

UCL MSc in Information Security

Dr Emiliano De Cristofaro

MSc Course Director 2015/16

<https://emilianodc.com>

About UCL

- Established in 1826
 - First institution to welcome students of any race, class or religion, and female students on equal terms with men
- Today, a globally leading university with a strong research focus
 - 29 Nobel Prize Winners and 3 Fields Medalists
 - “London’s Global University”

UCL Computer Science

- 80 faculty, 300+ researchers
- Hosts the Science of Security Institute, recognized as Academic Centre of Excellence in Cybersecurity
- Ranked #1 in the UK as per recent Research Excellence Framework

Why Study Information Security at UCL?

- World-class faculty
- Cutting-edge research
- Hands-on experience and industry collaborations
- Balanced mix of theory and practice

Our Graduates

- Keenly sought by leading security organisations
 - UCL-CS international reputation, strong links with industry, and world-class research
- Top graduate destinations:
 - IBM, Ernst&Young, Cisco, KPMG
- Top graduate roles:
 - Security consultant, secure software designer, information protection advisor, security analyst
- Avg starting salary £31,200 (Jan 2013)

What We Teach

- Computer and Network Security
- Cryptography and Cryptanalysis
- Cybercrime
- Human-centered Security
- Privacy Technologies
- Software Security Engineering

Meet Our Faculty...

Earl Barr

- Research in program analysis, information theory, optimisation
- Teaches **Malware**



David Clark

- Research in analysis and verification, understanding software and specifications
- Teaches **Malware, Language Based Security**



Nicolas Courtois

- Research in cryptanalysis, crypto currencies, infosec
- Teaches **Cryptanalysis, Applied Cryptography**



George Danezis

- Research in anonymous comms, privacy technologies, cryptography engineering
- Teaches **Computer Security I, Privacy**



Emiliano De Cristofaro

- Research in applied crypto, privacy technologies, measuring security and privacy issues
- Teaches **Computer Security II, Intro to Crypto**



Brad Karp

- Research in systems security, wireless networks, distributed systems, networking, operating systems
- Teaches **Distributed Systems and Security**



Jens Krinke

- Research in program analysis, malware analysis, taint analysis, information flow control, bug detection
- Teaches **Malware, Language Based Security**



Granville Moore

- Research Co-Ordinator of Institute in Science of Cyber Security (RISCS)
- Teaches **Information Security Management**

Steven Murdoch

- Research in authentication, passwords, banking security, anonymous comms, censorship resistance and covert channels
- Teaches **Research in Information Security**



Angela Sasse

- Research in human and economic aspects of security, usable security
- Teaches **People and Security**



Gianluca Stringhini

- Research in social network security, web security, botnet mitigation, and cyber crime
- Teaches **Computer Security II, Cybercrime**



Jens Groth

- Research in cryptography, zero-knowledge proofs



Sarah Meiklejohn

- Research in cryptography, crypto currencies



David Pym

- Research in security economics, policy, logic, access control



Our Modules

- Four **compulsory** modules
 1. Introduction to Cryptography
 2. Computer Security I
 3. Computer Security II
 4. Research in Information Security
- Four **optional** modules
 - From “official” MSc ISec modules
 - From other programmes

MSc ISec Optional Modules

Four **optional** modules to choose from:

- Applied Cryptography
- Cryptanalysis
- Privacy Technologies
- Malware
- Language based Security
- People and Security
- Information Security Management
- Cybercrime
- Distributed Systems and Security

Cryptography

Software Security

**Human Centered
Security**

Network Security

Other optional modules: Examples

- Interested in **Software Security Engineering**?
 - Requirements Engineering and Software Architecture
 - Validation and Verification
- Or **Human Aspects of Security**?
 - Understanding Usability and Use
 - Organisational Psychology
 - Sociotechnical Systems: IT and the Future of Work
- **More...**
 - Human Computer Interaction, Communications and Networks, Entrepreneurship, Risk, Regulation and Compliance, Elliptic Curves, etc.

Thesis

- Independent piece of research
- Thesis (50+ pages) + oral exam
- Can be completed whilst working alongside a company

Extra-Curricular Activities

- Weekly InfoSec Seminars
 - Invited speakers
 - UCL academics, researchers, PhD students
- Weekly Hacking Seminar
- Bitcoin Research Seminar
- Industry Day

Options

- Full-time MSc programme
 - 8 modules and a thesis in one year
- Part-time MSc programme
 - 8 modules over 2 years and thesis in last year
 - Students must be available to follow modules during day time teaching hours
- Diploma
 - 8 modules but no thesis

Prerequisites

- Bachelors or Masters degree in
 - Computer Science
 - Mathematics
 - Or other quantitative discipline
- Application
 - Ability to understand theory
 - Programming and understanding of algorithms
 - Good **English** language skills
 - Interest in **Information Security**

Schedule

- Term 1: October – December
- Term 2: January – March
- Exams for all modules: May
- Thesis: June – August
(Preparation: January - May)
- Oral exam: September
- Graduation: November

Personal tutor

- Member of academic staff
- Academic advice
 - Should I take module X or module Y?
 - My thesis adviser and I do not get along
 - ...
- Confidential
- Problem with personal tutor
 - Course director, graduate tutor, Head of Dept

Student representative

- Speaks on behalf of the MSc group
- General issues that affect the entire group
 - Scheduling conflict between core modules
 - Suggestions for improvement
 - Etc

Relevant Contacts

Programme Director

[Dr Emiliano De Cristofaro](#)

e.decristofaro@ucl.ac.uk

Admissions Tutor

[Dr George Danezis](#)

g.danezis@ucl.ac.uk

Programme Administrator

[Sean Taylor](#)

sean.taylor@ucl.ac.uk

More info

UCL MSc ISec

http://www.cs.ucl.ac.uk/admissions/msc_isec/

UCL Information Security Group

<http://sec.cs.ucl.ac.uk>

<https://benthamsgaze.org/> (**blog**)

Academic Centre of Excellence in Cyber Security

http://sec.cs.ucl.ac.uk/ace_csr/



@uclisec



UCL MSc Information Security