



# FACULTY OF MATHEMATICAL AND PHYSICAL SCIENCES /

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A major undergraduate teaching asset, the Mill Hill Observatory in North-west London is equipped with five permanently mounted telescopes and a wide range of modern astronomical instrumentation.

Chemistry is the science at the heart of everything we see, hear, feel, touch and smell; studying chemistry helps you to understand the world around you. Closely related to physics and biology, chemistry helps you understand the properties and composition of matter and the interactions between substances.

## Subject overview

Total intake **115**

(2014 entry)

Applications per place **6**

(2012 entry)

### Research Assessment Exercise (RAE)

65% rated 4\* ('world-leading') or 3\* ('internationally excellent')

### First career destinations (2009–2011)

- Patent Analyst, Work Patent Seekers (2011)
- Deployment Chemist, Shell Infineum (2011)
- Tax Associate, Deloitte (2010)
- Full-time student, PhD in Drug Discovery at UCL (2010)
- Consultant, Simon Kucher and Partners (2009)

### Contact details

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For more information, including programme structure, scan this code with your smartphone or visit: [www.ucl.ac.uk/prospectus/chemistry](http://www.ucl.ac.uk/prospectus/chemistry)

## Chemistry MSci

UCAS: F101 • 4 years

**A levels:** AAA-ABB. Chemistry and either one science subject or Mathematics required. A pass in a further subject at **AS level** or equivalent is required. Standard **GCSE** offer (see page 30), except Mathematics at grade B.

**IB Diploma:** 34–38 points. A score of 16–18 points in three higher level subjects including Chemistry and either a science subject or Mathematics, with no score lower than 5.

**Other qualifications:** see online Prospectus entry.

This four-year programme offers an additional year on top of the Chemistry BSc, in which students may further specialise their interests and deepen their knowledge by undertaking advanced courses and research projects.

Years one and two follow the same structure as the Chemistry BSc, and you may transfer to the BSc at the end of year two should you wish (students are advised to apply for the MSci initially as this keeps more options open to you). In year three you will have scope to develop your own personal interests, and will undertake a literature project and a research methods course in preparation for year four, when you will complete an advanced chemical research project.

## Chemistry BSc

UCAS: F100 • 3 years

**A levels:** AAA-ABB. Chemistry and either one science subject or Mathematics required. A pass in a further subject at **AS level** or equivalent is required. Standard **GCSE** offer (see page 30), except Mathematics at grade B.

**IB Diploma:** 34–38 points. A score of 16–18 points in three higher level subjects including Chemistry and either a science subject or Mathematics, with no score lower than 5.

**Other qualifications:** see online Prospectus entry.

This three-year programme offers a complete education in chemistry, covering all the important areas of chemistry while also allowing you to take optional courses in other areas such as astronomy, biology, computing or physics.

In all three years, core courses provide a solid grounding in the areas of inorganic, organic and physical chemistry. These are supplemented by optional courses taken from a wide range on offer both within UCL Chemistry and from other areas (e.g. languages, life sciences, management). By year three you will have developed your own interests and specialisms. At the end of year two you may transfer to the four-year MSci programme; students are advised to apply for the MSci initially, as this offers more flexibility.

Five former staff and students from UCL Chemistry have won the Nobel Prize, including William Ramsay in 1904, for the discovery of five noble gases.

Chemistry

### Chemistry (International Programme) MSci

**UCAS:** F105 • 4 years

**A levels:** AAA. Chemistry and either one science subject or Mathematics required. A pass in a further subject at **AS level** or equivalent is required. Standard **GCSE** offer (see page 30), except Mathematics at grade B.

**IB Diploma:** 38 points. A total of 18 points in three higher level subjects including Chemistry and either Mathematics or a science, with no score below 5.

**Other qualifications:**  
see online Prospectus entry.

This four-year programme provides a complete education in chemistry and the option of taking courses in other areas, with the opportunity to spend a year abroad studying at a selected university in Australia, Canada or the USA.

Years one and two are identical to the Chemistry BSc. You will spend year three studying overseas in an English-speaking country, for example at the California Institute of Technology (Caltech) or the University of Toronto. Year three courses are primarily lecture-based, and are taught in English. In year four you will return to UCL to undertake a chemical research project and advanced optional courses, allowing you to develop your own interests and specialisations.

### Chemical Physics MSci

**UCAS:** F323 • 4 years

**A levels:** AAA. Chemistry, Mathematics and Physics required. A pass in a further subject at **AS level** or equivalent is required. Standard **GCSE** offer (see page 30), except Mathematics at grade B.

**IB Diploma:** 38 points. A total of 18 points in three higher level subjects including Chemistry, Mathematics and Physics, with no score below 5.

**Other qualifications:**  
see online Prospectus entry.

This four-year programme offers an additional year on top of the Chemical Physics BSc, providing scope for greater in-depth study in advanced topics such as quantum mechanics and computational chemistry. It is ideal if you intend to pursue a science-based career.

Years one and two are identical to the BSc, and you may transfer to the BSc after year two if you wish (we advise you to apply for the MSci initially as this offers more flexibility). In year three you undertake a literature review and an introduction to research methods in preparation for year four, when you complete an advanced chemical research project. Throughout years three and four you also choose advanced courses from a wide range, allowing you to develop your own interests.

### Chemical Physics BSc

**UCAS:** F320 • 3 years

**A levels:** AAA. Chemistry, Mathematics and Physics required. A pass in a further subject at **AS level** or equivalent is required. Standard **GCSE** offer (see page 30), except Mathematics at grade B.

**IB Diploma:** 38 points. A total of 18 points in three higher level subjects including Chemistry, Mathematics and Physics, with no score below 5.

**Other qualifications:**  
see online Prospectus entry.

Chemical Physics is an area of modern chemistry that will fascinate students who enjoy the science common to physics and chemistry. You will gain a fundamental understanding of the origins of chemical behaviour, while exploring exciting developments at the interface of chemistry with the other physical sciences.

Compulsory courses in all years provide you with a solid foundation for your studies. In years two and three you may develop your own interests by choosing optional courses from a wide range offered across the Faculty of Mathematical and Physical Sciences, and there is scope to develop skills in physics and theoretical aspects of chemistry. At the end of year two you may transfer to the four-year MSci programme; students are advised to apply for the MSci initially, as this offers more flexibility.





### Medicinal Chemistry MSci

UCAS: F153 • 4 years

**A levels:** AAA-ABB. Chemistry plus either one, or preferably two from Biology (preferred), Mathematics or Physics. A pass in a further subject at **AS level** or equivalent is required. Standard **GCSE** offer (see page 30), except Mathematics at grade B.

**IB Diploma:** 34-38 points. A score of 16-18 points in three higher level subjects including Chemistry and either Biology (preferred), Mathematics or Physics, with no score lower than 5.

**Other qualifications:**  
see online Prospectus entry.

This four-year programme offers an additional year on top of the Medicinal Chemistry BSc, in which students may undertake an advanced research project in fields such as drug design, chemical biology or organic chemistry.

Years one and two are identical to the BSc, and you may transfer to the BSc after year two if you wish (we advise you to apply for the MSci initially as this offers more flexibility). In year three you will undertake a literature project and an introduction to research methods in preparation for year four, when you will complete an advanced chemical research project. In years three and four you may also choose optional courses from a wide range offered across UCL.

### Medicinal Chemistry BSc

UCAS: F150 • 3 years

**A levels:** AAA-ABB. Chemistry plus either one, or preferably two from Biology (preferred), Mathematics or Physics. A pass in a further subject at **AS level** or equivalent is required. Standard **GCSE** offer (see page 30), except Mathematics at grade B.

**IB Diploma:** 34-38 points. A score of 16-18 points in three higher level subjects including Chemistry and either Biology (preferred), Mathematics or Physics, with no score lower than 5.

**Other qualifications:**  
see online Prospectus entry.

Medicinal chemistry is concerned with the discovery, design and synthesis of new drugs for clinical use. This BSc includes courses in biochemistry, biology, physiology and pharmacology, along with the fundamentals of chemistry necessary to design and synthesize drugs. These provide an understanding of the link between chemical structure and clinical effectiveness.

Half your courses will be taken in chemistry and half in the life sciences. Years one and two comprise compulsory courses providing a grounding in subjects such as organic and physical chemistry, biochemistry and physiology. In year three you will also have the opportunity to select optional courses from a wide range across UCL. At the end of year two you may transfer to the four-year MSci programme; we advise you to apply for the MSci initially, as this offers more flexibility.

### Chemistry with a European Language MSci

UCAS: F1RX • 4 years

**A levels:** AAA-ABB. Chemistry and either one science subject or Mathematics required. A pass in a further subject at **AS level** or equivalent is required. Standard **GCSE** offer (see page 30), except Mathematics and a foreign language at grade B.

**IB Diploma:** 34-38 points. A score of 16-18 points in three higher level subjects including Chemistry and either a science subject or Mathematics, with no score lower than 5.

**Other qualifications:**  
see online Prospectus entry.

This four-year programme offers an additional year on top of the Chemistry with a European Language BSc, which you will spend abroad at a European university (we currently have links with institutions in France, Germany, Italy, Spain and Sweden) undertaking an advanced chemical research project.

Years one and two are identical to the BSc and you may transfer to the BSc after year two if you wish (we advise you to apply for the MSci initially as this offers more flexibility). In years one, two and three language study will take up approximately 25% of your time, and the chemistry content is identical to that of the single-subject Chemistry BSc. Year four is spent at a university in a country where your chosen language is spoken, undertaking a research project.



### Chemistry with a European Language BSc

UCAS: F1R9 • 3 years

**A levels:** AAA-ABB. Chemistry and either one science subject or Mathematics required. A pass in a further subject at **AS level** or equivalent is required. Standard **GCSE** offer (see page 30), except Mathematics and a foreign language at grade B.

**IB Diploma:** 34-38 points. A score of 16-18 points in three higher level subjects including Chemistry and either a science subject or Mathematics, with no score lower than 5.

**Other qualifications:**  
see online Prospectus entry.

This BSc programme provides a thorough grounding in all major aspects of chemistry and fluency in one of a range of languages, including French, German, Italian and Spanish. Graduates will be well placed to work in mainland Europe or as part of a multinational company.

Throughout your three years you will take approximately 25% of your courses in the UCL Centre for Languages & International Education, in small classes with common levels of fluency ranging from beginners to experts. The chemistry content is identical to that of the single-subject Chemistry BSc, with compulsory courses in each year covering inorganic, organic and physical chemistry and a wide range of optional courses. Please note that the BSc does not offer a year abroad; to keep your options open we advise you to apply initially for the MSci.

### Chemistry with Management Studies MSci

UCAS: F1NF • 4 years

**A levels:** AAA-ABB. Chemistry and either one science subject or Mathematics required. A pass in a further subject at **AS level** or equivalent is required. Standard **GCSE** offer (see page 30), except Mathematics at grade B.

**IB Diploma:** 34-38 points. A score of 16-18 points in three higher level subjects including Chemistry and either a science subject or Mathematics, with no score lower than 5.

**Other qualifications:**  
see online Prospectus entry.

This four-year programme offers an additional year on top of the Chemistry with Management Studies BSc in which to investigate both disciplines in greater depth. The programme offers a thorough grounding in management skills while all major aspects of chemistry are explored and developed.

The first two years of study are identical to the equivalent BSc, and we advise you to apply for the MSci initially as this keeps more options open. You will cover the full range of chemistry core components, together with optional courses in chemistry and other options from outside the department. The Management Studies component fulfils around 25% of the programme. In your final year you will undertake a chemical research project alongside optional courses, allowing you to specialise in your chosen field.

### Chemistry with Management Studies BSc

UCAS: F1N2 • 3 years

**A levels:** AAA-ABB. Chemistry and either one science subject or Mathematics required. A pass in a further subject at **AS level** or equivalent is required. Standard **GCSE** offer (see page 30), except Mathematics at grade B.

**IB Diploma:** 34-38 points. A score of 16-18 points in three higher level subjects including Chemistry and either a science subject or Mathematics, with no score lower than 5.

**Other qualifications:**  
see online Prospectus entry.

The Chemistry with Management Studies BSc at UCL is ideal if you are considering a career in management and are seeking to develop managerial skills. The core of the programme's chemistry component is the same as in the Chemistry BSc, giving you the same thorough grounding in all major aspects of the subject.

Years one and two comprise compulsory introductory courses in both chemistry and management studies, with approximately 25% of your time spent on management studies. The chemistry content is identical to that of the single-subject Chemistry BSc. At the end of year two you may transfer to the four-year MSci programme; we advise you to apply for the MSci initially, as this offers more flexibility. In year three, advanced compulsory courses are supplemented with optional courses from a wide range offered across UCL.



### Chemistry with Mathematics MSci

UCAS: F1GC • 4 years

**A levels:** AAA-AAB. Mathematics grade A required, plus Chemistry. A pass in a further subject at **AS level** or equivalent is required. Standard **GCSE** offer (see page 30), except Mathematics at grade B.

**IB Diploma:** 36-38 points. A score of 17-18 points in three higher level subjects including Mathematics at grade 6 and Chemistry, with no score below 5.

**Other qualifications:**  
see online Prospectus entry.

This four-year programme offers an extra year on top of the Chemistry with Mathematics BSc in which to undertake an original chemical research project and study chemistry and its relationship with other disciplines in greater depth.

The first two years of study are identical to the equivalent BSc, and we advise you to apply for the MSci initially as this keeps more options open. In year three you will undertake a literature project and an introduction to research methods in preparation for year four, when you will complete an advanced chemical research project. In years three and four you will also take advanced courses, both compulsory and optional, many complementing your mathematical skills (e.g. Numerical Methods in Chemistry, Topics in Quantum Mechanics).

### Chemistry with Mathematics BSc

UCAS: F1G1 • 3 years

**A levels:** AAA-AAB. Mathematics grade A required, plus Chemistry. A pass in a further subject at **AS level** or equivalent is required. Standard **GCSE** offer (see page 30), except Mathematics at grade B.

**IB Diploma:** 36-38 points. A score of 17-18 points in three higher level subjects including Mathematics at grade 6 and Chemistry, with no score below 5.

**Other qualifications:**  
see online Prospectus entry.

Many aspects of chemistry, particularly physical and theoretical chemistry, require a good understanding of advanced mathematical methods. The Chemistry with Mathematics BSc offers the opportunity to gain a fundamental understanding of the origins of chemical behaviour, while exploring exciting developments at the interface of chemistry with the other physical sciences.

Years one and two mainly comprise compulsory courses in chemistry and mathematics. The mathematics component takes up about 25% of the programme and the chemistry component is identical to that of the single-subject Chemistry BSc. At the end of year two you may transfer to the four-year MSci programme; we advise you to apply for the MSci initially as this offers more flexibility. In year three, advanced compulsory courses are supplemented with optional courses from a wide range offered across UCL.



### Felicity Gossan

Chemistry MSci

Fourth Year

“I chose to study chemistry because I find it intellectually stimulating and a lot of fun. I chose UCL for the friendly, approachable attitude of the staff and students alike. The staff treat you as equals here. The thing I enjoy most about chemistry is the time spent in the laboratory. It’s out of the classroom teaching, which is a stimulating way to learn, but it’s also such a social environment and there’s a great sense of community. I always think that nobody knows their classmates like a chemist does.

Studying in London, one of the most vibrant and exciting cities in the country, is fantastic. It’s a great chance to live in the thick of it, not in just another university town. There are so many libraries and museums that you can expand your interests and life experiences as well as learning your subject, which is a big part of my university life.

I am a helper for the Chemical and Physical Society (CPS). This is a great chance to socialise with my peers and lecturers alike, and also people who work in the field. I’ve seen some really great lectures thanks to CPS. I also explore London as much as I can when I’m not studying; I love finding new galleries and frequenting the markets.”

The Earth sciences address fundamental questions about the origin of our dynamic planet, the processes that shape it, and the history of the life it sustains. You will study the complex interactions of the Earth 'system' and environmental issues including climate change, earthquakes, volcanic eruptions, and Earth's resources.

## Subject overview

**Total intake** 55

(2014 entry)

**Applications per place** 5

(2012 entry)

### Research Assessment Exercise (RAE)

80% rated 4\* ('world-leading')  
or 3\* ('internationally excellent')

### First career destinations (2009–2011)

- Full-time student, PhD in Palaeoclimatology at Uppsala University (2011)
- Satellite Data Processing Technician, Centre for Polar Observation and Modelling (2011)
- Upstream Oil and Gas Recruiter, Dynamic Recruitment Solutions (2010)
- Geoscientist, Geospatial Research Ltd (2009)
- Full-time student, MSc in Integrated Petroleum Geoscience at the University of Aberdeen (2009)

### Contact details

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For more information, including programme structure, scan this code with your smartphone or visit:  
[www.ucl.ac.uk/prospectus/earthsci](http://www.ucl.ac.uk/prospectus/earthsci)

## Earth Sciences MSci

**UCAS:** F604 • 4 years

**A levels:** AAA-ABB. Two sciences preferred. A pass in a further subject at **AS level** or equivalent is required. Standard **GCSE** offer (see page 30).

**IB Diploma:** 34–38 points. A score of 16–18 points in three higher level subjects, preferably to include two sciences, with no score lower than 5.

### Other qualifications:

see online Prospectus entry.

This four-year programme provides an additional year on top of the Earth Sciences BSc, in which you undertake an independent research project, extend your knowledge with advanced courses related to your specialist pathway, and join in a wide-ranging seminar series on Earth and Planetary System Science.

Years one, two and three are identical to the Earth Sciences BSc; you will select a pathway through the subject (including palaeobiology or planetary science) and choose from a wide range of courses within these areas. In year four you will undertake an independent research project, an introduction to research planning and practice through example and experience.

## Earth Sciences BSc

**UCAS:** F603 • 3 years

**A levels:** AAA-ABB. Two sciences preferred. A pass in a further subject at **AS level** or equivalent is required. Standard **GCSE** offer (see page 30).

**IB Diploma:** 34–38 points. A score of 16–18 points in three higher level subjects, preferably to include two sciences, with no score lower than 5.

### Other qualifications:

see online Prospectus entry.

This flexible programme allows you to select from the range of options offered across environmental geoscience, geology and geophysics. You may also graduate with a degree in Earth Sciences (Palaeobiology), or in Earth Sciences (Planetary Science), dependent on your chosen courses.

Upon entry to the programme you will select a pathway through the subject (including palaeobiology or planetary science). The programme includes many optional courses taken from across the Earth Sciences. Year three emphasises individual initiative and problem-based learning, and fieldwork provides you with a unique opportunity to develop independent and team skills and problem-solving abilities.





### Earth Sciences (International Programme) MSci

UCAS: F605 • 4 years

**A levels:** AAA-ABB. Two (essential), three (preferred) from Biology, Chemistry, Mathematics or Physics. A pass in a further subject at **AS level** or equivalent is required. Standard **GCSE** offer (see page 30).

**IB Diploma:** 34-38 points. A score of 16-18 points in three higher level subjects to include at least two (preferably three) from Biology, Chemistry, Mathematics or Physics, with no score lower than 5.

**Other qualifications:**  
see online Prospectus entry.

This four-year programme allows students to follow any of the MSci programmes offered by UCL Earth Sciences, with the additional opportunity to spend year three studying at an approved university in Australia, New Zealand, continental Europe or North America.

You will initially follow the first two years of the Environmental Geoscience, Geology or Geophysics programme (or the Palaeobiology or Planetary Science pathways in the Earth Sciences programme), but with an additional option of a foreign language course. Year three is spent studying abroad, and you will return to UCL for year four, in which you will undertake an independent research project and advanced optional courses related to your chosen specialism.

### Environmental Geoscience MSci

UCAS: F645 • 4 years

**A levels:** AAA-ABB. Two sciences preferred. A pass in a further subject at **AS level** or equivalent is required. Standard **GCSE** offer (see page 30).

**IB Diploma:** 34-38 points. A score of 16-18 points in three higher level subjects, preferably to include two sciences, with no score lower than 5.

**Other qualifications:**  
see online Prospectus entry.

This four-year programme provides an additional year on top of the Environmental Geoscience BSc, in which students extend their knowledge and understanding by taking advanced courses and undertaking an independent research project. The programme is fully accredited by the Geological Society of London.

Years one, two and three are identical to the Environmental Geoscience BSc, developing your core skills and knowledge and allowing you to develop your own interests and specialisations within the subject. In year four you will undertake an independent research project, as well as choosing advanced optional courses from a wide range (e.g. palaeoclimatology, physical volcanology, tectonic geomorphology and volcanic hazards). You may also choose some optional courses from outside Earth Sciences, for example in Geography.

### Environmental Geoscience BSc

UCAS: F644 • 3 years

**A levels:** AAA-ABB. Two sciences preferred. A pass in a further subject at **AS level** or equivalent is required. Standard **GCSE** offer (see page 30).

**IB Diploma:** 34-38 points. A score of 16-18 points in three higher level subjects, preferably to include two sciences, with no score lower than 5.

**Other qualifications:**  
see online Prospectus entry.

Environmental Geoscience is concerned with the interaction between the Earth sciences and human activity, and this BSc provides a sound topical background in the environmental aspects of the Earth sciences. The programme is fully accredited by the Geological Society of London.

This programme offers an integrated study of the Earth, encompassing the evolution of the planet and its internal workings, the development of its biosphere and atmosphere, and its surface processes, emphasising natural and man-induced development of the terrestrial environment. In years one and two you will acquire core skills and knowledge in the subject. Year three allows for specialisation and diversification, emphasising individual initiative and problem-based learning. The emphasis on fieldwork provides a unique opportunity to develop independent and team skills and problem-solving abilities.



The Rock Room is home to the UCL Geological Collections, and also acts as the UCL Earth Sciences common room



### Geology MSci

**UCAS:** F601 • 4 years

**A levels:** AAA-ABB. Two sciences preferred. A pass in a further subject at **AS level** or equivalent is required. Standard **GCSE** offer (see page 30).

**IB Diploma:** 34-38 points. A score of 16-18 points in three higher level subjects, preferably to include two sciences, with no score lower than 5.

**Other qualifications:**  
see online Prospectus entry.

This four-year programme provides an additional year on top of the Geology BSc, in which students extend their knowledge and understanding by taking advanced courses and undertaking an independent research project. The programme is fully accredited by the Geological Society of London.

Years one, two and three are identical to the Geology BSc, developing your core skills and knowledge and allowing you to develop your own interests and specialisations within the subject. In year four you will undertake an independent research project, as well as choosing advanced optional courses from a wide range (e.g. continental magmatism, palaeoceanography, tectonic geomorphology). You may also choose some optional courses from outside Earth Sciences, for example in Geography.

### Geology BSc

**UCAS:** F600 • 3 years

**A levels:** AAA-ABB. Two sciences preferred. A pass in a further subject at **AS level** or equivalent is required. Standard **GCSE** offer (see page 30).

**IB Diploma:** 34-38 points. A score of 16-18 points in three higher level subjects, preferably to include two sciences, with no score lower than 5.

**Other qualifications:**  
see online Prospectus entry.

This BSc provides an education in all major branches of the geological sciences, integrating theoretical studies with essential practical skills in the field and laboratory. It provides a platform for careers in the oil, mineral, environmental and geotechnical industries, and is fully accredited by the Geological Society of London.

Years one and two provide you with core skills and knowledge as you study the nature of rocks and minerals; past life and palaeoenvironments; and the physics and chemistry of the Earth and major Earth processes such as plate tectonics. Year three provides opportunities for specialisation and diversification, emphasising individual initiative and problem-based learning, with fieldwork providing a unique opportunity to develop independent and team-working skills and problem-solving abilities.

The Greenough Society organises events and social outings for Earth Sciences students including lectures, field trips, guest speakers and dinners.

#### Earth Sciences

#### Geophysics MSci

UCAS: F663 • 4 years

**A levels:** AAA-ABB. Mathematics and Physics required. A pass in a further subject at **AS level** or equivalent is required. Standard **GCSE** offer (see page 30).

**IB Diploma:** 34-38 points. A score of 16-18 points in three higher level subjects including Mathematics and Physics, with no score lower than 5.

**Other qualifications:**  
see online Prospectus entry.

This four-year programme provides an additional year on top of the Geophysics BSc, in which students extend their knowledge and understanding by taking advanced courses and undertaking an independent research project. The programme is fully accredited by the Geological Society of London.

Years one, two and three are identical to the Geophysics BSc, developing your core skills and knowledge and allowing you to develop your own interests and specialisations within the subject. In year four you will undertake an independent research project, as well as choosing advanced optional courses from a wide range (e.g. deep Earth and planetary modelling, Earth and planetary materials, earthquake seismology and earthquake hazards). You may also choose some optional courses from outside Earth Sciences, for example in Physics and Astronomy.

#### Geophysics BSc

UCAS: F660 • 3 years

**A levels:** AAA-ABB. Mathematics and Physics required. A pass in a further subject at **AS level** or equivalent is required. Standard **GCSE** offer (see page 30).

**IB Diploma:** 34-38 points. A score of 16-18 points in three higher level subjects including Mathematics and Physics, with no score lower than 5.

**Other qualifications:**  
see online Prospectus entry.

This broad-based programme provides a complete study of the physics of the solid Earth and its constituent materials, the atmosphere, oceans and ice sheets, leading to a firm foundation in geology, geological fieldwork, physics, mathematics and computing. The programme is fully accredited by the Geological Society of London.

Years one and two provide you with core skills and knowledge as you study the fundamentals of global geophysics, geophysical instruments and fieldwork, laboratory rock and ice physics, seismology, physics of the Earth's deep interior, weather, ice sheets, and climate. Theoretical studies are integrated with a large element of illustrative practical work. In the third year you may specialise, and there is an emphasis on individual initiative and problem-based learning. Fieldwork provides the opportunity to develop independent and team-working skills and problem-solving abilities.



#### George Corbin

#### Geology MSci

#### Third Year

“The degree programme encompasses three central sciences in a context which has long interested me, largely due to its analytical and problem-solving components. I believe that the balance between lectures, field work, laboratory work, tutorials and seminars provides a challenging and transferable education and experience. I placed high value on UCL's acceptance of students from a diverse range of backgrounds. A location in central London positions students on the doorsteps of the bases for national geological societies, plus the headquarters of many prospective employers.

Field work has provided a number of highlights. The department places great importance on the number of field work hours, with three or four field trips in your first year! In the later years there are trips to Marche (Italy), the Pyrenees, and Betics (Spain), Germany, plus an independent mapping project.

My choice to study in London was not taken lightly; however, the volume and diversity of resources and services that are so freely available make living and studying a rewarding experience. London's set-up allows for a successful degree plus an entertaining and rich social life.”

Mathematics underpins the modern picture of the world around us. Our degree programmes are intellectually challenging and the rewards of study are enormous. Mathematics will develop your imagination and your ability to think and argue clearly, as well as offering a wealth of options for your future career.

## Subject overview

**Total intake** 204

(2014 entry)

**Applications per place** 8

(2012 entry)

### Research Assessment Exercise (RAE)

50%: Applied; 60%: Pure  
rated 4\* ('world-leading')  
or 3\* ('internationally excellent')

### First career destinations (2009–2011)

- Computational Fluid Dynamics Engineer, Morson Projects Ltd (2011)
- Geophysicist, CGG Veritas (2011)
- Financial Graduate Trainee, Schroder (2010)
- Full-time student, MSc in Financial Engineering at New York University (2010)
- Statistical Analyst, Legal and General (2009)

### Contact details

Dr Robert Bowles (Admissions Tutor)

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For more information, including programme structure, scan this code with your smartphone or visit:  
[www.ucl.ac.uk/prospectus/mathematics](http://www.ucl.ac.uk/prospectus/mathematics)

## Mathematics MSci

**UCAS:** G107 • 4 years

**A levels:** A\*A\*A, or A\*AA and a 1 in any STEP paper or distinction in Mathematics AEA. Mathematics and Further Mathematics required at A\*, or one of Mathematics or Further Mathematics at A\* if STEP or AEA offered. A pass in a further subject at **AS level** or equivalent is required. Standard **GCSE** offer (see page 30).

**IB Diploma:** 39–40 points. A score of 20 points in three higher level subjects including 7 in Mathematics, or 19 points in three higher level subjects including 7 in Mathematics and a 1 in any STEP paper or a distinction in Mathematics AEA, with no score below 5.

**Other qualifications:**  
see online Prospectus entry.

The four-year Mathematics MSci offers an additional year on top of the Mathematics BSc, allowing students to specialise further by taking more advanced courses, and undertaking a major final-year project.

Years one and two follow the same structure as the Mathematics BSc, providing you with a solid grounding in the subject and a basis upon which to specialise in later years. In years two and three there is a huge variety of optional courses to choose from both within and outside the department, and in year four you will undertake a major project. We advise you to apply for the MSci initially, as transfer to the BSc is possible during the first three years.

## Mathematics BSc

**UCAS:** G100 • 3 years

**A levels:** A\*A\*A, or A\*AA and a 1 in any STEP paper or distinction in Mathematics AEA. Mathematics and Further Mathematics required at A\*, or one of Mathematics or Further Mathematics at A\* if STEP or AEA offered. A pass in a further subject at **AS level** or equivalent is required. Standard **GCSE** offer (see page 30).

**IB Diploma:** 39–40 points. A score of 20 points in three higher level subjects including 7 in Mathematics, or 19 points in three higher level subjects including 7 in Mathematics and a 1 in any STEP paper or a distinction in Mathematics AEA, with no score below 5.

**Other qualifications:**  
see online Prospectus entry.

This three-year programme allows you to study varied aspects of mathematics to an advanced level, with core courses in algebra, analysis, applied mathematics and mathematical methods. With this core knowledge you may then build your degree, choosing options from over 30 specialist courses.

In the first half of the programme you will gain a solid grounding in basic advanced mathematics. From then on you may specialise in your areas of interest, with a huge variety of optional courses to choose from both within and outside the department (e.g. geophysical fluid dynamics, mathematics in biological or financial contexts, number theory, probability, a language or social science). The programme is also offered as a four-year MSci.



### Mathematics with Economics MSci

UCAS: G1LC • 4 years

**A levels:** A\*A\*A, or A\*AA and a 1 in any STEP paper or distinction in Mathematics AEA. Mathematics and Further Mathematics required at A\*, or one of Mathematics or Further Mathematics at A\* if STEP or AEA offered. A pass in a further subject at **AS level** or equivalent is required. Standard **GCSE** offer (see page 30).

**IB Diploma:** 39-40 points. A score of 20 points in three higher level subjects including 7 in Mathematics, or 19 points in three higher level subjects including 7 in Mathematics and a 1 in any STEP paper or a distinction in Mathematics AEA, with no score below 5.

**Other qualifications:**  
see online Prospectus entry.

This MSci offers an extra year of study on top of the Mathematics with Economics BSc, during which students have the opportunity to specialise further by taking more advanced courses, and undertaking a major project. No previous knowledge of economics is required.

Years one and two follow the same structure as the BSc programme, providing a solid grounding in both mathematics and economics. In years two and three you may choose optional courses from a huge variety both within and outside the department. In year four you will undertake a major project involving a substantial piece of written work and a presentation. We advise you to apply for the MSci initially, as transfer to the BSc is possible during the first three years.

### Mathematics with Economics BSc

UCAS: G1L1 • 3 years

**A levels:** A\*A\*A, or A\*AA and a 1 in any STEP paper or distinction in Mathematics AEA. Mathematics and Further Mathematics required at A\*, or one of Mathematics or Further Mathematics at A\* if STEP or AEA offered. A pass in a further subject at **AS level** or equivalent is required. Standard **GCSE** offer (see page 30).

**IB Diploma:** 39-40 points. A score of 20 points in three higher level subjects including 7 in Mathematics, or 19 points in three higher level subjects including 7 in Mathematics and a 1 in any STEP paper or a distinction in Mathematics AEA, with no score below 5.

**Other qualifications:**  
see online Prospectus entry.

This BSc is designed for students who are interested in making mathematics their major area of study but who would also like to obtain a knowledge and understanding of general economics and related subjects such as commerce and business. No previous knowledge of economics is required.

Years one and two provide a thorough grounding in analysis, algebra and mathematical methods. You will also take introductory economics courses, comprising both microeconomics and macroeconomics components. From year two onwards there is opportunity to specialise by taking optional courses from a wide range on offer from both within and outside the department, and in year three all courses are optional. The programme is also offered as a four-year MSci.

### Mathematics with Management Studies MSci

UCAS: G1NF • 4 years

**A levels:** A\*A\*A, or A\*AA and a 1 in any STEP paper or distinction in Mathematics AEA. Mathematics and Further Mathematics required at A\*, or one of Mathematics or Further Mathematics at A\* if STEP or AEA offered. A pass in a further subject at **AS level** or equivalent is required. Standard **GCSE** offer (see page 30).

**IB Diploma:** 39-40 points. A score of 20 points in three higher level subjects including 7 in Mathematics, or 19 points in three higher level subjects including 7 in Mathematics and a 1 in any STEP paper or a distinction in Mathematics AEA, with no score below 5.

**Other qualifications:**  
see online Prospectus entry.

This MSci offers an additional year of study on top of the equivalent BSc, during which students have the opportunity to specialise further by taking more advanced courses, and undertaking a major project. No previous knowledge of management studies is required.

Years one and two follow the same structure as the BSc programme, providing a solid grounding in both mathematics and management studies. In years two and three you may choose optional courses from a huge range in mathematics, management studies and other subjects. In year four you will undertake a major project involving a substantial piece of written work and a presentation. We advise you to apply for the MSci initially, as transfer to the BSc is possible during the first three years.





## Atiqa Sheikh

Mathematics MSci

Fourth Year

“I chose to study Mathematics because it has been my favourite subject since I was small. I have always been fascinated by the logical and abstract structure of the subject and gain a lot of satisfaction from studying it which is what inspired me to study it at a degree level. I chose to study at UCL since it has an excellent reputation amongst UK universities and also because I wanted to stay within London.

I really like the way the Mathematics degree programme is structured and taught; the teaching staff are extremely friendly and always willing to help which makes me feel really comfortable at UCL. A range of courses are offered to students amongst which my favourites have always been the Algebra courses. Currently I am really enjoying studying Algebraic Geometry and hope to take it further to research level. The department also offers excellent study resources such as past papers and solutions which I have found very helpful.

I wish to pursue a PhD in Pure Mathematics at UCL after completing my degree. In particular I want to research into Algebraic Geometry and would also like the chance to lecture in Mathematics at UCL!”

## Mathematics with Management Studies BSc

UCAS: G1N2 • 3 years

**A levels:** A\*A\*A, or A\*AA and a 1 in any STEP paper or distinction in Mathematics AEA. Mathematics and Further Mathematics required at A\*, or one of Mathematics or Further Mathematics at A\* if STEP or AEA offered. A pass in a further subject at **AS level** or equivalent is required. Standard **GCSE** offer (see page 30).

**IB Diploma:** 39-40 points. A score of 20 points in three higher level subjects including 7 in Mathematics, or 19 points in three higher level subjects including 7 in Mathematics and a 1 in any STEP paper or a distinction in Mathematics AEA, with no score below 5.

**Other qualifications:**  
see online Prospectus entry.

This BSc combines a broad-based training in mathematics with highly practical courses from UCL's Department of Management Science and Innovation, which will be of direct use to those seeking a career in management. No previous knowledge of management studies is required.

Years one and two provide a thorough grounding in pure mathematics and mathematical methods, as well as an introduction to management studies. From year two onwards there is opportunity to specialise by taking optional courses from a wide range on offer from both within and outside the areas of mathematics and management studies, and in year three all courses are optional. The programme is also offered as a four-year MSci.

## Mathematics with Mathematical Physics MSci

UCAS: G1FH • 4 years

**A levels:** A\*A\*A, or A\*AA and a 1 in any STEP paper or distinction in Mathematics AEA. Mathematics and Further Mathematics required at A\*, or one of Mathematics or Further Mathematics at A\* if STEP or AEA offered. Physics also required. A pass in a further subject at **AS level** or equivalent is required. Standard **GCSE** offer (see page 30).

**IB Diploma:** 39-40 points. A score of 20 points in three higher level subjects including 7 in Mathematics and at least 6 in Physics, or 19 points in three higher level subjects including 7 in Mathematics and at least 6 in Physics and a 1 in any STEP paper or a distinction in Mathematics AEA, with no score below 5.

**Other qualifications:**  
see online Prospectus entry.

This MSci offers an additional year of study on top of the Mathematics with Mathematical Physics BSc, during which students have the opportunity to specialise further by taking more advanced courses, and undertaking a major project.

Years one and two follow the same structure as the BSc, providing you with a solid grounding and a basis upon which to specialise in later years. In years two and three you may choose optional courses from a wide range in mathematics, physics and other subjects (e.g. a language or social science). In year four you will undertake a major project. We advise you to apply for the MSci initially, as transfer to the BSc is possible during the first three years.



### Mathematics with Mathematical Physics BSc

UCAS: G1F3 • 3 years

**A levels:** A\*A\*A, or A\*AA and a 1 in any STEP paper or distinction in Mathematics AEA. Mathematics and Further Mathematics required at A\*, or one of Mathematics or Further Mathematics at A\* if STEP or AEA offered. Physics also required. A pass in a further subject at **AS level** or equivalent is required. Standard **GCSE** offer (see page 30).

**IB Diploma:** 39-40 points. A score of 20 points in three higher level subjects including 7 in Mathematics and at least 6 in Physics, or 19 points in three higher level subjects including 7 in Mathematics and at least 6 in Physics and a 1 in any STEP paper or a distinction in Mathematics AEA, with no score below 5.

**Other qualifications:**  
see online Prospectus entry.

Mathematics and physics are closely interlinked subjects, with each providing many fascinating insights into the other. Students on this programme receive a thorough mathematical training and may also take courses in physics and astronomy elsewhere in UCL and the University of London.

Years one and two provide a thorough grounding in pure mathematics and mathematical methods, as well as an introduction to physics subjects such as quantum mechanics. From year two onwards you may specialise by taking optional courses from a wide range on offer from both within and outside the areas of mathematics and physics, and in year three all courses are optional. The programme is also offered as a four-year MSci.

### Mathematics with Modern Languages MSci

UCAS: G1TX • 4 years

**A levels:** A\*A\*A, or A\*AA and a 1 in any STEP paper or distinction in Mathematics AEA. Mathematics and Further Mathematics required at A\*, or one of Mathematics or Further Mathematics at A\* if STEP or AEA offered. A pass in a further subject at **AS level** or equivalent is required. Standard **GCSE** offer (see page 30).

**IB Diploma:** 39-40 points. A score of 20 points in three higher level subjects including 7 in Mathematics, or 19 points in three higher level subjects including 7 in Mathematics and a 1 in any STEP paper or a distinction in Mathematics AEA, with no score below 5.

**Other qualifications:**  
see online Prospectus entry.

This four-year programme offers an additional year of study on top of the Mathematics with Modern Languages BSc, during which students have the opportunity to specialise further by taking more advanced courses, and undertaking a major project.

Years one and two follow the same structure as the BSc, providing you with a solid grounding and a basis upon which to specialise in later years. In years two and three you may choose optional courses from a wide range in mathematics, languages and other subjects (e.g. a social science). In year four you will undertake a major project. We advise you to apply for the MSci initially, as transfer to the BSc is possible during the first three years.

### Mathematics with Modern Languages BSc

UCAS: G1T9 • 3 years

**A levels:** A\*A\*A, or A\*AA and a 1 in any STEP paper or distinction in Mathematics AEA. Mathematics and Further Mathematics required at A\*, or one of Mathematics or Further Mathematics at A\* if STEP or AEA offered. A pass in a further subject at **AS level** or equivalent is required. Standard **GCSE** offer (see page 30).

**IB Diploma:** 39-40 points. A score of 20 points in three higher level subjects including 7 in Mathematics, or 19 points in three higher level subjects including 7 in Mathematics and a 1 in any STEP paper or a distinction in Mathematics AEA, with no score below 5.

**Other qualifications:**  
see online Prospectus entry.

This three-year programme offers a comprehensive education in mathematics along with the opportunity to achieve proficiency in two or more modern languages from a choice of Arabic, French, German, Italian, Japanese, Mandarin, Spanish and possibly others. Graduates are equipped for careers that may take them to Europe or further afield.

Years one and two provide a thorough grounding in pure mathematics and mathematical methods, and a basis upon which to specialise in later years. You will also take compulsory language courses. In year three you have a free choice of optional courses from those offered in mathematics, languages and approved courses in other disciplines. The programme is also offered as a four-year MSci.

Teaching is mainly carried out through lectures and small-group tutorials. Problem classes allow you to exercise the skills you have learned

### Mathematics and Physics MSci

**UCAS:** GF1H • 4 years

**A levels:** A\*A\*A, or A\*AA and a 1 in any STEP paper or distinction in Mathematics AEA. Mathematics and Further Mathematics required at A\*, or one of Mathematics or Further Mathematics at A\* if STEP or AEA offered. Physics also required. A pass in a further subject at **AS level** or equivalent is required. Standard **GCSE** offer (see page 30).

**IB Diploma:** 39-40 points. A score of 20 points in three higher level subjects including 7 in Mathematics and at least 6 in Physics, or 19 points in three higher level subjects including 7 in Mathematics and at least 6 in Physics and a 1 in any STEP paper or a distinction in Mathematics AEA, with no score below 5.

**Other qualifications:**

see online Prospectus entry.

This MSci offers an additional year of study on top of the Mathematics and Physics BSc, during which students have the opportunity to specialise further by taking more advanced courses and completing a major project.

Years one and two follow the same structure as the Mathematics and Physics BSc, with compulsory courses providing an introduction to both subjects. In year three you may choose optional courses from a wide range in mathematics, physics and other subjects (e.g. a language or social science). In year four you will undertake a major project. We advise you to apply for the MSci initially, as transfer to the BSc is possible during the first three years.

### Mathematics and Physics BSc

**UCAS:** GF13 • 3 years

**A levels:** A\*A\*A, or A\*AA and a 1 in any STEP paper or distinction in Mathematics AEA. Mathematics and Further Mathematics required at A\*, or one of Mathematics or Further Mathematics at A\* if STEP or AEA offered. Physics also required. A pass in a further subject at **AS level** or equivalent is required. Standard **GCSE** offer (see page 30).

**IB Diploma:** 39-40 points. A score of 20 points in three higher level subjects including 7 in Mathematics and at least 6 in Physics, or 19 points in three higher level subjects including 7 in Mathematics and at least 6 in Physics and a 1 in any STEP paper or a distinction in Mathematics AEA, with no score below 5.

**Other qualifications:**

see online Prospectus entry.

Physics and mathematics are inextricably linked. It is not really possible to understand the basic concepts of physics such as elementary particle theory without a strong grounding in both pure and applied mathematics. This BSc combines the study of mathematics and physics on an equal basis, each reinforcing the other.

In years one and two a balanced selection of compulsory courses in mathematics and physics and astronomy provides a foundation in both subjects, and a basis upon which to specialise in later years. In year three you may choose from a wide range of optional courses over both subjects. Practical work is possible, but not required. The programme is also offered as a four-year MSci.

The Undergraduate Maths Colloquium meets weekly to discuss and share interesting mathematical topics, with an undergraduate giving a talk on a subject or problem.

#### Mathematics

### Mathematics and Statistical Science MSci

UCAS: GGC3 • 4 years

**A levels:** A\*A\*A, or A\*AA and a 1 in any STEP paper or distinction in Mathematics AEA. Mathematics and Further Mathematics required at A\*, or one of Mathematics or Further Mathematics at A\* if STEP or AEA offered. A pass in a further subject at **AS level** or equivalent is required. Standard **GCSE** offer (see page 30).

**IB Diploma:** 39-40 points. A score of 20 points in three higher level subjects including 7 in Mathematics, or 19 points in three higher level subjects including 7 in Mathematics and a 1 in any STEP paper or a distinction in Mathematics AEA, with no score below 5.

**Other qualifications:**  
see online Prospectus entry.

This MSci, accredited by the Royal Statistical Society, offers an additional year of study on top of the Mathematics and Statistical Science BSc. Students have the opportunity to specialise further by taking more advanced courses and completing a major project. No previous knowledge of statistics is required.

Years one and two follow the same structure as the Mathematics and Statistical Science BSc, with compulsory courses providing an introduction to both subjects. In year three you may choose optional courses from a wide range in mathematics, statistics and other subjects (e.g. a language or social science). In year four you will undertake a major project. We advise you to apply for the MSci initially, as transfer to the BSc is possible during the first three years.

### Mathematics and Statistical Science BSc

UCAS: GG13 • 3 years

**A levels:** A\*A\*A, or A\*AA and a 1 in any STEP paper or distinction in Mathematics AEA. Mathematics and Further Mathematics required at A\*, or one of Mathematics or Further Mathematics at A\* if STEP or AEA offered. A pass in a further subject at **AS level** or equivalent is required. Standard **GCSE** offer (see page 30).

**IB Diploma:** 39-40 points. A score of 20 points in three higher level subjects including 7 in Mathematics, or 19 points in three higher level subjects including 7 in Mathematics and a 1 in any STEP paper or a distinction in Mathematics AEA, with no score below 5.

**Other qualifications:**  
see online Prospectus entry.

This three-year programme is designed for students with an interest in the powerful applications of statistics who also wish to develop their mathematical knowledge and explore the interactions between the two subjects. No previous knowledge of statistics is required.

In years one and two a balanced selection of compulsory courses in mathematics and statistics provides a foundation in both subjects. Statistics will include much practical work while mathematics will cover the theoretical aspects of the pure mathematics required to sustain and understand this. In year three you may choose from a wide range of optional courses over both subjects. The programme is also offered as a four-year MSci.



**Mobeen Iqbal**

Mathematics BSc

Third Year

“I chose UCL primarily due to the friendly atmosphere on campus. In addition, the structure of the mathematics degree was exactly what I was looking for: a good mix between pure analysis-driven mathematics to applied mathematics with statistics courses, financial mathematics courses, and mechanics courses.

I enjoy the way the programme has been put together and the freedom we have as students to study what we're interested in. I was able to take a political science course in my second year which I really enjoyed, and an accounting course in my third year which I felt I needed to take after my summer internship.

The career options after a degree in mathematics are endless. Investment banks, consultancy firms, technology firms, and even law firms look for individuals with strong quantitative and analytical backgrounds. A degree in mathematics allows you to keep your career options open until you really know what it is you want to do in the future.”



Our programmes offer you the flexibility to combine science subjects into a structured and coherent degree. Exploiting the overlaps between traditional scientific disciplines such as physics, chemistry, Earth sciences and life sciences, Natural Sciences allows you to specialise or maintain a broad study base.

## Subject overview

Total intake **140**

(2014 entry)

Applications per place **3**

(2012 entry)

### Research Assessment Exercise (RAE)

Interdisciplinary programme:  
see contributing departments

### First career destinations (2009–2011)

- Full-time student, Graduate Medicine at Barts and the London NHS Trust (2011)
- Nuclear Scientist, EDF Energy (2011)
- Client Services Representative, Google (2010)
- Full-time student, PhD in Chemistry at the University of Cambridge (2010)
- Analyst, JP Morgan (2009)

### Contact details

Miss Charlotte Pearce  
(Programme Manager)  
e natsci@ucl.ac.uk  
t +44 (0)20 7679 0649



For more information, including programme structure, scan this code with your smartphone or visit:  
[www.ucl.ac.uk/prospectus/natsci](http://www.ucl.ac.uk/prospectus/natsci)

## Natural Sciences MSci

UCAS: FGC0 • 4 years

**A levels:** A\*AA-AAA. Any two subjects from Biology/Psychology, Chemistry, Geology, Mathematics or Physics. A pass in a further subject at **AS level** or equivalent is required. Standard **GCSE** offer (see page 30).

**IB Diploma:** 38-39 points. A score of 18-19 points in three higher level subjects including two from Biology/Psychology, Chemistry, Mathematics or Physics, with no score lower than 5.

**Other qualifications:**  
see online Prospectus entry.

This four-year programme offers an additional year of study on top of the Natural Sciences BSc. Students have the opportunity to deepen and extend their knowledge by taking advanced optional courses and completing a major project.

Years one, two and three follow the structure of the Natural Sciences BSc, with core courses providing a good grounding in your chosen two streams and optional courses becoming available from year two onwards. In year four you will take only courses from your major stream, plus optional courses. You will also undertake a major research project.

The following major and minor streams are offered:

- Astrophysics
- Biomedical Sciences
- Brain, Behaviour and Cognition
- Earth and Environment
- Genetics, Evolution and Environment
- Geophysical Sciences
- History, Philosophy and Social Studies of Science
- Inorganic and Materials Chemistry
- Mathematics and Statistics
- Medical Physics
- Molecular and Cell Biology
- Organic Chemistry
- Physical Chemistry
- Physics

Please note that specific streams may have prerequisites of particular grades and/or subjects at A level or equivalent. The list of streams may be subject to change. Some combinations may not be allowed on academic grounds or due to timetable constraints. Please see the Prospectus website for further details.



### Natural Sciences BSc

**UCAS:** CFG0 • 3 years

**A levels:** A\*AA-AAA. Any two subjects from Biology/Psychology, Chemistry, Geology, Mathematics or Physics. A pass in a further subject at **AS level** or equivalent is required. Standard **GCSE** offer (see page 30).

**IB Diploma:** 38-39 points. A score of 18-19 points in three higher level subjects including two from Biology/Psychology, Chemistry, Mathematics or Physics, with no score lower than 5.

**Other qualifications:**  
see online Prospectus entry.

The Natural Sciences BSc draws together elements of physics, mathematics, chemistry, astrophysics, Earth sciences, life sciences, and science and technology studies. The programme enables students who wish to maintain a breadth of science subjects to design a unique degree which is suited to their personal interests.

The programme is divided into two main subjects or streams, chosen in the first year and followed for the entire programme (see table, left). One will become your major stream and the other your minor stream. In years one and two you will take compulsory foundation courses in both your streams, and in year three the balance of study shifts towards your major stream, with a variety of optional courses also available. We advise you to apply for the MSci initially, as transfer to the BSc is possible.



### Sharan Timbadia

Natural Sciences MSci

Second Year

“UCL was and still is one of the most prestigious and respected universities not only in the UK, but also all around the world. After a visit to the campus for an Open Day, I felt at home – it was like love at first sight. The warmth of the Student Ambassadors, the big open grounds and atmosphere was just amazing.

I chose Natural Sciences as, like many others, I wasn't certain of which field I belonged to. Was I a chemist or a mathematician or neither? Natural Sciences allowed me to make these choices in an informed manner. I was able to experience the subject and then, through a process of elimination, narrow down my choices.

I am specialising in Physical Chemistry and Mathematics and Statistics – I thoroughly enjoyed the Statistics course as the professors are really relaxed and helpful. I'm also the departmental StAR (Student Academic Representative), and take students' concerns directly to the university management, who are influential enough to ensure changes.”

# Physics and Astrophysics /

[www.ucl.ac.uk/prospectus/physics](http://www.ucl.ac.uk/prospectus/physics)

From the everyday technology of flat-screen televisions to theories on the origin of the universe, the principles of matter, energy, space and time explored in physics and astrophysics are fundamental to our lives. Our accredited degrees develop rigorous and creative problem-solving skills, preparing you for an exciting career.

## Subject overview

Total intake 117

(2014 entry)

Applications per place 7

(2012 entry)

### Research Assessment Exercise (RAE)

60% rated 4\* ('world-leading')  
or 3\* ('internationally excellent')

### First career destinations (2009–2011)

- Reservoir Engineer, Shell Petroleum (2011)
- Graduate IT Consultant, BAE Systems (2011)
- Full-time student, MSc in Astrophysics at UCL (2010)
- Graduate Engineer, MBDA UK (2010)
- Energy Analyst, Utilix (2009)

### Contact details

Dr David Waters (Admissions Tutor)  
Mrs Sophie Lo (Admissions Co-ordinator)  
e [physast-admissions@ucl.ac.uk](mailto:physast-admissions@ucl.ac.uk)  
t +44 (0)20 7679 7246



For more information, including programme structure, scan this code with your smartphone or visit:  
[www.ucl.ac.uk/prospectus/physics](http://www.ucl.ac.uk/prospectus/physics)

## Astrophysics MSci

UCAS: F511 • 4 years

**A levels:** AAA-AAB. Mathematics and Physics required at grade A. A pass in a further subject at **AS level** or equivalent is required. Standard **GCSE** offer (see page 30).

**IB Diploma:** 36–38 points. A total of 17–18 points in three higher level subjects including Mathematics and Physics at grade 6, with no score below 5.

**Other qualifications:**  
see online Prospectus entry.

This four-year programme offers an additional year of study on top of the Astrophysics BSc, during which students have the opportunity to specialise further by taking advanced optional courses, and undertaking a research project.

Years one, two and three follow the structure of the Astrophysics BSc, giving you a good grounding in mathematics and classical and quantum physics. From year two onwards you will choose from a wide range of optional courses in physics and astronomy according to your interests (e.g. astrophysics, quantum mechanics). In year four you will also undertake a compulsory research project in astrophysics. We advise you to apply for the MSci initially, as transfer to the BSc is possible during the first three years.

## Astrophysics BSc

UCAS: F510 • 3 years

**A levels:** AAA-AAB. Mathematics and Physics required at grade A. A pass in a further subject at **AS level** or equivalent is required. Standard **GCSE** offer (see page 30).

**IB Diploma:** 36–38 points. A total of 17–18 points in three higher level subjects including Mathematics and Physics at grade 6, with no score below 5.

**Other qualifications:**  
see online Prospectus entry.

Astrophysics makes demands across a broad frontier of technologies: materials science, optics and electronics. This three-year programme teaches students to apply their knowledge of physics to astronomical observation and to the interpretation of the data and images obtained.

Years one and two provide a grounding in mathematics and classical and quantum physics. Over the three years the focus of your study will shift towards astronomy and astrophysics (e.g. astronomical spectroscopy, interstellar physics), and from year two onwards you will be able to choose optional courses to supplement your core courses (e.g. astrophysics, nuclear and particle physics). The programme is also offered as a four-year MSci; we advise you to apply for the MSci initially as this offers more flexibility.

# alumni

“UCL has one of the best Astrophysics programmes in the country and even has its own observatory in North London.”

**James Macey** • Portfolio Manager, Allianz Global Investors, New York

Astrophysics MSci (2000)



**Katie Adams**

Astrophysics BSc

Third Year

“I chose my degree because I love looking up at the stars and find them a really interesting thing to learn about. I chose UCL partly because it has a very high reputation and was suggested to me by one of my sixth form teachers. The other reason was so I could have the opportunity to live in London. It’s a great city, like no other in the UK.

As an astrophysics student, I get to spend three terms throughout my degree at the University of London Observatory. It’s a lot of fun being up there. You do a range of experiments, mostly computer-based, but on a clear night there will always be people using the telescopes. I love being there so much, I even started working there as a tour guide for public tours. That makes things extra interesting as I’ve learned more specific details about the history of the telescopes and the observatory, rather than just using them.”

## Physics MSci

UCAS: F303 • 4 years

**A levels:** AAA-AAB. Mathematics and Physics required at grade A. A pass in a further subject at **AS level** or equivalent is required. Standard **GCSE** offer (see page 30).

**IB Diploma:** 36-38 points. A total of 17-18 points in three higher level subjects including Mathematics and Physics at grade 6, with no score below 5.

**Other qualifications:**  
see online Prospectus entry.

This four-year programme offers an additional year of study on top of the Physics BSc, during which students have the opportunity to specialise further by taking advanced optional courses, and undertaking a research project.

Years one, two and three follow the same structure as the Physics BSc, providing a firm grounding in the subject and a basis upon which to specialise in later years. Year four comprises a compulsory research project, and you will take five advanced courses from a wide range of options (e.g. Advanced Quantum Theory, Atom and Proton Physics, Space Plasma and Magnetospheric Physics). We advise you to apply for the MSci initially, as transfer to the BSc is possible during the first three years.

## Physics BSc

UCAS: F300 • 3 years

**A levels:** AAA-AAB. Mathematics and Physics required at grade A. A pass in a further subject at **AS level** or equivalent is required. Standard **GCSE** offer (see page 30).

**IB Diploma:** 36-38 points. A total of 17-18 points in three higher level subjects including Mathematics and Physics at grade 6, with no score below 5.

**Other qualifications:**  
see online Prospectus entry.

When we turn on a light or check the weather forecast, we are reaping the practical benefits of physics research. As well as exploring fundamental science, this BSc goes to the cutting edge of technologies that affect everyday life, equipping you with the tools and imagination to address tomorrow’s questions.

Year one provides a firm foundation in quantum-based phenomena and condensed matter, underpinned by mathematics and IT skills training. In years two and three you will follow courses in quantum physics and its application to atoms and molecules, statistical thermodynamics, electromagnetic theory, and further mathematics. You will also undertake practical work, and choose optional courses from a wide range of physics topics. The programme is also offered as a four-year MSci; we advise you to apply for the MSci initially as this offers more flexibility.



A student in the High Energy Physics Laboratory (top); the Radcliffe twin refractor telescope at the University of London Observatory in North-west London (bottom)



### Theoretical Physics MSci

**UCAS:** F345 • 4 years

**A levels:** AAA-AAB. Mathematics and Physics at grade A, Further Mathematics also required. A pass in a further subject at **AS level** or equivalent is required. Standard **GCSE** offer (see page 30).

**IB Diploma:** 36-38 points. A total of 17-18 points in three higher level subjects including Mathematics and Physics at grade 6, with no score below 5.

**Other qualifications:**  
see online Prospectus entry.

This four-year programme offers an additional year of study on top of the Theoretical Physics BSc, during which students have the opportunity to specialise further by taking advanced optional courses, and undertaking a research project.

Years one, two and three follow the same structure as the Theoretical Physics BSc, providing a firm grounding in the subject and a basis upon which to specialise in later years, as well as specialised theory courses. Year four comprises a compulsory research project, and you will take five advanced courses from a wide range of options pertaining to your speciality. We advise you to apply for the MSci initially, as transfer to the BSc is possible during the first three years.

### Theoretical Physics BSc

**UCAS:** F340 • 3 years

**A levels:** AAA-AAB. Mathematics and Physics at grade A, Further Mathematics also required. A pass in a further subject at **AS level** or equivalent is required. Standard **GCSE** offer (see page 30).

**IB Diploma:** 36-38 points. A total of 17-18 points in three higher level subjects including Mathematics and Physics at grade 6, with no score below 5.

**Other qualifications:**  
see online Prospectus entry.

This three-year programme offers a variant of the advanced study offered in the Physics BSc. You will develop an advanced understanding of the theoretical structure of the core topics in physics, and the programme is likely to appeal to you if you have a strong interest and ability in mathematics.

Year one provides a firm foundation in quantum-based phenomena and condensed matter, underpinned by mathematics and IT skills training. In years two and three you will follow courses in quantum physics and its application to atoms and molecules, statistical thermodynamics, electromagnetic theory, and further mathematics. You will also undertake theoretical work, and choose optional courses from a wide range of physics topics. The programme is also offered as a four-year MSci; we advise you to apply for the MSci initially as this offers more flexibility.

Science and Technology Studies provides you with an understanding of science and technology, their developers and users, and the worlds they inhabit and shape. You will learn to ask and answer questions about the nature of science and technology and the ways in which they interact with and reflect the world around them.

## Subject overview

Total intake **21**

(2014 entry)

Applications per place **3**

(2012 entry)

### Research Assessment Exercise (RAE)

75% rated 4\* ('world-leading') or 3\* ('internationally excellent')

### First career destinations (2009–2011)

- Full-time student, MSc in Environmental Resource Management at the University of Amsterdam (2011)
- Full-time student, MSc in Media Production at Imperial College London (2011)
- Junior Television Research Assistant, Dansk Channel 3 (2011)
- Full-time student, MA in Journalism at the University of the Arts (2010)
- Researcher and Writer, Natural History Museum (2009)

### Contact details

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For more information, including programme structure, scan this code with your smartphone or visit: [www.ucl.ac.uk/prospectus/sts](http://www.ucl.ac.uk/prospectus/sts)

## History and Philosophy of Science BSc

UCAS: V550 • 3 years

**A levels:** AAB-ABB. No specific subjects. A pass in a further subject at **AS level** or equivalent is required. Standard **GCSE** offer (see page 30).

**IB Diploma:** 34–36 points. A score of 16–17 points in three higher level subjects, with no score lower than 5.

**Other qualifications:** see online Prospectus entry.

This BSc, unique in the UK, investigates the history and philosophy of science around the globe, from Antiquity to the present. We explore the ways science has been used to understand and make sense of the world. The goal is to investigate science's many methods, fundamental concepts, logic and ethics, as well as its role in the modern world.

The Science and Technology Studies degrees share a common first year comprising courses in history and philosophy of science, research methods, and an introduction to science policy studies and science communication. In years two and three, once you have a sense of where your interests lie, you may choose optional courses in the history, philosophy and sociology of science, or science communication and policy. In year three you undertake a research project within your chosen field.

## Science and Society BSc

UCAS: L391 • 3 years

**A levels:** AAB-ABB. No specific subjects. A pass in a further subject at **AS level** or equivalent is required. Standard **GCSE** offer (see page 30).

**IB Diploma:** 34–36 points. A score of 16–17 points in three higher level subjects, with no score lower than 5.

**Other qualifications:** see online Prospectus entry.

This programme studies science and technology in its varied and complex modern forms. We study how social, political and cultural forces and values shape scientific practice and technological innovation. In turn, we also study the effects of science and technology on society.

During the first year of your degree you get the chance to engage in both the history and philosophy of science, social studies of science and research methods through a range of compulsory courses. In years two and three you are given the opportunity to choose a range of optional courses in your more specific areas of interest. These courses cover the history and philosophy of science, sociology of science and technology, science communication, and science policy.

In an age where vast amounts of information can be gathered, skills in statistics are highly valued and can be applied across diverse fields. Informed identification of what data to collect and how to collect them efficiently, together with expert analysis and interpretation, enables statisticians to provide reliable answers and forecasts.

## Subject overview

**Total intake** 105

(2014 entry)

**Applications per place** 9

(2012 entry)

### Research Assessment Exercise (RAE)

50% rated 4\* ('world-leading')  
or 3\* ('internationally excellent')

### First career destinations (2009–2011)

- Trader, Global Hunter Securities (2011)
- Actuarial Assistant, Allianz (2011)
- Transaction Processing Specialist, JP Morgan (2010)
- Risk Analyst, Equifax (2010)
- Full-time student, MSc in Risk Management and Financial Engineering at Imperial College London (2010)

### Contact details

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For more information, including programme structure, scan this code with your smartphone or visit:  
[www.ucl.ac.uk/prospectus/statistics](http://www.ucl.ac.uk/prospectus/statistics)

## Statistics BSc

**UCAS:** G300 • 3 years

**A levels:** A\*AA-AAA/A\*AB. A\* in Mathematics, or AA in Mathematics and Further Mathematics, is required. Applicants offering A\*AB including A\*A in Mathematics and Further Mathematics respectively will also be considered. A pass in a further subject at **AS level** or equivalent is required. Standard **GCSE** offer (see page 30).

**IB Diploma:** 38–39 points. A score of 18–19 points in three higher level subjects including grade 7 in Mathematics, with no score lower than 5.

**Other qualifications:**  
see online Prospectus entry.

This programme is accredited by the Royal Statistical Society and provides a broad, thorough and intellectually challenging training in the theory and practice of statistical science. Skills in statistics are valued by a variety of employers and can be applied to various problems in science, medicine, technology, finance and economics.

Year one includes compulsory courses in mathematics, statistics and some computing. In years two and three you will specialise increasingly in statistics, and in year three you will undertake a project involving extensive research and the preparation of a report. In all years you may choose additional optional courses from a wide range including both statistics topics and courses from other disciplines (e.g. a language or social science).

## Statistical Science (International Programme) MSci

**UCAS:** G305 • 4 years

**A levels:** A\*AA-AAA. A\* in Mathematics or AA in Mathematics and Further Mathematics required. A pass in a further subject at **AS level** or equivalent is required. Standard **GCSE** offer (see page 30).

**IB Diploma:** 38–39 points. A score of 18–19 points in three higher level subjects including grade 7 in Mathematics, with no score lower than 5.

**Other qualifications:**  
see online Prospectus entry.

This four-year programme provides an advanced education in statistics together with experience of education in a different cultural and/or linguistic setting, which will broaden your horizons and prepare you for a variety of careers that have a special emphasis on international expertise.

In years one and two you may follow the structure of the Statistics BSc, the Statistics, Economics and Finance BSc, the Statistics, Economics and a Language BSc, or the Mathematics and Statistical Science BSc (subject to entry requirements, please see page 123). The third year is spent at a university abroad. We currently have links with institutions in Australia, Canada, Germany, Italy, Singapore and the USA. In year four you will return to UCL to undertake advanced project work and optional courses.

# alumni

“UCL provides more than just a solid platform to launch your career and life, it also provides ongoing support.”

**Paraag Amin** • Company Director, Style-card Ltd, London

Statistics, Computing and Operational Research and Economics BSc (2000)



**Chao Xiang Chong**

Economics and Statistics BSc (Econ)

Third Year

“I enjoyed studying economics in the sixth form – learning about the global issues in the world and understanding how it affects every individual as a consumer – but I wanted to avoid studying pure economics as I felt it was too general and I wanted to pursue something more specialised. My growing interest in mathematics and statistics then naturally led me to choose UCL’s Economics and Statistics degree. UCL is one of a number of institutions that offers a very diverse combination of subjects and, together with its central London location and high rankings in the university tables, was an obvious choice for me!

I enjoy all the Statistics courses that we’ve taken so far. After building a stable foundation in basic theory, we then go on to apply statistical tools to real-life examples and finally conduct tests to see if things work as we expect the model to do. This, I feel, is the most intriguing aspect of the programme and it is fascinating to discover how real-world issues fit with statistical models. In addition, the enthusiasm of the Statistics lecturers certainly plays a part in making the programme so enjoyable.”

## Statistics, Economics and Finance BSc

UCAS: GLN0 • 3 years

**A levels:** A\*AA-AAA. A\* in Mathematics or AA in Mathematics and Further Mathematics required. A pass in a further subject at **AS level** or equivalent is required. Standard **GCSE** offer (see page 30).

**IB Diploma:** 38-39 points. A score of 18-19 points in three higher level subjects including grade 7 in Mathematics, with no score lower than 5.

**Other qualifications:**  
see online Prospectus entry.

This programme combines a thorough training in statistics with courses in economics and finance. The different components of the degree programme reinforce one another to provide a coherent and wide-ranging foundation in modern quantitative techniques useful for a career in finance.

Year one provides a grounding in mathematics, statistics and some computing, in preparation for an increasing focus on statistics in later years. The economics and finance components include a foundation in micro- and macroeconomics and financial accounting. In years two and three you may choose optional courses from a wide range both within UCL Statistics (e.g. Financial Computing, Social Statistics) and in other disciplines (e.g. a language or social science). Second-year students may have the opportunity to apply for a 12-month placement with an actuarial employer.

## Statistics, Economics and a Language BSc

UCAS: GLR0 • 3 years

**A levels:** A\*AA-AAA. A\* in Mathematics or AA in Mathematics and Further Mathematics required. A pass in a further subject at **AS level** or equivalent is required. Standard **GCSE** offer (see page 30).

**IB Diploma:** 38-39 points. A score of 18-19 points in three higher level subjects including grade 7 in Mathematics, with no score lower than 5.

**Other qualifications:**  
see online Prospectus entry.

At a time of globalisation of business and finance, the ability to communicate in a foreign language can significantly enhance your career prospects. This BSc combines a thorough training in statistics with courses in economics and the study of a foreign language (French, German, Italian, Japanese, Mandarin or Spanish).

Year one provides a grounding in mathematics, statistics and some computing, in preparation for an increasing focus on statistics in later years. The economics component includes a foundation in micro- and macroeconomics. You will also nominate one or two languages to study (the starting level is flexible and will depend on your proficiency). In years two and three you will have the opportunity to choose optional courses from a wide range both within UCL Statistics and in other disciplines, and also continue with your language(s).



First-year students on the compulsory course Introduction to Probability and Statistics

### Statistics and Management for Business BSc

UCAS: GN32 • 3 years

**A levels:** A\*AA-AAA/A\*AB. A\* in Mathematics, or AA in Mathematics and Further Mathematics, is required. Applicants offering A\*AB including A\*A in Mathematics and Further Mathematics respectively will also be considered. A pass in a further subject at **AS level** or equivalent is required. Standard **GCSE** offer (see page 30).

**IB Diploma:** 38-39 points. A score of 18-19 points in three higher level subjects including grade 7 in Mathematics, with no score lower than 5.

**Other qualifications:** see online Prospectus entry.

This programme, run jointly with UCL Management Science and Innovation, combines a thorough training in statistics with courses in the broad area of business studies. It aims to provide a combination of management and quantitative skills useful for a career in business, management, commerce or industry. About half your courses are taken in statistics and mathematics; the other half in management, accountancy, finance and (optionally) economics. Years one and two provide a solid foundation in statistics, mathematics and management. A wide range of options (e.g. international business, law for managers, probability, social statistics) is available from year two onwards, allowing you to specialise according to your interests.

### Economics and Statistics BSc (Econ)

UCAS: LG13 • 3 years

**A levels:** A\*AA-AAA. A\* in Mathematics or AA in Mathematics and Further Mathematics required. A pass in a further subject at **AS level** or equivalent is required. Standard **GCSE** offer (see page 30).

**IB Diploma:** 38-39 points. A score of 18-19 points in three higher level subjects including grade 7 in Mathematics, with no score lower than 5.

**Other qualifications:** see online Prospectus entry.

This programme, run jointly with UCL Economics, combines an in-depth study of economics and econometrics with a solid grounding in mathematical and statistical methods. The programme is suitable for students of high mathematical ability who are considering a career in finance, business or industry.

In years one and two compulsory courses in statistics, economics and mathematics provide an all-round grounding in both economics and statistics, and provide a basis for further specialisation. In year three all courses are optional, chosen from a wide range offered in both economics (including econometrics, economics of finance and game theory) and statistics (e.g. forecasting, medical statistics, social statistics and stochastic methods in finance).