Today’s society is faced with many challenges and opportunities, and the disciplines within Engineering Sciences strive to develop ideas, techniques and materials to meet the needs of our world and to improve it. In the past the faculty has made significant contributions to public life in areas as diverse as sanitation, community health, transport, communications, environmental protection and information technology. An excellent infrastructure is provided in new and refurbished facilities and we foster collaborative links within the faculty, across UCL, and with educational and industrial partners around the world, to develop solutions which will improve quality of life for the world’s population.
Our graduate programmes are internationally recognised and draw on advances in life sciences and the core discipline of biochemical engineering.

We maintain close teaching and research links with other highly rated UCL departments and with experts from other departments throughout the UK and overseas, and are also involved in close collaborations with industry.

This vibrant department leads in the field and offers an exciting graduate training and research environment.

Independent assessments confirm the excellence and breadth of the department’s taught programmes (IChemE accredited) and place our research programmes at the forefront of international endeavours.

Our research focuses on the following:

- **Environment and sustainability**: exploiting green biological catalysts for biorefining and high-value pharmaceutical syntheses
- **Harnessing genomics**: directed evolution, metabolic engineering and synthetic biology can deliver efficient cell systems for producing biopharmaceuticals and enzymes
- **Making the outcome affordable**: business approaches coupled with engineering paradigms offer new healthcare opportunities
- **Processing of complex biological materials**: epitomised by the use of human proteins and stem cells for therapy, the challenge is to process materials of increasing complexity to make them available to all who need them
- **Speed from discovery to benefit**: using small mimics, microfluidics and mathematical models provides process understanding for effective scale-translation enhancing the precision and rate of process development.

### Entry requirements

A UK Master’s degree, or a minimum of an upper second-class UK Bachelor’s degree, in a relevant discipline, or an overseas qualification of an equivalent standard.

### Research programmes

- **MPhil/PhD**: FT3 PT5
- **MPhil/PhD**: FT4
- **Biochemical Engineering**: FT4
- **Leadership MRes + EngD**: FT4

### Taught programmes

- **Biochemical Engineering MSc**: FT1
- **Postgraduate Diploma**: FT9m

### Career prospects

Recent graduates have taken up academic posts at UCL, Cancer Research UK and Cambridge University, while others have entered professional occupations within organisations such as BTG, GlaxoSmithKline, Kraft, Lonza, MedImmune, and UCB Celltech.

### Entry requirements

A minimum of a second-class Bachelor’s degree from a UK university or an overseas qualification of an equivalent standard. Candidates offering recent industrial experience are encouraged to apply.

### Career prospects

Recent MSc graduates have gone on to doctoral research positions both within the department or in other leading research establishments such as the Sanger Institute. Those directly entering professional occupations have, for example, chosen to do so within large multinational companies such as Johnson and Johnson and Eli Lilly or engineering design companies like Jacobs.

### Contact details

Research programmes:
Dr Paul Dalby
EMAIL p.dalby@ucl.ac.uk
TELE +44 (0)20 7679 2962

Taught programme:
Dr Daniel Bracewell
EMAIL d.bracewell@ucl.ac.uk
TELE +44 (0)20 7383 7013

### Tuition fees

Up-to-date tuition fee information is available at www.ucl.ac.uk/current-students/money

### Funding

EPSRC four-year MRes + EngD and BBSRC four-year PhD awards are available.

The Bioprocessing Graduate Scholarship is available to students resident outside the UK and pursuing the MSc or MPhil/PhD research. Contact the department for details.

Further information on pages 26–31

### Related departments

Chemical Engineering, page 75
Structural and Molecular Biology, page 91
CHEMICAL ENGINEERING

We are one of the top research and teaching chemical engineering departments in the UK, achieving world-class standing (RAE 2008).

Core research activities focus on the following themes: Energy and CO₂, Sustainable Manufacturing, Health and Environment.

The department hosts the Centre for CO₂ Technology and the Electrochemical Innovation Laboratory, which focus on the commercialisation of energy and CO₂ technology development.

All our graduate programmes are accredited by the Institution of Chemical Engineers (IChemE).

Research programmes

<table>
<thead>
<tr>
<th>Programme</th>
<th>FT</th>
<th>PT</th>
</tr>
</thead>
<tbody>
<tr>
<td>MPhil/PhD</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>MRes + MPhil/PhD</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Engineering EngD</td>
<td>4</td>
<td></td>
</tr>
</tbody>
</table>

The research is divided into three main groups:

- Chemical and catalytic reaction engineering
- Product and process systems engineering
- Multiphase systems.

Within these areas, research expertise includes:

- Catalysis, photo catalysis and electro catalysis
- Cement chemistry and processing
- CFD modelling of multiphase flows
- Data mining and visualisation
- Electrochemical engineering
- Fracture mechanics
- Fuel cells and batteries
- Micro reaction technology
- Molten salts
- Particle technology (crystallisation and fluidisation)
- System modelling and optimisation
- Two phase flow
- X-ray, micro PIV and muon imaging.

Entry requirements

A UK Master’s degree in a relevant discipline, or a minimum of an upper second-class MEng degree from a UK university, or an overseas qualification of an equivalent standard.

Career prospects

Recent graduates have secured positions in a wide range of industries, from engineering to finance. Examples of organisations include: Shell Exploration and Production, AMEC, Petrofac, Sun Chemicals, M W Kellogg, Procter and Gamble, Barclays Bank, UBS and HSBC. Others have gone on to lecture at UCL.

Taught programme

Chemical Process Engineering MSc  FT1

Entry requirements

A minimum of a lower second-class Bachelor’s degree in a relevant discipline from a UK university or an overseas qualification of an equivalent standard.

Career prospects

A significant number of MSc students have successfully continued their studies at PhD level within the department; others have entered professional occupations within organisations such as: Atkins, Aspentek Ltd., Chevron, AMEC, M W Kellogg, GlaxoSmithKline, Kelly Services, Ingenieria Mexicana de Sistemas, BOC and the European Commission.

Contact details

Research programmes:
Dr Paola Lettieri
EMAIL p.lettieri@ucl.ac.uk
TEL +44 (0)20 7679 7867

Taught programme:
Professor Haroun Mahgerefteh
EMAIL h.mahgerefteh@ucl.ac.uk
TEL +44 (0)20 7679 3835

Tuition fees

Up-to-date tuition fee information is available at www.ucl.ac.uk/current-students/money

Funding

The department receives Research Council awards for outstanding research students.

Further information on pages 26–31

Related departments

All Built Environment departments see list, page 65
Biochemical Engineering, page 74
Chemistry, page 96
Civil, Environmental and Geomatic Engineering, page 76
Mathematics, page 98
UCL Australia, page 135
CIVIL, ENVIRONMENTAL AND GEOMATIC ENGINEERING

We equip our students to become instrumental in making the world a better place, whether they become researchers, industrial engineers, planners, investors or policy makers.

Our staff are leaders in their fields and are often called upon to provide detailed knowledge to anyone from the media to industry to policy makers.

Numerous UCL research centres are led from within the department including the PAMELA facility, the CRUCIBLE centre, Bridging the Gaps and EPICENTRE.

Our graduate research programmes support students throughout their research, not only in the details of the research itself but also in essential skills required in a future world-leading career.

Research areas are:

- **Concrete technology**: high performance concrete; rheology of fresh paste; self-compacting concrete
- **Environmental applications of remote sensing**: generation and qualitative assessment of regional and global models; monitoring change: wetlands, global urban population and pollution
- **Environmental engineering**: sustainable energy and resource management; environmental risk assessment; issues of society vs. technology
- **Fluid mechanics**: dispersion of pollutants; wave, current and sediment interaction in coastal waters; wave diffraction and wave structure interaction
- **Geographical information sciences**: management of large geospatial databases; spatio-temporal data mining; usability aspects of geospatial technologies
- **GPS, geodesy and navigation**: seismic hazard assessment; global satellite navigation systems; high-precision positioning techniques
- **Industrial metrology and close-range photogrammetry**: engineering surveying; measurement and modelling in manufacture and assembly
- **Photogrammetry, cartography and digital mapping**: sensor modelling; high resolution optical sensors, SAR, LiDAR; feature extraction: 3D mapping and modelling of urban areas including automated feature extraction
- **Soil mechanics**: behaviour of particulate materials including particle breakage; and micro-mechanics
- **Structural engineering**: health monitoring of structures; whole life costing; dynamic behaviour; structural optimisation; deployable structures; earthquake engineering
- **Transport studies**: sustainable transport, computer-assisted traffic engineering; transport networks; transport safety, transport economics and accessibility.

Entry requirements

A minimum of an upper second-class Bachelor’s degree from a UK university in a subject appropriate to the chosen field, or an overseas qualification of an equivalent standard.

Career prospects

Research students usually embark on academic careers in leading universities around the world, work for world-class engineering companies, or apply their expertise through high-profile policy making institutions.

Research programmes:

- Lifelong Health and Wellbeing MRes FT1 PT2
- Urban Sustainability and Resilience MRes FT1
- Civil Engineering MSc FT1
- Disaster Management MSc FT1 PT2
- Environmental Systems Engineering MSc FT1 PT2
- Geographic Information Science MSc FT1 PT2
- Hydrographic Surveying MSc FT1
- Surveying MSc FT1
- Transport MSc FT1 PT2
- Civil Engineering Graduate Diploma FT9m

Contact details

Research programmes: Ms Liselot Hertel EMAIL cege-postgraduate-enquiries@cege.ucl.ac.uk TEL +44 (0)20 7679 3524

Taught programmes: Mr Mark Fairweather EMAIL cege-postgraduate-enquiries@cege.ucl.ac.uk TEL +44 (0)20 7679 2740

Tuition fees

Up-to-date tuition fee information is available at www.ucl.ac.uk/current-students/money

Funding

There are a number of studentships available each year for the Urban Sustainability and Resilience EngD.

Research Council studentships are also available.

The Geographic Information Science MSc has Research Training recognition, with the potential for funding for students who wish to pursue a PhD.

Further information on pages 26–31

Related departments

- All Built Environment departments, see list page 65
- UCL Australia, page 135
- Geography, page 130
- Mechanical Engineering, page 80
Our department is a world leader in teaching and research (RAE 2008).

Our Master’s programmes have above average employment rates and starting salaries (HESA Destination of Leavers from Higher Education Survey 2009).

We take an experimental approach to our subject, enjoy the challenge and opportunity of entrepreneurial partnerships and place a high value on our range of industrial collaborations.

Research areas are:

- **Bioinformatics**: protein structure; genome analysis; transmembrane protein modelling; de novo protein design methods; exploiting grid technology; mathematical modelling of biological processes
- **Financial computing**: software engineering; computational statistics and machine learning; mathematical modelling
- **Human centred systems**: usability of security and multimedia systems; making sense of information; human error and cognitive resilience
- **Information security**: cryptology; digital watermarking; cryptoanalysis; steganography
- **Intelligent systems**: knowledge representation and reasoning; machine learning
- **Media futures**: digital rights management; information retrieval; computational social science; recommender systems
- **Networks**: internet architecture; protocols; mobile networked systems; applications and evolution; high-speed networking
- **Software systems engineering**: requirements engineering; software architecture; middleware technologies; distributed systems; software tools and environments; mobile computing
- **Virtual environments**: presence, virtual characters; interaction; rendering; mixed reality
- **Vision and imaging science**: face recognition; medical image analysis; statistical modelling of colour information; inverse problems and building mathematical models for augmented reality; diffusion tensor imaging.

**Entry requirements**

A minimum of an upper second-class UK Bachelor’s degree in a relevant discipline, or an overseas qualification of an equivalent standard. Work experience may also be taken into account.

**Career prospects**

Recent graduates have taken up academic posts at Cambridge and Yale Universities. Others have taken up posts with global companies such as Microsoft and IBM.

**Taught programmes**

- **Web Science and Big Data Analysis MRes FT1**
- **Computational Statistics and Machine Learning MSc FT1**
- **Computer Graphics, Vision and Imaging MSc FT1**
- **Computer Science MSc FT1**
- **Financial Computing MSc FT1**
- **Financial Risk Management MSc FT1**
- **Financial Systems Engineering MSc FT1**
- **Human-Computer Interaction with Ergonomics (H-CIE) MSc FT1 PT2**
- **Postgraduate Diploma FT9m PT2**
- **Postgraduate Certificate FT3m PT2**
- **Information Security MSc FT1 PT2**
- **Postgraduate Diploma FT9m PT2**
- **Machine Learning MSc FT1**
- **Networked Computer Systems MSc FT1**
- **Software Systems Engineering MSc FT1**
- **Web Science and Big Data Analysis MSc FT1**

**Entry requirements**

- **Computer Science MSc**: a minimum of a second-class UK Bachelor’s degree, in subjects other than computing or information technology, or an overseas qualification of an equivalent standard. Financial Computing MSc: a minimum of an upper second-class UK Bachelor’s degree, in subjects other than computing or information technology, or an overseas qualification of an equivalent standard. A level Mathematics, or its equivalent, and one module of programming is also required for both programmes.
- **All other programmes**: a minimum of an upper second-class UK Bachelor’s degree, in subjects other than computing or information technology, or an overseas qualification of an equivalent standard. Relevant work experience may also be taken into account. Financial Risk Management MSc: a strong quantitative discipline, or an overseas qualification of an equivalent standard. Relevant work experience may also be taken into account. Financial Risk Management MSc: a strong quantitative discipline, or an overseas qualification of an equivalent standard.

**Funding**

The VEIV MRes +EngD is funded by EPSRC with c.10 awards of at least £18,000 per year. Please note: sponsoring companies must be appointed before admission.

**Contact details**

Financial Computing MRes + MPhil/PhD: Ms Yonita Carter EMAIL ycarter@cs.ucl.ac.uk TEL +44 (0)20 7679 6092

VEIV MRes + EngD: Mr Jamie O’Brien EMAIL j.obrien@cs.ucl.ac.uk TEL +44 (0)20 7679 3734

All other MSc programmes: Mrs Tracy Williams EMAIL advancedmsc-admissions@ucl.ac.uk TEL +44 (0)20 7679 7287

**Tuition fees**

Up-to-date tuition fee information is available at www.ucl.ac.uk/current-students/money.

**Related departments**

All Built Environment departments, see list page 65

Electronic and Electrical Engineering, page 78

Information Studies, page 48

Interaction Centre, page 64

Psychology and Language Sciences, page 56
The department houses world-class facilities including an anechoic chamber, molecular beam epitaxy and laboratories for high-speed measurement, converged networks and systems, nanotechnology and broadband teaching. Our ethos of constant development and innovation continues a tradition inspired by Professor Sir Ambrose Fleming, inventor of the thermionic valve and founder of the discipline of electronics. The department is a major contributor to the London Centre for Nanotechnology, a joint venture between UCL and Imperial College London. We maintain strong industrial links in all our postgraduate activities and much of our research is funded through the UK Research Councils, the EU and industry in the UK and overseas.

Research areas are:
- Communications and information systems: telecommunication networks and services; wireless telecommunications; IP networks; sensor networks; information security and retrieval
- Electronic materials and devices: optical materials and electronic devices; quantum nanoelectronics; diamond electronics; laser processing
- Optical networks: optoelectronic devices and systems; large scale optical networks; dense WDM optically routed networks; optical packet networks; high speed optical systems
- Photonics: ultrafast photonic devices; wireless over fibre devices and systems; photonic generation of THz signals; advanced liquid crystal devices; uncooled and coherent wavelength division multiplex technology
- Sensors, systems and circuits: radar and sonar; antennas and EM modelling; medical electronics; RFID systems; IC design.

Entry requirements
A UK Master’s degree, or a minimum of an upper second-class UK Bachelor’s degree, or an overseas qualification of an equivalent standard. The qualification may be in any relevant subject, e.g. electronic engineering, communication engineering, computer science, chemistry, materials science (the latter two for electronic materials research).

Career prospects
Many of our recent PhD graduates have taken up positions as postdoctoral researchers at leading universities, whilst others continue their research careers in industry (Nokia UK, Qinetiq). A significant number use the PhD as a stepping stone to careers in other sectors, including management consultancy and finance. Several have started up their own businesses and become successful entrepreneurs.

Taught programmes
- Photonics Systems Development MRes: FT1
- Telecommunications MRes: FT1
- Internet Engineering MSc: FT1
- Nanotechnology MSc: FT1 PT2
- Telecommunications MSc: FT1 PT2
- Telecommunications with Business MSc: FT1
- Wireless and Optical Communications MSc: FT1

Entry requirements
Telecommunications with Business MSc: normally a minimum of an upper second-class UK Bachelor’s degree in a relevant discipline or an overseas qualification of an equivalent standard. Individuals with significant industrial experience (and without such a qualification) may also be considered.

All other programmes: a minimum of an upper second-class UK Bachelor’s degree in a relevant discipline or an overseas qualification of an equivalent standard.

Career prospects
Graduates from these programmes can be found in a range of industrial roles in the UK and abroad. For example, specialist engineering posts at BT, France Telecom, Motorola or Cisco Systems, in technical consultancy positions, or in the financial sector. Many of our recent graduates have decided to continue their education by undertaking business-related qualifications, such as MBAs, or choose a research career by completing a PhD, either within UCL or at other leading international institutions.

Contact details
Research programmes:
EMAIL ggenquiries@ee.ucl.ac.uk
TEL +44 (0)20 7679 7304

Taught programmes:
EMAIL mscenquiries@ee.ucl.ac.uk
TEL +44 (0)20 7679 7300

Tuition fees
Up-to-date tuition fee information is available at www.ucl.ac.uk/current-students/money

Funding
A number of competitive EPSRC scholarships are normally available for candidates liable to pay fees at the UK/EU rate. The Institution of Engineering and Technology (IET) also awards competitive scholarships for graduate study, see www.theiet.org

Further information on pages 26–31

Related departments
Computer Science, page 77
UCL Australia, page 135
Space and Climate Physics, page 101
We offer a unique research and education programme with a focus on technology management, innovation, the creation and growth of technology-intensive organisations, operations research, and entrepreneurship.

Our taught degrees incorporate learning activities and industrial experience that will help develop internal organisational management skills, commercial competencies, and a high degree of creativity.

We offer innovative programmes to prepare scientists, engineers, physicians, and other innovators for leadership roles in the next generation of technology-intensive organisations.

Our doctoral programme helps to prepare leading researchers for success in academic careers.

Research programmes

MRes + MPhil/PhD

FT4

Research is arranged around two major areas:

• Management science and operations research: applying theories and methods from operations research; management science; statistics; economics; organisational behaviour and applied mathematics to develop knowledge; tools and methods required to make strategic and operational decisions, and to shape policies.

• Technology and innovation management: applying theories and methods from strategic management; organisational behaviour; sociology; psychology and economics to study business strategies of innovation-intensive organisations; organisational structures and processes in innovation-intensive organisations, diffusion of innovations; social network analysis and creativity.

Entry requirements

A Master's degree in a relevant discipline from a UK university, or an overseas qualification of an equivalent standard. Applicants are also required to have taken the Graduate Management Admissions Test (GMAT) or the Graduate Record Examinations (GRE) General Test.

Career prospects

Our PhD graduates aspire to pursue academic careers in top business schools or in engineering departments of world-class universities.

Taught programmes

Management Science and Innovation MRes

FT1

Management MSc

FT1

Technology Entrepreneurship MSc

FT1

The MRes component is not a stand-alone programme and applicants are expected to commit themselves to the four-year integrated MRes + MPhil/PhD programme.

Entry requirements

• Management Science and Innovation MRes: a first-class UK Bachelor's degree in business, science, engineering, mathematics, statistics, or a related subject, or an overseas qualification of an equivalent standard.

• Management MSc: a minimum of an upper second-class UK Bachelor's degree in any subject or an overseas qualification of an equivalent standard.

• Technology Entrepreneurship MSc: normally a minimum of an upper second-class UK Bachelor's degree in technology, engineering, medicine or mathematics, or an overseas qualification of an equivalent standard. Candidates with alternative qualifications may be considered and should seek advice from the department.

Career prospects

The Management MSc is designed to equip students with the knowledge and skills to work for leading worldwide organisations. Students are supported to make a career plan and secure employment in an increasingly competitive job market. Graduates take up careers in diverse commercial sectors including finance, consulting and technology.

Technology Entrepreneurship MSc students go on to form their own start-up businesses such as www.wowzer.com and www.vungle.com.
MECHANICAL ENGINEERING

UCL Mechanical Engineering pioneered many initiatives such as the first teaching laboratories in the subject, and has developed research areas from patent laws to ship dynamics.

Our facilities include an extensive workshop, four engine test cells, fluid mechanics laboratories, a power laboratory and wave tanks.

With funding from the Royal Society and Wolfson Foundation, we have installed six biomaterials and bioengineering laboratories.

With an international reputation for the excellence of our research, we attract funding from numerous bodies including: the EU, UK Research Councils, UK Ministry of Defence, US Office of Naval Research, BAE Systems, Danish Agency for Science, Technology and Innovation, Cosworth Technology, Ebara, Jaguar Cars, Shell, Lloyds Register, BMT, the LRET and Unilever.

The department’s research activities are based on three main groups:

- **Biomedical engineering**: biomaterials, encapsulation; tissue engineering; biofluidics and CFD; biophysics; cardiovascular engineering; medical devices and mechatronics; ultrasonics and non-destructive evaluation
- **Energy and environment**: IC engines and fuel systems; fluid mechanics and microfluidics; refrigeration and air-conditioning; turbomachinery; CFD, and environmental and pollution modelling
- **Marine**: naval architecture; marine vehicle applications and design methods; renewable energy; electric propulsion and power systems; electric ship/submarine; computer-aided design; novel ship types and low carbon shipping.

**Entry requirements**

Normally a UK Master’s degree, or a minimum of an upper second-class Bachelor’s degree in a relevant discipline from a UK university, or an overseas qualification of an equivalent standard.

**Career prospects**

Recent graduates have entered professional occupations in the UK and overseas with leading industrial and shipping companies (e.g. Technip UK Ltd, DNV, Mahle Powertrain Ltd), technical consultancies and government agencies. Others have pursued post doctoral research and lectureships at UK and overseas institutions.

**Entry requirements**

A minimum of a second-class Bachelor’s degree from a UK university in a suitable engineering subject (or appropriate medical qualification for the Biomedical and Tissue Engineering MSc) or an overseas qualification of an equivalent standard.

**Career prospects**

Recent graduates have entered professional occupations in the UK and around the world with leading industrial companies in the UK and overseas (e.g. Health Information UK, Veloxis Pharmaceuticals, General Electric, Lloyds Register, EDF, and Gaz de France), technical consultancies (e.g. MOTT MacDonald Consultancy) and government agencies (e.g. Royal Navy, Ministry of Defence, UK NHS). Others have pursued doctoral study at UCL and other universities.
MEDICAL PHYSICS AND BIOENGINEERING

The spectrum of medical physics activities undertaken by our department is one of the broadest in the UK.

Students have access to an exceptionally wide range of workshop, laboratory and clinical facilities in the department and associated hospitals.

Research focuses on the development of new ideas and inventions, as well as their translation into clinically effective tools, and subsequent commercial exploitation.

Our MSc programmes are accredited by the Institute of Physics and Engineering in Medicine (IPEM).

Research programmes

<table>
<thead>
<tr>
<th>Programme</th>
<th>Full-time</th>
<th>Part-time</th>
</tr>
</thead>
<tbody>
<tr>
<td>MPhil/PhD</td>
<td>FT3</td>
<td>PT5</td>
</tr>
<tr>
<td>MRes + MPhil/PhD</td>
<td>FT4</td>
<td></td>
</tr>
</tbody>
</table>

Research areas are:
- Biomedical optics
- Computing, digital image processing
- Continence and skin technology
- Functional electrical stimulation
- Implanted devices
- Laser and endoscopic surgery
- Magnetic resonance imaging and spectroscopy
- Medical imaging including 3D graphics
- Neurophysiology including electrical impedance tomography
- Physiological sensing
- Radiation physics.

Entry requirements

A minimum of an upper second-class UK Bachelor’s degree in a relevant discipline, or an overseas qualification of an equivalent standard.

Career prospects

As a multi-disciplinary subject at the interface of physics, engineering, life sciences and computer science, our research students find themselves tackling problems over three or more of these areas. Some of our recent graduates have stayed within their field of study for postdoctoral research whilst others have moved deeper into one of the subject areas to continue their research. Whilst many graduates pursue a research career in either a university or industry, there are a number that have entered the NHS or have applied the skills gained in industry.

Tufted programmes

<table>
<thead>
<tr>
<th>Programme</th>
<th>Full-time</th>
<th>Part-time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medical Image Computing MSc</td>
<td>FT2</td>
<td>PT2</td>
</tr>
<tr>
<td>Physics and Engineering in Medicine: Biomedical Engineering and Medical Imaging MSc</td>
<td>FT1</td>
<td>PT2</td>
</tr>
<tr>
<td>Postgraduate Diploma</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physics and Engineering in Medicine: Radiation Physics MSc</td>
<td>FT1</td>
<td>PT2</td>
</tr>
<tr>
<td>Postgraduate Diploma</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physics and Engineering in Medicine (by Distance Learning) MSc</td>
<td></td>
<td>PT2</td>
</tr>
<tr>
<td>Postgraduate Diploma (flexible up to 5 years)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Entry requirements

A minimum of a second-class Bachelor’s degree in a relevant discipline from a UK university or an overseas qualification of an equivalent standard.

Career prospects

Our graduates will typically enter the healthcare profession as a clinical scientist or continue in full-time education to study for a PhD. Those becoming clinical scientists will often work in hospital radiotherapy or diagnostic imaging departments.

Funding

Further information on pages 26–31

Contact details

Miss Mohini Nair
EMAIL enquiries@medphys.ucl.ac.uk
TEL +44 (0)20 7679 0200

Tuition fees

Up-to-date tuition fee information is available at www.ucl.ac.uk/current-students/money

Funding

Further information on pages 26–31

15 academic staff
65 research students
55 taught graduate students
Research Assessment 2008
60% rated 4* or 3* (see page 5)
Security and Crime Science (SCS) uses evidence-based techniques to prevent and control crime and security problems, and to detect offenders.

SCS is devoted to reducing crime and terrorism through teaching, research and public policy analysis.

The department has strong links with security practitioners and policy makers as well as researchers and institutions worldwide.

It is multi-disciplined in its approach and draws on both the social and physical sciences including psychology, geography, computer science, engineering and mathematics.

Research programmes

<table>
<thead>
<tr>
<th>Programme</th>
<th>FT1</th>
<th>FT2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Security Science MRes + MPhil/PhD</td>
<td>FT3</td>
<td>PT5</td>
</tr>
</tbody>
</table>

The department has five main research groups:

• **Counter-terrorism**: situational prevention of terrorism; technology for counter-terrorism; transferable training between crime and terrorism

• **Crime mapping**: innovation in crime mapping methods; prospective crime mapping

• **Crime policy analysis and evaluation**: evaluation of crime prevention schemes; knowledge transfer

• **Designing out crime**: role of design in crime prevention; environmental design; crime risk and administrative procedure design

• **Forensic sciences**: blood pattern analysis; gunshot residue analysis; investigation of explosions.

SCS hosts the £17million UCL Security Science Doctoral Research Training Centre (UCL SECReT), the national centre for PhD training in security and crime science. The centre offers the most comprehensive four-year PhD programme for students wishing to pursue multi-disciplinary security or crime-related research.

### Entry requirements

MPhil/PhD: a UK Master’s degree in a relevant discipline, or a minimum of an upper second-class UK Bachelor’s degree, or an overseas qualification of an equivalent standard.

Security Science MRes + MPhil/PhD: a minimum of an upper-second-class UK Bachelor’s degree or an overseas qualification of an equivalent standard. Candidates with a UK Master’s in a science-based subject, or an overseas qualification of an equivalent standard are encouraged to apply.

### Career prospects

Graduates from our research programmes go on to research careers and to lecturing posts in academic institutions. Others have taken up policy-related positions in the public and private security sectors.

### Taught programmes

<table>
<thead>
<tr>
<th>Programme</th>
<th>FT1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Countering Organised Crime and Terrorism MSc (flexible 2-5 years)</td>
<td>FT1</td>
</tr>
<tr>
<td>Postgraduate Diploma (flexible 2-5 years)</td>
<td>FT1</td>
</tr>
<tr>
<td>Crime and Forensic Science MSc</td>
<td>FT1</td>
</tr>
<tr>
<td>Crime Science MSc (flexible 2-5 years)</td>
<td>FT1</td>
</tr>
<tr>
<td>Security and Crime Science Postgraduate Certificate (flexible up to 2 years)</td>
<td>FT1</td>
</tr>
</tbody>
</table>

### Entry requirements

Normally, a minimum of an upper second-class UK Bachelor’s degree in a relevant discipline or an overseas qualification of an equivalent standard. Relevant disciplines include science subjects (e.g. engineering or computer science); or social science subjects (e.g. psychology, criminology or geography). Alternatively candidates may qualify for entry if they can demonstrate five or more years of relevant professional experience (for example, in the police service, or as a crime prevention worker).

### Career prospects

Recent graduates have pursued PhD degrees, or joined higher education institutions, think-tanks or international bodies in teaching or research positions. The majority, however, pursue careers in law enforcement in the broadest sense; joining police forces or local authorities as crime analysts, the Serious Organised Crime Agency or the security services. Others have joined banks and other commercial organisations.

### Contact details

Research programmes:
Ms Kati Carter
EMAIL k.carter@ucl.ac.uk
TEL +44 (0)20 3108 3206

Taught programmes:
Ms Catherine Wheatcroft
EMAIL c.wheatcroft@ucl.ac.uk
TEL +44 (0)20 3108 3206

Funding

UCL Security and Crime Science and the UCL JDI Centre for the Forensic Sciences are offering up to 10 bursary scholarships that will pay between 25%–100% of the tuition fee for one of our MSc programmes.

Thirteen EPSRC scholarships for the UCL SECReT four-year MRes + MPhil/PhD in Security Science paying full UK/EU fees and an annual tax-free stipend of £17,000. See www.ucl.ac.uk/secret for details.

Further information on pages 26–31