The Society organises a number of social events throughout the year - including a Summer Ball - and also support the charity Ty Hafan.

Trips are organised by the Society to events such as Gadget Show Live.

The Society was created for and is solely run by students of the School.

More online at:
www.cs.cardiff.ac.uk/COMSI
twitter.com/COMSCISOCIETY
Facebook.com/groups/cardiffComSCI
Graduation 2014
Rob Hemsley
Research Assistant at the MIT Media Lab

Graduated from BSc Computer Science with a 1st.

When I finished my A-levels (in Computing, Physics, History and Geography) I wanted to find a university course that I felt would give me a solid overview of the many aspects of Computer Science and expose me to truly current cutting edge research within the field. The department has a world-class reputation and an innovative course that provides you with the skills to pursue a career within many computing and IT related fields. Having also come from a background without maths, I wanted to find a department that understood the broad nature of the subject and how this isn’t a disadvantage in pursuing a Computer Science degree.

I had a fantastic experience studying at Cardiff as I was given the support and encouragement to experiment and explore in and around the course. The lecturers are truly passionate about their work and so lectures provided a real insight into their research and the foundations of the discipline. I particularly enjoyed doing my final year project where I was able to propose and undertake a project on a topic of my choosing. The department also has some great opportunities to learn new skills outside of the course at groups such as the Computer Club to experiment with new exciting technologies.

Having completed my degree, I started work for BT as a graduate Systems Engineer where I was able to apply much of the knowledge gained during my time at Cardiff. I was based at BT’s research and development facilities where I experienced commercial research and many new technologies and development methodologies. Having worked within this environment for a year, I decided to return to academic research and applied to MIT Media Lab. Having the trust, support and access to leading researchers at Cardiff helped to build my skills and portfolio of work that enabled me to apply to MIT and gain my current position within my research group.

Elliot Howells
Students’ Union President at Cardiff University

I’m currently on a sabbatical year in between my second and final years of my BSc Business Information Systems degree.

I always had an interest in IT and studied it as one of my A Level subjects at school. I knew I wanted to do something beyond programming so combining the practical skills with the theory of business processes, this course is perfect for me. The facilities at Cardiff are outstanding and all staff are tremendously helpful. The relationship between students and staff means you know who to approach at any point in your University career, whether it be for an academic or personal issue. We have 17 libraries across campus and in the department specifically, there’s 24/7 access to IT labs in addition to a host of other learning spaces in the Students’ Union. The Students’ Union in itself is an asset to the University (although I guess I would say that as President!). Recently ranked 5th in the UK according to the NSS, the building houses sector leading facilities, a range of commercial outlets, an incredible nightclub and is always a hive of activity.

When I graduate I hope to work in a people-facing role, but in the IT sector. My time at University has been made by being involved in societies such as Act One and A Cappella as well as being President of the Computer Science Society. Cardiff is the perfect city for a student. It’s affordable and safe and there’s always something going on. Although it’s a city University, it has the feel of a campus-based University as everything is so close together. My situation, as a student on my second sabbatical year, is a unique one, and the support from the department over this period has been exceptional. I am regularly in contact with members of staff in the school and I am certain that I will be welcomed when I return to study next year.

You can get a further idea of where our former students have ended up by joining our LinkedIn group: www.linkedin.com/groups/Cardiff-School-Computer-Science-Informatics-4529987/about

Abbie Maidment
Final year Business Information Systems student

What I liked most about my course and the reason for choosing it was that it was quite flexible.

Originally I was on the three year course, but I made the decision in the beginning of my second year to do the Year in Industry. This was probably one of the best decisions I have made. I was fortunate to get a placement at the Walt Disney Company in London where I worked as a Quality Analyst intern. This involved testing and delivering quality software solutions that support the Disney ABC Television Group, part of Disney Europe, Middle East and Africa IT. The team I worked closely with was the Business as usual team within the Media, Technology and Applications department. We would all work together to liaise with the business to understand their requirements, to propose solutions to them, and to develop and test the required elements within an acceptable time frame.

The progress I have made on placement and the development of my personal and employability skills will be beneficial to me in the final year of my degree and in my future professional development. I will be able to use the team work and communication skills that I have gained throughout the year and apply them to future projects that I might work on. I will also be able to manage working with different kinds of people, and it will be easier to develop professional working relationships with future colleagues. I would definitely recommend to prospective students to do the Year in Industry as it will give you the experience, equip you with the skills and prepare you for when you graduate.
Employability and Careers

Employment prospects for our graduates in the computing and ICT industry are excellent. Our graduates are equipped with the transferrable skills that open doors to careers in all sectors of the economy.

We have referred to a number of employability skills in the description of our programmes and the learning experience we offer. As we have sought to emphasise, these skills are much valued by employers across a broad range of professional activity precisely because they make you an independent, thoughtful, and articulate individual, capable of applying these high-level skills to a remarkable range of contexts in reliable and creative ways.

A typical graduate from the BSc Computer Science programme will have demonstrated the ability to:

- understand the broad range of concepts, principles and theories underpinning Computer Science;
- describe and critically appraise computing systems and solutions to problems;
- objectively analyse computational problems and develop appropriate, effective and creative solutions;
- model complex scenarios to design computer systems that meet stated requirements;
- demonstrate understanding of the representation of data in structured forms and its interplay with the implementation of algorithms;
- select, derive and analyse appropriate algorithms to solve computing problems;
- recognise and specify the constraints, requirements and trade-offs in the design of computer systems;
- show awareness of relevant professional, ethical, legal and social issues that arise in the implementation of existing and future computer systems;
- creatively apply computing knowledge and techniques to previously unseen problems;
- implement good quality and robust software using appropriate programming paradigms;
- effectively communicate ideas, principles and theories by oral, written and electronic means;
- work effectively in a team and as an individual;
- appreciate opportunities for career development and lifelong learning by participating in the University’s Personal and Career Development Programme;
- make effective use of general IT systems.

A typical graduate from the BSc Business Information Systems programme will have demonstrated the ability to:

- demonstrate an in-depth understanding of the nature of organisations and the people within them, and their use of information to support business processes and for other strategic business purposes;
- demonstrate a comprehensive understanding of the nature of modern software, and its system engineering requirements;
- exhibit a sound understanding of the systemic nature of information systems, and the methods and techniques available to design, implement, maintain and manage them;
- show the ability to analyse a problem, conduct relevant research and critically assess what is found, and derive supported conclusions;
- analyse, design, implement and report on a substantial information systems task;
- model complex systems and scenarios;
- assess the business benefits of a proposed application, define the information requirements, analyse the business change activities associated with its introduction, and plan the necessary activities;
- use a combination of general business skills and techniques and specialist knowledge of computers to enable them to contribute fully to the development of new business information systems, or the maintenance of existing systems;
- communicate ideas, principles and theories effectively by oral, written and practical means;
- work effectively in a team and as an individual.

Utilising a combination of these subject specific and more general key skills, students will find themselves in an ideal position to leverage the multitude of career opportunities available in the fields of Computer Science and Information Systems.

Careers and Employability Service

The University offers a careers and employability service for students, graduates and postgraduates. You can access careers information, explore your options and speak to a consultant who can advise you of opportunities relating to your degree or preferred field, including advice on postgraduate degrees. The service offers guidance on preparing a CV and job applications and gives you the chance to meet and network with top graduate recruiters at Careers Fairs and events. If you are looking for work experience, the careers service can assist with planning and organising your placement.

www.cardiff.ac.uk/carsv

Where did they go?

Recent statistics indicate that the vast majority of our graduates are following their chosen career paths within six months of graduating. Recent graduates have taken up positions with BAE Systems, BT, Civil Service, Confused.com, Deloitte, EADS, Fujitsu, GCHQ, General Dynamics UK, IBM, MoD, Red Hat and Thomson Reuters. Others have chosen further study or research at Cardiff or other top universities.

Key figures 2010

- Employment 68%
- Employment and Further Study 5%
- Further Study 15%
- Other 12%
Our Degree Programmes

The School of Computer Science & Informatics aims to educate and inspire the next generation of national and international leaders in the discipline.

In 2010 the School substantially updated its programmes to ensure the content is contemporary and relevant, placing emphasis on both research-led teaching (through specialist modules and programmes) and employability (through placements, internships and widening access).

The fact that we work alongside the BCS, the Chartered Institute for IT to ensure that our degrees are relevant to the latest demands from industry is a further highly regarded endorsement for potential employers, and means that many of our degrees are professionally accredited.

We are pleased to offer our students the opportunity to undertake your degree with a Year in Industry, which you can read about in detail on pages 24-25.

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<tr>
<th>Title</th>
<th>UCAS Code</th>
<th>Duration</th>
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<tr>
<td>BSc Business Information Systems</td>
<td>G500</td>
<td>3 years</td>
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<tr>
<td>BSc Business Information Systems with Year in Industry</td>
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<td>BSc Computer Science</td>
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<td>BSc Computer Science with High Performance Computing</td>
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<td>BSc Computer Science with Security and Forensics</td>
<td>G4F4</td>
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</tr>
<tr>
<td>BSc Computer Science with Security and Forensics with Year in Industry</td>
<td>GKF4</td>
<td>4 years</td>
</tr>
<tr>
<td>BSc Computer Science with Visual Computing</td>
<td>G4G7</td>
<td>3 years</td>
</tr>
<tr>
<td>BSc Computer Science with Visual Computing with Year in Industry</td>
<td>GKG7</td>
<td>4 years</td>
</tr>
<tr>
<td>BSc Maths and Computing</td>
<td>GG14</td>
<td>3 years</td>
</tr>
<tr>
<td>BSc Maths and Computing with Year in Industry</td>
<td>IG11</td>
<td>4 years</td>
</tr>
<tr>
<td>BSc Software Engineering</td>
<td>G600</td>
<td>3 years</td>
</tr>
<tr>
<td>BSc Software Engineering with Year in Industry</td>
<td>G601</td>
<td>4 years</td>
</tr>
</tbody>
</table>

Course structure

<table>
<thead>
<tr>
<th>Year 1</th>
<th>Year 2</th>
<th>Final Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Autumn Semester</td>
<td>Spring Semester</td>
<td>Autumn Semester</td>
</tr>
<tr>
<td>BSc Business Information Systems</td>
<td>First semester is common to all degrees</td>
<td>Spring Semester</td>
</tr>
<tr>
<td>BSc Computer Science and BSc Computer Science with... degrees</td>
<td>Common second semester for degrees with a strong, technical focus</td>
<td>Autumn Semester</td>
</tr>
<tr>
<td>BSc Software Engineering</td>
<td>Common first semester for degrees with a strong, technical focus</td>
<td>Spring Semester</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Year in Industry</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Group project</td>
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<tr>
<td></td>
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</tbody>
</table>
A new module, called ‘Computational Thinking’, has replaced all established modules in the first four weeks of our undergraduate programmes, aiming to improve the transition from the classroom to the lecture theatre and increase your understanding of what you can achieve within your degree programme. You are required to follow a 9am to 5pm work schedule for the first four weeks of the semester.

Whilst introducing you to the fundamental aspects of computer programming, architecture and design, the Computational Thinking module also offers you an introduction to, and opportunity to develop key skills, such as problem solving, reflection, communication and group work, that will support your future studies as well as introducing you to the skills required within the work place. This has helped previous students gain more confidence and reassurance through communication with peers that they are all facing the same challenges.

Week One is used for induction. You will undertake team exercises, group work and fun challenges, whilst being introduced to our systems and guided through a range of important information. Weeks Two and Three are used to introduce you to the fundamentals of Computer Science, get started on the Python language, carry out some problem solving tasks and assignments, whilst simultaneously working on key skills. The final week is Challenge Week and gives you an opportunity to take part in a group task, showcasing all that you have learnt throughout the module.

Students who have already undertaken the module have shown increased self-confidence and better integration with other students within their cohort. They are ready for the demands and challenges of university education, developed better student-staff relationships and benefitted from getting into the habit of a 9am to 5pm working day.

A first year Computer Science student described his experience of the module as “a great education in its own right” and said: “the module was an excellent welcome to university life and to the subject of Computer Science. It’s been enormous fun and an excellent learning experience”.

Two modules that will introduce you more formally to web-based and the Python computer programming languages follow the Computational Thinking module to conclude the Autumn semester. During the Spring semester, which usually starts at the end of January, BSc Business Information Systems (BIS) students undertake a slightly different combination of modules to the BSc Computer Science (CS) students:

<table>
<thead>
<tr>
<th>Year One Spring Semester modules</th>
<th>BSc Business Information Systems (BIS degree)</th>
<th>BSc Computer Science (CS) based degrees</th>
</tr>
</thead>
<tbody>
<tr>
<td>Developing Quality Software</td>
<td>Fundamentals of Information Systems</td>
<td>Fundamentals of Computing with Java</td>
</tr>
<tr>
<td>Professional Skills</td>
<td>Architecture and Operating Systems</td>
<td>Managing the Modern Organisation</td>
</tr>
<tr>
<td>Fundamentals of Computing with Java (CS based degrees)</td>
<td>(CS based degrees)</td>
<td>(BIS degree)</td>
</tr>
</tbody>
</table>
BSc Computer Science and Specialist Degree Programmes

**BSc Computer Science**

The exciting and dynamic world of computer science is at the heart of many aspects of modern life, and the BSc Computer Science at Cardiff will give you both the theoretical and practical knowledge needed to help you become a part of that world. Through your studies you will gain the expertise necessary to analyse problems and program appropriate computer-based solutions. The BSc Computer Science degree will equip you with transferable technical, analytical and professional skills backed by a broad awareness of current technology trends.

BSc Computer Science is also available as a 4 year degree with a year in industry – see pages 24-25 for further details.

**Year One**

The modules taught in your first year are designed to introduce the fundamental computing skills and concepts that will form the basis of your degree - see page 19 for further details.

**Year Two**

Building on the foundations of the first year, the modules taught in the second year expand your understanding, skills and experience by introducing more advanced topics. You will apply these new skills when you work with others in a team project to design and implement a software system in a professional manner.

**Year Three**

In the final year of your degree you will focus on emerging technologies and advanced topics of interest to you when you choose which modules to study. Themes like image processing and multimedia or advanced database topics and information systems management (using industry standard products such as Oracle™) are taught alongside contemporary topics such as computer security, forensics and high performance computing. During this year you will complete an individual project under the supervision of a member of staff; your own interests drive the project topic.

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**Year Two Modules**

<table>
<thead>
<tr>
<th>Module Code</th>
<th>Module Title</th>
<th>Semester</th>
<th>Credits</th>
<th>BSc Computer Science</th>
<th>BSc Computer Science with High Performance Computing</th>
<th>BSc Computer Science with Security &amp; Forensics</th>
<th>BSc Computer Science with Visual Computing</th>
</tr>
</thead>
<tbody>
<tr>
<td>CM2101</td>
<td>Human Computer Interaction</td>
<td>A</td>
<td>10</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CM2102</td>
<td>Database Systems</td>
<td>A</td>
<td>10</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CM2201</td>
<td>Object Oriented Applications</td>
<td>S</td>
<td>10</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CM2202</td>
<td>Scientific Computing and Multimedia Applications</td>
<td>S</td>
<td>20</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CM2203</td>
<td>Informatics</td>
<td>S</td>
<td>10</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CM2204</td>
<td>Advanced Programming</td>
<td>S</td>
<td>10</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CM2301</td>
<td>Systems Design and Group Project</td>
<td>AS</td>
<td>30</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CM2302</td>
<td>Communication Networks and Pervasive Computing</td>
<td>AS</td>
<td>20</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CM2303</td>
<td>Algorithms and Data Structures</td>
<td>AS</td>
<td>20</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Year Three Modules**

<table>
<thead>
<tr>
<th>Module Code</th>
<th>Module Title</th>
<th>Semester</th>
<th>Credits</th>
<th>BSc Computer Science</th>
<th>BSc Computer Science with High Performance Computing</th>
<th>BSc Computer Science with Security &amp; Forensics</th>
<th>BSc Computer Science with Visual Computing</th>
</tr>
</thead>
<tbody>
<tr>
<td>CM3102</td>
<td>Graphics, Visualisation and Computer Vision</td>
<td>A</td>
<td>20</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CM3103</td>
<td>High Performance Computing</td>
<td>A</td>
<td>20</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CM3104</td>
<td>Large Scale Databases</td>
<td>A</td>
<td>20</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CM3105</td>
<td>Security and Forensics</td>
<td>A</td>
<td>20</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CM3106</td>
<td>Multimedia</td>
<td>A</td>
<td>20</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>CM3107</td>
<td>Knowledge Management</td>
<td>A</td>
<td>20</td>
<td></td>
<td></td>
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<tr>
<td>CM3108</td>
<td>Computational Intelligence</td>
<td>A</td>
<td>20</td>
<td></td>
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<td></td>
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</tr>
<tr>
<td>CM3202</td>
<td>Emerging Technologies</td>
<td>S</td>
<td>20</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CM3203</td>
<td>One Semester Project</td>
<td>S</td>
<td>40</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

Optional Module Selection

- Year One: 60 Credits
- Year Two: 40 Credits
- Year Three: 20 Credits
- Optional Module Selection: N/A
Specialist Degree Programmes

We offer themed versions of the BSc Computer Science degree programme, with pre-defined third year module choices that offer you the opportunity to specialise in well-regarded areas of the discipline:

**BSc Computer Science with High Performance Computing**

BSc Computer Science with High Performance Computing is concerned with the efficient application of often large-scale, distributed computing resources, such as groups of computers or dedicated graphics processing hardware. You will focus your studies on understanding and applying sound computing principles in this complex and evolving area of computer science. Your year 3 modules will emphasise the nature of parallel and distributed computation in these environments and some of the challenges presented by cloud computing.

**BSc Computer Science with Security and Forensics**

An increase in the business use of Internet-based applications and the rise in computer based crime, together with the impact of applications such as Facebook and Twitter, has changed the nature of security risks making Security and Forensics of real value to employers. This three year degree programme at Cardiff will provide you with a firm understanding of the principles, tools and technologies needed to ensure that an organisation’s investment in Information and Communications Technology meets its needs in a secure manner.

**BSc Computer Science with Visual Computing**

The Computer Science with Visual Computing degree will give you an understanding of both the theoretical and practical aspects of Computer Science, while focusing on the challenging area of visual computing. You will learn how computers can obtain, manipulate, represent and understand visual data, such as images, video and 3D scenes. In addition you will develop and practice in-depth technical skills in areas such as graphics, image processing and visualization.
BSc Business Information Systems

The management of an organisation’s computing and communication infrastructure is essential to its success. Information systems hold the knowledge an organisation requires to implement and improve business processes.

The Business Information Systems degree at Cardiff studies the intrinsic link between computing and technology and the strategic business needs of a modern organisation. It will equip you with the business, technical and analytical skills required for a wide range of business, IT project management and leadership roles.

Year One

The modules taught in your first two semesters teach you the fundamentals of how organisations are managed, together with the foundations of information and communications technology - see page 19 for further details.

Year Two

An important aspect of your year 2 studies is the team project, where teams of students, drawn from across all of our degree programmes, tackle real problems in the area of system development. The nature of the team project allows you to practice skills introduced in your first year and to reinforce areas of second year study, such as the management of systems, and the role of technology in supporting business strategy and decision making.

Year Three

Your final year includes a substantial individual project, defined by you, that will demonstrate your understanding of the complexity of computer systems used by modern organisations. You will apply appropriate methods of analysis to recommend improvement.

To complete the degree programme, you may choose from a number of modules that include the management, protection and use of information to support both business decisions and effective operation, and learn about the professional skills required for information systems consulting.

BSc Software Engineering

The expertise and understanding you develop as you learn to engineer software solutions are well regarded by employers. By emphasising the design, implementation, testing, maintenance and overall quality of software applications, you will focus on acquiring and practising the skills required by a professional programmer. Often found in a team role, software engineers are the architects of large and complex software solutions demanded by organisations.

Within 3 months of completing BSc Business Information Systems in July 2011, 100% of students had either found graduate-level employment or chosen postgraduate study.

<table>
<thead>
<tr>
<th>Year Two Modules</th>
<th>Semester</th>
<th>Credits</th>
<th>BSc Business Information Systems</th>
<th>BSc Software Engineering</th>
</tr>
</thead>
<tbody>
<tr>
<td>Key: A - Autumn</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>S - Spring</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>AS - Both semesters</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Compulsory Module</td>
<td>Optional Module</td>
</tr>
<tr>
<td>Module Code</td>
<td>Module Title</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CM2101</td>
<td>Human Computer Interaction</td>
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<td>Database Systems</td>
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<tr>
<td>CM2103</td>
<td>Systems Thinking</td>
<td>A</td>
<td>10</td>
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<tr>
<td>CM2201</td>
<td>Object Oriented Applications</td>
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<td>10</td>
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<td>Informatics</td>
<td>S</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>CM2204</td>
<td>Advanced Programming</td>
<td>S</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>CM2205</td>
<td>Systems and Software Management</td>
<td>S</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>CM2206</td>
<td>Business Strategy and Information Systems</td>
<td>S</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>CM2301</td>
<td>Systems Design and Group Project</td>
<td>AS</td>
<td>30</td>
<td></td>
</tr>
<tr>
<td>CM2302</td>
<td>Communication Networks and Pervasive Computing</td>
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<td>20</td>
<td></td>
</tr>
<tr>
<td>CM2303</td>
<td>Algorithms and Data Structures</td>
<td>AS</td>
<td>20</td>
<td></td>
</tr>
</tbody>
</table>
Year One
In common with modules taught in the Computer Science BSc degree, your first year will be spent developing the essential skills and understanding necessary to design and build software solutions - see page 19 for further details.

Year Two
The modules you will study in year two further develop your essential professional skills. Core topics such as advanced programming, pervasive computing and networks are taught alongside database systems and software management. You will apply these new skills when you work with others in a team project to design and implement a system in a professional way.

Year Three
In the final year of your degree you will focus on developing the expertise required in a professional setting such as project management and consultancy skills. Your choice of computing modules focuses on large-scale databases (using industry standard products like Oracle™) and other strategic information systems. During this year you will complete a team software engineering project under the supervision of a member of staff; your own interests help define the project topic.

BSc Computing & Mathematics (Joint Honours)
The subjects of computing and mathematics are closely linked. This degree programme allows you to develop transferable technical and professional computing skills, supported by a solid mathematical background. Building on your existing mathematical knowledge, we teach the expertise required to program computers as part of a professional role. In addition, this degree allows you to develop a wide range of mathematical skills. These skills are typically used to construct and solve the mathematical models that support scientific research and business decision-making.
To ensure you really stand out from the crowd in the competitive job market, we offer students the exciting opportunity to undertake your degree over four years with a salaried Year in Industry.

The aim of our Year in Industry degrees is to provide you with the opportunity to gain valuable work experience as part of your undergraduate degree programme. Employers recognise the mutual benefits to be gained by giving students the chance to learn within a working environment before you graduate and begin your career.

**How does it work?**

Your Year in Industry will normally last between ten and 12 months, taking place between taught years two and three, allowing you to practice and apply the new skills you will have learned so far. To progress for the Year in Industry you will need to have maintained an overall average of at least 50 percent and secured a suitable work placement. You will return to university following successful completion of your work placement at the start of the Autumn semester for your final year of studies.

A further benefit of choosing our Year in Industry option is that you may be able to draw upon the practical real life situations you encounter during your placement and incorporate it into your final year project.

Whilst students are responsible for finding their own placements, the School works alongside professional placement consultants to ensure you have access to a broad variety of opportunities, and that you receive constant support and guidance throughout the whole process. This will begin with a series of workshops and talks provided before the Year in Industry to give advice on applying for a placement and on preparing you to get the most from your placement opportunities.

Whilst on placement you will need to regularly review, record and evaluate your performance against the work objectives set by your work supervisor and the predefined set of training objectives provided in your placement training record. You should have regular meetings with your work supervisor to obtain guidance and feedback on your progress.

A university representative will normally make two visits to your workplace. Your work supervisor and university representative will assess your progress at each visit and discuss this with you. The visits will also fulfil a pastoral role, and help to resolve any difficulties that may have arisen.

You will need to complete two reflective reports whilst on placement. These will be assessed at four months and twelve months after the start date of your placement. The reports provide:

- an overview of your placement;
- reflective examples of how you have developed your Professional IT Skills and how these will contribute to your on-going professional development;
- reflective examples of how you have developed your personal and employability skills and how these will contribute to your on-going professional development;
- a critical evaluation of your performance and reflection on your learning.

Your placement training record will be assessed at eight months after the start date of your placement. On return to University students are also required to make a poster presentation on the benefits gained from the placement to fellow students, staff and employers.
International information
If you are an international student, it is possible for work placements to be undertaken overseas, allowing you to carry out your industrial placement in your home country if you are able to secure a suitable position. (As with UK placements, this would be subject to the School's Board of Studies deeming the placements as suitable). Under current UK BA Tier 4 visa regulations, international students can undertake paid work for up to 50% of their visit duration.

Further information
Students who are registered on a Year in Industry programme but who are unable to secure a suitable placement will transfer their registration to the equivalent degree programme without placement and continue their studies by proceeding onto taught year three in the Autumn semester following successful completion of taught Year Two, making their programme a three year degree.

It is expected that students on a Year in Industry will be paid by the companies or institutions for the duration of the placement.

The School does not guarantee that a placement can be found for all students.

The placement you secure will also need to be deemed suitable by the Board of Studies.

Summer Placements
The School also encourages students to undertake a work placement during the Summer months between taught Year’s two and three. Many of our students take advantage of gaining this valuable work experience, with some even being offered permanent positions on completion of their degree.

Adam Wiltshire
Former Summer Placement student

Adam Wiltshire graduated from BSc Computer Science with First Class honours, and now works as a Software Developer for Peter Evans in Cardiff, after completing a Summer Placement with them the year previously:

“I took the internship here last year for ten weeks. It was a last minute decision as I had a part-time job so couldn’t leave Cardiff, but the company is right across the road from the university so I was able to do it. Peter Evans is a small, very busy company, and during my placement I was given a mini project that had real life business applications which they were able to use for proof of concept. When I returned to uni for my third year, the coding skills I used for my final year project was stuff I had learned here after talking to and working with people who have been doing it for 10-15 years. I really liked working for the company and asked to be kept informed if there were any jobs going, which they did, and I am now really enjoying my permanent role here.

“Doing a Summer placement definitely helped me to choose the career I wanted to go into, as I hated developing in my first year even though I would get very high marks, but when I did the internship here I did a bit of developing and it completely changed my view on it.”
Cardiff University has a long tradition of welcoming international students. With nearly 6,000 students from more than 100 countries, the University enjoys the many benefits of multiculturalism.

Cardiff University is currently home to 5,885 international students. Whatever your chosen field of study, you can be sure that you will be working with internationally respected academics, enjoying a great social life and making lifelong friends from across the world.

In recent years, international students joining us here at the School of Computer Science & Informatics at undergraduate level have increased significantly, and we are pleased to welcome students from all over the world. Saudi Arabia, India, and China are well represented, with other students coming from Nigeria, Pakistan, Qatar, USA, Hong Kong and Egypt. 45% of the School’s international cohort studies at undergraduate level, which far exceeds the UK average of 34%.

Fees and Scholarships for International Students
Fees are reviewed on an annual basis. As an indicator, the fees for 2014-15 were set at £17,000.

Support for International Students
The University provides all the information and support necessary to help ease the transition to life as a student at Cardiff. Once you have been made an offer here you will receive advice on immigration, visas, healthcare, climate and living in Cardiff.
We can arrange to collect you by coach from Cardiff or Heathrow airports. We provide an induction programme and, in the week before enrolment, there are various social events and visits to introduce you to Cardiff and to welcome you to Wales.
www.cardiff.ac.uk/for/prospective/inter/comingtocardiff/index.html

Study Skills Assistance
Throughout the year the University’s English Language Programmes Office provides English language and writing courses to international students studying at Cardiff.
Visit: www.cardiff.ac.uk/for/prospective/inter/elt

Further Information
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The International Development Division
Tel: +44 (0)29 2087 4432
Fax: +44 (0)29 2087 4622
Email: international@cardiff.ac.uk
Web: www.cardiff.ac.uk/international

The English Language Programmes Office
Tel: +44 (0)29 2087 6587
Fax: +44 (0)29 2087 6141
Email: elt@cardiff.ac.uk
Web: www.cardiff.ac.uk/elt

More online at:
www.cardiff.ac.uk/international
www.cardiff.ac.uk/elt
Researchers at the Cardiff School of Computer Science & Informatics are constantly working on new developments in areas such as computer graphics, data mining, and “intelligent” mobile systems.

Our research will enable new kinds of computing applications, products, and systems to help people in areas such as healthcare, the environment and business.

Research in the School is organised into three groups providing a “home” for researchers, allowing them to exchange ideas, get support, and often work together on projects.

School of Computer Science & Informatics Research Groups

Distributed & Scientific Computing
The Distributed and Scientific Computing group is focused on developing efficient techniques for large scale problems. Our interest in this area is strongly motivated to solve practical, real-world problems and issues, reflected in a high level of interdisciplinary collaborations. These have led to advances and applications of our work in a wide range of fields, from medicine to wireless communications.

Intelligent Techniques for Problem Solving:
Complex optimisation problems requiring efficient, intelligent solution techniques occur in a wide range of important fields. As an example, consider planning the layout and scheduling of a system of bus routes, where approaches have to balance many competing technical and economic constraints, such as cost, capacity, frequency and reliability. Our expertise is in developing scalable algorithms capable of quickly and effectively solving this class of computationally hard combinatorial problems. With a focus on industrially relevant problems, our research covers an expanding range of applications, including green logistics, wireless network design, scheduling and load balancing.

Informatics
Informatics is at the core of all systems that store, process, and transmit information. Our research in this area focuses on new ways of modelling, integrating, and getting the right information to the right people at the right time. Many of our informatics researchers test their new ideas in particular application areas, like health care, the environment, or business.

Some examples of groundbreaking Informatics research at Cardiff:
- We came up with a new way to manage information to help teams of medical specialists care for cancer patients, and our ideas are now built into the main computer system for cancer care in the Wales National Health Service.
- We designed the definitive database of the world’s animal and plant species, used to manage and protect our environment. To do this they had to solve problems in how to integrate data from many different, often conflicting, databases across the world.

Visual Computing
Our research in visual computing spans a wide range of topics in the fields of computer vision, computer graphics, geometric computing and both image and video processing. A significant theme in our work considers the input, description and editing of solids, surfaces and curves. These are represented analytically, as CAD models and as meshes. Other aspects of our work include the analysis, use and generation of static data such as images, surface meshes and 3D depth scans, as well as time-varying data such as video and 4D scans of moving objects.

The impact of our research in this field includes:
- Applications of geometric and image processing algorithms with many interdisciplinary partners
- Avoiding antisocial behaviour by modelling crowd behaviour
- CAD algorithms developed jointly with leading UK CAD supplier
- Reverse engineering algorithms used in world leading commercial systems

For further information on research at our School visit: http://www.cs.cf.ac.uk/research
Applications

UCAS Codes

<table>
<thead>
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<th>Course</th>
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<td>BSc Business Information Systems:</td>
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<td>BSc Maths and Computing:</td>
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<td>BSc Software Engineering with Year in Industry:</td>
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To be considered for entry onto one of our degree programmes you should apply online via the UCAS website using the ‘UCAS Apply’ facility. To use this facility you need to log onto: www.ucas.ac.uk/apply

The website will provide you with information on how to apply and explains the UCAS procedure.

Entry Requirements

BSc Computer Science, BSc Business Information Systems, BSc Software Engineering

Typical A-level Offer: AAB - ABB

Typical WBQ Offer: Grade A in the core plus two A-levels with grades AA - BB

Typical Int Bacc Offer: 33 points

Other: Applications from those offering alternative qualifications are welcome. Please see detailed admissions and selection criteria for more information.

BSc Maths & Computing:

Typical A-level Offer: AAB - ABB

A Grade A in A-level Mathematics is required. AS-level Mathematics is not accepted in lieu of an A-level.

Typical WBQ Offer: Grade A in the core plus a grade A in Mathematics at A-level and a B in another A-level subject.

Typical Int Bacc Offer: 33 points, including 6 in Mathematics at higher level.

Other

Applications from those offering alternative equivalent/overseas qualifications are welcome as are those who may have other relevant work/life experience.

Specific Subjects

A-level General Studies is excluded.

GCSE: No specific requirements other than normally at least a grade C in English Language and a grade B in Mathematics.

Applications Information

Typical intake: 120

Typical number of applications: 750

Equal Opportunities

Cardiff University is committed to promoting equality and diversity in all of its practices and activities, including those relating to student recruitment, selection and admission. The University aims to establish an inclusive culture which welcomes and ensures equality of opportunity for applicants of all ages, ethnicities, disabilities, family structures, genders, nationalities, sexual orientations, races, religious or other beliefs, and socio-economic backgrounds. This commitment forms part of the Equality and Diversity Policy which is available at: www.cardiff.ac.uk/cocom/equalityanddiversity/index

Applicants with Disabilities/Specific Needs

All offers to study at Cardiff University are made solely on the basis of academic merit. Where applicants have specific requirements that relate to a disability or medical condition, they are encouraged to discuss these with relevant staff in order that appropriate arrangements can be made to ensure the University provides an accessible environment. Specifically, applicants are invited to contact the Disability Adviser who can provide information about the applications procedure, course delivery and access to the physical environment. Where appropriate, informal visits can be arranged in which applicants can view accommodation and meet academic staff. The Disability Adviser can be contacted at:

Student Support Centre
50 Park Place, Cardiff CF10 3AT
Tel/Minbox: +44 (0)29 2087 4844
Email: disability@cardiff.ac.uk

Deferred Entry

The School has no objection to the possibility of deferred entry and the Admissions Tutor would be happy to discuss this further with you. Application is made through UCAS in the usual way, although the UCAS application must show the deferred year of entry.

There are a range of opportunities to visit the University...
Admissions Contacts
For information on applying and enrolling on a BSc programme, please contact

The Admissions Tutor
Dr Jianhua Shao
Cardiff School of Computer Science & Informatics
Cardiff University,
Queen's Buildings
5 The Parade
Roath
Cardiff CF24 3AA
Tel: 029 2087 4812
Email: comsc-ug@cardiff.ac.uk
www.cs.cardiff.ac.uk

Tuition Fees and Financial Assistance
The University charges an annual fee which covers all tuition fees, registration and examinations other than the re-taking of examinations by students not currently registered. Please note charges for accommodation in University Residences are additional.

Please see the following website for more information: www.cardiff.ac.uk/fees

Scholarships and Bursaries
For more information please visit the following website:
www.cardiff.ac.uk/scholarships

Useful websites for information about tuition fees and financial assistance:
Cardiff University website:
www.cardiff.ac.uk/fees

Student Centre website:
www.cardiff.ac.uk/financialsupport/index.html

Student Finance Wales
www.studentfinancewales.co.uk

Student Finance England:
www.studentfinanceengland.co.uk

Student Loans Company
www.slc.co.uk

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Thank you.

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Laura Roberts:
Tel: 029 2087 4455
Email: RobertsL9@cardiff.ac.uk

More online at:
www.cardiff.ac.uk
www.cardiff.ac.uk/for/prospective/undergraduate
To find out more about the Cardiff School of Computer Science & Informatics please visit our website www.cs.cardiff.ac.uk

Got questions about student life?
Get them answered at:
www.cardiff.ac.uk/thrive

Some of our current students are sharing their experiences online through their Facebook pages, so if you want to know what life as a student at Cardiff is really like, then you can find out now. There is also lots of information about what is happening in Cardiff, including articles written by our students, videos, and much more.