

UCL MSc in Information Security

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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

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Brad Karp

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



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Jens Krinke

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





Granville Moore

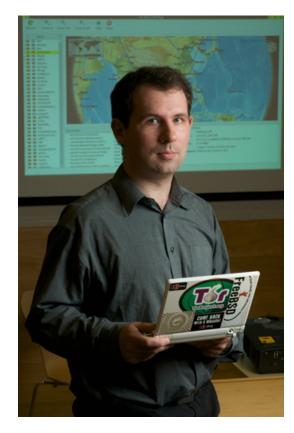
 Research Co-Ordinator of Institute in Science of Cyber Security (RISCS)

Teaches Information Security
 Management

UCL

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



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Gianluca Stringhini

 Research in social network security, web security, botnet mitigation, and cyber crime



 Teaches Computer Security II, Cybercrime

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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/

