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# **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...

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### Earl Barr

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



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# **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

# **UCL**

### **Brad Karp**

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



# **UCL**

# Jens Krinke

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





### **Granville Moore**

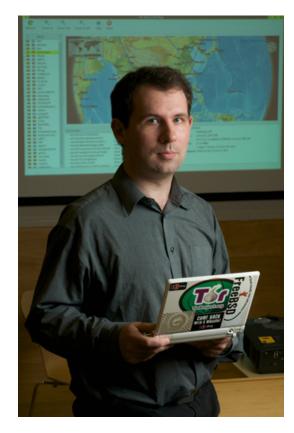
 Research Co-Ordinator of Institute in Science of Cyber Security (RISCS)

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



# **UCL**

# **Gianluca Stringhini**

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



 Teaches Computer Security II, Cybercrime

# <sup>±</sup>UCL

#### **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

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- 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/

