Welcome to our latest newsletter for Computer Science at UCC. In this edition, we focus on our taught programmes. We cater for a large cohort of students, with almost 400 at undergraduates, and close to 100 taught postgraduates. The majority of our students are Irish but we are seeing increased numbers from overseas, notably China, India, Saudi Arabia and continental Europe.

Our flagship BSc Computer Science has a number of degree outlets, allowing students to specialise in their chosen area. Other key features of the programme are a six or twelve month work placement and a capstone final year project. The BA in Digital Humanities and Information Technology was launched two years ago and is proving to be very popular.

There is a vibrant IT industry in the Cork region, and the Department actively engages with many companies in regard to work placements, student projects and research collaboration. This also serves to ensure that our courses remain relevant and up-to-date. Our academic staff pursue an active research programme, facilitating us in providing a research-led teaching agenda at senior undergraduate and Masters levels.

We have two MSc programmes aimed at computer science graduates or those from closely related disciplines, i.e. MSc Computing Science and the MSc Data Science and Analytics. The MSc Interactive Media and the Higher Diploma in Applied Computing Technology are conversion courses; that means students from a wide variety of disciplines can apply for these programmes.

In Ireland at the moment, a snapshot of job opportunities for IT graduates...
Conversion courses are designed for students who would like to change career direction or up-skill to gain work in the IT industry, where the demand for skilled professionals is high. Numerous reports including the most recent report from the Expert Group on Future Skill Needs reveals the opportunities for skilled IT specialists. Una Halligan, Chairperson of the EGFSN said: “The report shows that, with the economic recovery strengthening, shortages are intensifying in the previously identified areas such as ICT.....”.

The Department of Computer Science at UCC offers two one-year intensive taught programmes that produce graduates highly sought after by IT companies and businesses with an IT function. These include the MSc in Interactive Media and the Higher Diploma in Applied Computing Technology. A conversion course can also fast track you on to an advanced Masters such as the MSc Computing Science.

What do our students say?
“I have just completed an MSc in Interactive Media in UCC. My undergraduate degree was in education so this was a step into unknown territory. No doubt it was daunting at first, but this is a conversion course and everyone was coming from diverse backgrounds, so we were all in the same position. During the course, I had access to state-of-the-art facilities in the newly built Western Gateway Building which is located just off the main campus. The course is well designed, varied and interesting, providing an introduction into various technologies such as 3D Modelling, programming and web-design. The teaching staff were second to none and provided top class teaching, along with constant advice and guidance in a professional, yet friendly manner. The course has opened new doors for me and has provided me with the ideal platform upon which to enter the exciting world of computers and interactive media.”

Róisín O’Connell, MSc IM 2015, St Mary’s of the Isle Primary School

Why study Interactive Media?
Interactive / digital media has transformed communications and our access to information as the technology is increasingly intuitive, encouraging users to depend on it for work as well as pleasure. Interactive media can be implemented across a wide variety of platforms including smart phones, tablets, desktop systems, wearable computing and virtual reality. Interactive media plays a gradually more influential part in all of our lives and is likely to become even more prominent in the future.

The pace of development in interactive media technology is remarkable; Google for example is only 15 years old, the number of mobile phone subscriptions worldwide has increased from just over 40 per 100 people in 2006 to over 95 in 2014. Interactive media technology greatly influences the advancement of software and hardware used in this space.

Why study Interactive Media at UCC?
A UCC MSc Interactive Media student will acquire skills in interactive media development and use industry standard technologies to produce apps, games, websites, generative media, virtual reality, and animation.

Graduates from the MSc Interactive Media are highly sought after, with recent graduates working companies such as Apple, Xanadu Consulting, HP, Siemens, Intel, Apple, Digisoft TV, HP, Intel, Siemens plus others as Programmers, Web Developers, Multimedia Designers, Mobile Application Developers, Media Analysts and Technical Support.

The Department of Computer Science at UCC has dedicated Mac and PC laboratories (full hardware and software upgrade planned for 2016) and state of the art recording studio and editing facilities.
Why study the Higher Diploma in Applied Computing Technology?
The Higher Diploma in Applied Computing Technology is a CONVERSION COURSE providing a platform for those interested in entering the IT sector or taking an MSc in Computing Science. Our graduates acquire an understanding of the principles of internet-based computer systems and are equipped with a range of core IT skills, including computer programming, web design, web server configuration, managing and manipulating multimedia content, interfacing with databases and working with common office software.

Why study at UCC?
The course content is designed to provide you with the skills to enter the IT industry. Graduates of the Higher Diploma can have careers as:

- Software developers, who with experience can progress to becoming a senior developer, designer, architect, management, development, computer applications with Visual Basic, internet computing, multimedia, systems organisation, database design and administration.

Entry Requirements:
Graduates of any discipline (other than those who have already undertaken an equivalent programme) or those with an equivalent professional qualification are eligible to apply.

For further information on the Higher Diploma in Applied Computing Technology contact Dr Steve Prestwich, s.prestwich@cs.ucc.ie

What will I study?
Topics include programming, web development, computer applications with Visual Basic, internet computing, multimedia, systems organisation, database design and administration.

Entry Requirements:
Graduates of any discipline (other than those who have already undertaken an equivalent programme) or those with an equivalent professional qualification are eligible to apply.
MSc Data Science & Analytics

Why study Data Science & Analytics?
Analytics has become a key aspect of everyday life; the challenge for organisations is to find specialists to extract knowledge from readily available data. Expertise in the diverse aspects of analytics is highly valued and there is currently a huge demand for such professionals.

Data scientists are equipped with analytical skills and tools that translate data into rich knowledge that informs decisions for individuals, industry, governments and society.

Harnessing the information requires a new set of skills which is provided to graduates of UCC’s MSc Data Science & Analytics.

Why study Data Science & Analytics at UCC?
The UCC MSc in Data Science & Analytics delivers a distinct blend of theory and practice that provides graduates with a solid basis for a career across a wide range of industrial, research and governmental settings.

Together, the Departments of Computer Science and Statistics at UCC have internationally recognised experts in data analytics, the internet of things, complex systems, cloud computing and financial mathematics. A significant element of the programme (33%) is a research project that is supervised by leading academics from amongst our teaching and research staff.

UCC’s leading role in the Insight Centre for Data Analytics (Ireland’s primary Centre for research and company-focused development in analytics), ensures that the students of the MSc have access to academics and industry researchers conducting cutting-edge industry-focused analytics work.

The Department of Statistics complements this industry-focused technology with sound theoretical practice and a range of applications, including governmental (Central Statistics Office) and financial domains.

This analytics focus is further complemented by research centres/groups such Mobile & Internet Systems Laboratory, and the Centre for Unified Computing (http://www.ucc.ie/en/compsci/research/).

What do our students say?
I decided to study a Masters in Data Science and Analytics at UCC because Data Science and Analytics is a new and very rapidly growing field with a high demand for specialists.

“The Masters combines aspects of Statistics, Mathematics, Computer Science and Business Intelligence that matches all the requirements by the industry. My experience at UCC could not be more positive as I really enjoyed the one year program that provided me a great combination of knowledge, skills and experience to succeed in the industry. During the Masters, I learned numerous techniques in Statistics, Machine Learning and Data Mining, and also got a high experience/skills in Python, R, SAS, SQL and so on. UCC is one of the best universities in Ireland and is the only one that provides a Master’s program in Data Analytics. Furthermore, the lecturers are extremely knowledgeable, highly skilled and motivated and also very supportive. Cork itself is also a lovely and fun city which is full of life, with very welcoming and easy-going people who make you feel like home.

Another important fact is that there is a shortage of professionals in this field in Ireland and the work opportunities are huge. The content of the program, the lecturers and the uniqueness of this Masters in Ireland together with the great job prospects that this course in Data Science and Analytics gives has made this year the best learning experience I ever had and I fully recommend this Masters to everyone. I now work in Data Analysis at a major bank in Dublin.”

Raul Blay Gil, MSc Data Science and Analytics 2015, Permanent TSB – 2015

Many IT companies, such as EMC, Apple, UTRC, Tyco, based in Cork, are at the forefront of data analytics and are employing our graduates.

Entry Requirements:
1. A 2H2 level 8 primary degree in Computer Science or Mathematical Sciences or
2. A second class honours level 8 primary degree with a strong numerate content (e.g. engineering, finance, physics, biosciences or economics). In such cases the programme team must be satisfied that the numerate content is sufficient for entry to the programme and that applicants have an aggregate grade of a 2H2 in appropriate modules.
3. Applicants with industrial experience will be considered, see http://www.ucc.ie/en/ckr49/

For further information on the MSc Data Science & Analytics contact Professor Gregory Provan, g.provan@cs.ucc.ie
MSc Computing Science

Why study MSc Computing Science? The MSc Computing Science from UCC will provide you with the skills required to understand the entrepreneurship and innovation required for the software industry. Many national and multinational companies employ UCC computer science graduates in areas such as software development and engineering, artificial intelligence, systems and networks, database and systems security as well as mobile multimedia, modelling, research and development.

What will I study?

Core Modules include case studies in computing entrepreneurship, large-scale application development and integration, database technology, information storage and retrieval and project development skills. Elective Modules include mobile network protocols, mobile devices and systems, mobile applications design, formal methods for distributed, model-based software development, optimisation, virtualisation technologies, services and mobile middleware, mobile systems security, cellular network services, multimedia technology in mobile networks, analysis of networks and complex systems, network security and datamining.

Recent graduates have found positions in companies such as EMC, IBM, Intel, Pilz Automation, SAP, Tyco International, Xanadu Consultancy, to mention but a few.

What do our students say?

“After completing an HDip in Comp Sci I debated whether to start looking for work immediately or to do the MSc. Having asked a number of students who did the MSc a year before me, my decision was made, and I began a tough but very rewarding year with a mix of BSc and HDip graduates. The generic MSc in Comp Sci best applied to me because I wanted a more general course that kept options open. As an HDip graduate, I was worried that I would be behind the other BSc graduates in the class, but I soon found that I could keep my own with some excellent lecturers and a little elbow grease. There was a happy mix of current/relevant technologies, and a good foundation of core computing principles on offer. The reason I have no hesitation in recommending the course were the frequent opportunities to be creative and innovative, both personally and as part of a team (a valuable lesson if you ever want to work in software development). The projects were always designed to keep things interesting, and I created a number fun apps that had a hand in eventually helping me to find a good job in the tech hub of London. The standout project for me was creating a mobile gyroscope application, whose movement controlled that of a robot. In a group of three, each with different responsibilities, the sense of achievement we felt after our successful demonstration helped to cement in my mind the sort of career I would seek.”

Joe Pegler, MSc Computer Science 2015, FSI, (FM Solutions) Limited

The dissertation in the MSc Computing Science accounts for 33% of the programme and is supervised by academics from the Department. Many of the dissertation topics are proposed by companies from the IT sector. This year’s topics include public transport planning, scheduling hospital staff, sorting algorithms, video streaming, mobile sensor networks, internet of things, adaptive data centres, child behaviour apps, security and much more.

For further information on the MSc Computing Science contact Dr Marc van Dongen, dongen@cs.ucc.ie

UCC is one of Ireland’s oldest universities, founded in the 1845, with a long tradition of independent thinking. We are proud of our heritage, culture and student experience.

Computer Science would not be where it is today without the genius of George Boole, UCC’s first Professor of Mathematics. George Boole is credited with developing the foundation upon which the information age has been created.

UCC has many prestigious national and international ratings including:

- Top 2% of the world university rankings
- Sunday Times university of the year 2016
- Times Higher Education World University Rankings data reveal UCC at number 147 (out of 800) for being amongst the most outward-looking institutions
- Ireland’s first five star university
- Voted the safest campus in Ireland and is one of the safest in the world
- Ranked 100th in the world by employers for quality of our graduates.

UCC has a very proactive Student Development & Employability Office which offers many services to current and past students. It is acknowledged in the Top 3 globally for its International Office and Careers and Work Placement Service.

UCC has large numbers of international students from diverse regions of the globe for example: China, India, Brazil, and the USA, but also from Southeast Asia, Latin America, the Middle East and Africa. We have a healthy mix of students coming from close to 100 nations providing a balance of different perspectives and backgrounds.
Ireland is emerging as a global technology hub. The sector is thriving, with exports and employment in both indigenous and multinational technology firms continuing to grow. In the last three years over 17,500 jobs have been announced by technology companies and the sector is responsible for 40% of our national exports (£72 billion per annum). (source: www.ictireland.ie)

• Ireland is the second largest exporter of computer and IT services in the world.
• Global leaders such as Intel, HP, IBM, Microsoft and Apple have long-established operations in Ireland.
• They have been joined by newer leading-edge giants such as Google, Facebook, LinkedIn, Amazon, PayPal, eBay and Twitter.
• The sector accounts for more than £50 billion of exports from Ireland per annum.

"Ireland has made a good job of building a proto-Silicon Valley. By attracting global high-tech names to the country, it provides a high-tech hinterland in which smaller companies can grow...a whole ecosystem of support."

Career Opportunities:
Cork is a hub for vibrant IT companies such as Apple, Dell, EMC, IBM, Qualcomm, TrendMicro, Tyco, UTRC VMware; these and more are members of it@Cork, European Technology Cluster.

Companies who employed our graduates in 2014-15 include Accenture, Aer Lingus, Amazon, Apple, Bank of America, Merrill Lynch, Bank of Ireland, BT, Cisco, CITI-Technology, Cloudera, Dell, Digital Turbine Asia Pacific, EMC, Enterprise Ireland, Ericsson, First Derivatives, Guidewire, IBM, Intel, OpenText, Paddy Power, Pilz, PWC, SAP Galway Transverse Technologies, Trend Micro, Uniwink, Version 1 (Software) and many more.

English language requirement for students for whom English is not their first language
• IELTS 6.5 - with no individual section lower than 6.0
• TOEFL score of 90 - with minimum scores as follows: Listening - 20; Reading - 19; Speaking - 21; Writing - 20

Can I work in Ireland during or after studying at UCC?
Non-EEA third level graduates resident in Ireland are allowed to remain in Ireland for the purpose of seeking employment and applying for a green card or work permit. This scheme allows students with a minimum of a Bachelor and Master degree the opportunity to work in Ireland for a year after graduation. Further information can be found on the Irish Council for International Students website.

Links to useful websites
Department of Computer Science: http://www.ucc.ie/en/compsci/
School of Mathematics: http://www.ucc.ie/en/euclid/
Insight Centre for Data Analytics: https://www.insight-centre.org/
Irish Council for International Students website: http://tinyurl.com/h3gqjs8/
Information about ICT Ireland in Ireland
IT@Cork: http://www.itcork.ie/
Enterprise Ireland: http://tinyurl.com/j7mg7qk/
ICT Ireland: http://tinyurl.com/nqp4kae/
Our Programmes
- BSc Computer Science
- BA Digital Humanities & Information Technology
- Higher Diploma in Applied Computing Technology
- MSc Computing Science
- MSc Data Science & Analytics
- MSc Interactive Media
- MSc by Research
- PhD

www.cs.ucc.ie

UPCOMING EVENTS

Fourth Year Project Open Day – 16th March 2016
The Open Day provides fourth year students with an opportunity to demonstrate the skills they have acquired during their studies to both staff and industry. Location Western Gateway Building.

Irish Collegiate Programming Contest (IrI CPC) – 2nd April 2016
The UCC ACM Student Chapter hosts the seventh annual Irish Collegiate Programming Competition (IrI CPC) this year. Teams of three are invited to register at http://acm.ucc.ie/iricpc

Spring Open Day: 12th & 13th May 2016
Open day for second level pupils from transition year to leaving certificate to talk to staff and current students about choosing a UCC degree programme. Computer Science is located in the Western Gateway Building.

Munster Programming Training (MPT) & MPT Kiddo Graduation Ceremony: 25th May 2016
Over 100 primary and secondary school children will be presented with an achievement award for competing 20 and 26 weeks respectively.

Honorary conferring of American computing pioneer Professor Donald Knuth, known for his greatly influential multi-volume work The Art of Computer Programming, November 2015
www.ucc.ie/en/compsci/csvideos/

Professor Don Knuth, Public Lecture and all Questions Answered Session, 4th November 2015
www.ucc.ie/en/compsci/csvideos/

Michael O’Sullivan, PhD being congratulated by CS staff and external examiner Professor Chunming Rong, University of Stavanger, Norway

L: Aseel Alkhelaiwi, R: Dr. Vlado Stankovski, the session chair in the cloud challenge “The Origin and Trustworthiness of Data in Smart City Applications” by Aseel Alkhelaiwi and Dr Dan Grigoras won the Utility Cloud Challenge 2015 Award in the 8th IEEE/ACM International Conference on Utility and Cloud Computing, December 2015