



MSc in Forensic Computing & Cybercrime Investigation

UCD School of Computer Science & Informatics

UCD Centre for Cybersecurity & Cybercrime Investigation



Why is this course for me?

This programme has been specially designed for the law enforcement community. To develop the programme over the past eight years we brought in specialists to review and advise on content considering the needs of digital forensics investigators, computer crime specialists and IT security analysts. A unique aspect is the international graduate network from 47 countries. On the course, you share experiences, knowledge and ideas and gain a global perspective and contacts that will be valuable in future investigations. We offer a comprehensive programme of study options from short

Continuing Professional Development courses to Master of Science. The MSc may be taken part time over two years or full time over one year. Lectures are delivered online allowing you to attend and participate from your home or office and attend UCD only for examinations each year. Learning takes place through an engaging mix of lectures, hands-on labs, case studies, tool demonstrations and in-depth discussions. The courses are highly practical and designed to give you information, knowledge and skills that you can apply straight away in investigations.

Why study at University College Dublin?

Some reasons to study at UCD:

- In the top 2% of the world's universities
- Ireland's largest provider of graduate education
- A diverse university, both in academic disciplines and culture
- Emphasis on research and innovation
- Purpose-built, modern parkland campus, close to Dublin city centre
- Extensive range of campus accommodation options

UCD College of Science

The College is dedicated to the creation, delivery and communication of new knowledge and innovation across the spectrum of science. With a staff of 750 and a student population of 5500 including 1800 postgraduate students, the College is a vibrant community dedicated to excellence in all our pursuits.

UCD School of Computer Science & Informatics

CSI is one of seven schools within the College of Science. It has an excellent reputation among students, staff and employers, for the range and quality of its programmes. The School is currently enjoying its most successful period to date with a rapidly expanding curriculum and research agenda matched with growth in student and staff numbers.

Centre for Cybersecurity and Cybercrime Investigation (CCI)

Since 1998, CCI has been working closely with law enforcement agencies and industry practitioners in seeking solutions to technology-related crimes. CCI are special advisors to the European Cybercrime Training & Education Group at Europol and are members of the INTERPOL steering committee for the regional working parties on Hi Tech Crime Training. UCD CCI scientists continue to work on applied research and have developed a number of forensic tools.

What will I study?

Courses are highly practical and use tutors from industry and law enforcement as well as UCD academics. They are designed to give you information, knowledge and skills that you can apply straight away. We offer two programmes in this exciting and fast-moving field.

As well as the Forensic Computing & Cybercrime Investigation Programme we also offer an MSc in Digital Investigation & Forensic Computing which is open to both law enforcement and civilian experts working in the field of digital investigation & forensic computing.

Forensic Computing & Cybercrime Investigation Programme

This programme is available to participants from organisations which are responsible for the enforcement of national or local legislation.

You may study as little as a single module taken as CPD or you can apply for qualifications at Master of Science, Graduate Diploma and Graduate Certificate level. The MSc is completed by building 90 credits selecting modules from the following list. All MSc students must complete either a minor or major piece of research which may be either the Case Study or Research Project.

Core Modules

MSc candidates are encouraged to take the following Core Modules in their first year:

- Computer Forensics (10 credits)
- Network Investigations (10 credits)
- Introduction to Programming for Cybercrime Investigators (10 credits)
- Advanced Computer Forensics (10 credits)

Module options

- Malware Investigation (10 credits)
- Mobile Phone Forensics (5 credits)
- Live Data Forensics (10 credits)
- Linux for Investigators (10 credits)
- Advanced Scripting (10 credits)
- VoIP and Wireless Investigations (10 credits)
- Money Laundering Investigations (5 credits)
- Open Source Intelligence (5 credits)
- Investigation of Sexual Abuse of Children on the Internet (5 credits)
- Case Study (10 credits)
- Research Project (30 credits – only available to MSc students)

Programme outcomes

Depending on the modules taken, on successful completion students will be able to:

- Conduct forensic analysis of a computer and use common network investigation techniques
- Investigate malware-based intrusions
- Perform mobile phone forensics
- Preserve and analyse volatile evidence contained in the main memory (RAM) of a computer system
- Use Linux forensics analysis techniques
- Write custom tools for data analysis and build forensic applications using BASH
- Recover data using advanced techniques
- Overcome investigative challenges of VoIP and locating mobile users
- Investigate money laundering and trace illicit funds
- Find, use and analyse open source intelligence for actionable results
- Investigate cases of child sexual exploitation on the Internet

What are the career opportunities?

For law enforcement officers, having this qualification has the additional advantage of adding credibility to their testimony as expert witnesses. More and more crime is committed on the Internet, so the career development possibilities in this field are excellent. To date, over 300 law enforcement officers from agencies in 47 countries

have completed the programme. Graduates include senior staff at Europol and INTERPOL, members of national and regional police forces and police training colleges, government ministries and agencies with LE powers, defence forces, specialist cybercrime agencies, revenue, customs and border protection.

Graduate testimonials

Many of our graduates are happy to speak to people who are considering taking the course. Ask to be put in touch.

Cindy Murphy - Detective, City of Madison, WI Police Department, USA.

"I would say to anyone considering doing the course to do it. It's a good quality course, which fills a really needed space in law enforcement training and education. I found the collaboration with international law enforcement one of the most useful aspects of the course. I believe that the MSc is a great credential for court, and for my professional future. My dissertation has been published in a peer reviewed journal and has generated interest for other papers, a book chapter, and international speaking opportunities. Attending UCD provided an opportunity for my work to be noticed, and to begin to make a difference, on an international level."

Richard Ross - Senior Forensic Investigator, HM Revenue & Customs, UK.

"The diverse backgrounds of the students on the program led to some interesting challenges when undertaking some of the group activities, not least from a geographical perspective. However, if anything, the cultural differences, different levels of experience and the opportunity to exchange information on local practices made the completion of these tasks even more fulfilling."

Matthijs van Amelsfort - Senior Digital Expert, Netherlands Police Agency, Netherlands.

"I am very honored that I have received this award! I would like to thank my family and all the members of the staff of FCCI. The result would not have been the same without their support! Also I would like to thank my employer for giving me the opportunity to study. Because this is the only Law Enforcement Masters in the field of FCCI, I felt I had to follow this course. With this qualification I think I can call myself an expert. This is a great course with excellent teachers. Also the administrative support is great! All you learn can be used almost directly in your work. UCD is a great University! It was a pleasure to study here!"

Detective Liam Walker - Computer Forensic Expert at the Police Service of Scotland.

"It was a very comprehensive course. I made many good contacts and friends, despite the fact that it was distance learning. But be prepared for the work involved!"

How do I apply?

Entry Qualifications

The programme is for members of law enforcement organisations including police, revenue and customs, government and defence forces. Applicants will normally have either relevant law enforcement qualifications or a bachelor's degree or equivalent. However, applications are assessed on a case by case basis and CPD course applicants do not need to have a degree. CPD students without a computer science degree who perform well in their courses may apply for the MSc at a later stage; however, such progression is subject to agreement of the Programme Director and is not automatic.

Flexible delivery options

The Masters degree may be taken part-time over two years or full-time over one year. Lectures are pre-recorded and provided online via a virtual online learning environment. Students are required to come to Dublin for approx. 10 days to complete examinations and workshops in May/June each year. We hope to open an exam centre in North America in the near future. Depending on your module choices and whether you take the part-time or full-time option, be prepared to put 10-20 hours per week into your study. Despite the challenges, such as the different time zones of participants, many students have completed a MSc with a full-time job, children and other activities.

Applying Online

To apply online, please go to: <http://www.ucd.ie/apply>

Fee Information

www.ucd.ie/registry/adminservices/fees

Contact

For general enquiries please contact the Programme Office: Office: CSI/A0.03
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Useful Links

www.ucd.ie/cci <http://www.csi.ucd.ie/>