

# 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

## 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**

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## Admissions Tutor

**Dr George Danezis**

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## Programme Administrator

**Sean Taylor**

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## More info

UCL MSc ISec

[http://www.cs.ucl.ac.uk/admissions/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/](http://sec.cs.ucl.ac.uk/ace_csr/)



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