LOGIC, SEMANTICS AND VERIFICATION OF PROGRAMS MSc / 2017/18 ENTRY

www.ucl.ac.uk/graduate/compsci
Software verification is a pressing challenge worldwide, with airplanes and phones, for example, relying on the correctness of complex software. The new Logic, Semantics and Verification of Programs MSc provides an excellent and rare opportunity to study highly theoretical aspects of computer science with a practical application in program verification.

**Degree summary**

The main focus of this degree is logic and semantics and their application in program verification, but more generally, this degree provides analysis of the correctness of systems. Students are presented with up-to-date techniques in this area and develop problem-solving skills involving abstract models of logics and programs.

- UCL Computer Science is recognised as a world leader in teaching and research, and rated first in the UK in the 2014 Research Excellence Framework (REF).
- Our Master’s programmes have some of the highest employment rates and starting salaries.
- UCL is a world-leading centre for program verification. This degree is one of the few Master’s degrees with a focus on the area between formal logic and theoretical computer science. It proceeds an excellent starting point for those who wish to pursue a research career, whether in the academic or commercial sectors.

The programme is delivered through a combination of lectures, seminars, class discussions and project supervision. Student performance is assessed through a combination of unseen written examination, coursework (much of which involves programming and/or data analysis), practical application, and the research project.

**Degree structure**

**Mode:** Full-time: 1 year  
**Location:** London, Bloomsbury  
Students undertake modules to the value of 180 credits. The programme consists of four core modules (60 credits), four optional modules (60 credits) and a research project (60 credits). The provisional course structure is detailed below. The 2017/18 structure is expected to be published in early March 2017. Please contact the departmental programme administrator (details below) for further information.

**CORE MODULES**

- Introduction to Logic, Semantics, and Verification
- Logic of Programs and Transition Systems
- Shared-Memory Currency: Modelling and Verification
- Validation and Verification

**OPTIONAL MODULES**

- Students choose from a wide range of advanced options including, but not limited to:
  - Supervised Learning
  - Programming and Mathematical Methods for Machine Learning
  - Language Based Security
  - Mathematical Methods Algorithms & Implementations
  - Introduction to Cryptography
  - Geometry of Images
  - Computational and Simulation Methods

**DISSERTATION/REPORT**

All MSc students undertake an independent research project which culminates in a dissertation in the form of a project report.
Your career
This is a new degree and no information on graduate destinations is currently available.

Employability
The PPLV research group has strong links with companies such as Facebook, Microsoft and other digital companies with an interest in program verification. This degree is intended to lead in some cases to PhD study.
Entry requirements

A minimum of an upper second-class UK Bachelor’s degree in a subject such as mathematics or computer science, or an overseas qualification of an equivalent standard. A fluency in mathematics and some experience of computer programming are required; familiarity with elementary logic is a great advantage.

English language proficiency level

If your education has not been conducted in the English language, you will be expected to demonstrate evidence of an adequate level of English proficiency.

The level of English language proficiency for this programme is: Good.

Information about the evidence required, acceptable qualifications and test providers is provided at:
www.ucl.ac.uk/graduate/english-requirements

Your application

Students are advised to apply as early as possible due to competition for places. Those applying for scholarship funding (particularly overseas applicants) should take note of application deadlines.

When we assess your application we would like to learn:

// why you want to study Logic, Semantics and Verification at graduate level?
// why you want to study Logic, Semantics and Verification at UCL?
// what particularly attracts you to the chosen programme
// how do your academic and professional background and skills meet the demands of this challenging programme?
// what programming experience you have
// where would you like to go professionally with your degree?

Together with essential academic requirements, the personal statement is your opportunity to illustrate whether your reasons for applying to this programme match what the programme will deliver.

FEES AND FUNDING 2017/18 ENTRY

// UK: £11,800 (FT)
// EU: £11,800 (FT)
// Overseas: £24,140 (FT)

The tuition fees shown are for the year indicated above. Fees for subsequent years may increase or otherwise vary. Further information on fee status, fee increases and the fee schedule can be viewed on the UCL Current Students website.

Full details of funding opportunities can be found on the UCL Scholarships website: www.ucl.ac.uk/scholarships

APPLICATION DEADLINE

All applicants: 17 June 2017

Details on how to apply are available on the website at:
www.ucl.ac.uk/graduate/apply

CONTACT

Ms Samantha Bottomley, Programme Administrator
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EU referendum

For up-to-date information relating to specific key questions following the UK’s decision to leave the EU, please refer to www.ucl.ac.uk/eu-referendum