Geophysics MSci /

Geophysics is the study of the physical process that shape the Earth, including its composition, evolution and dynamics. We tackle this through a multidisciplinary programme ranging from understanding Earth materials, through the internal processes that drive plate tectonics, volcanoes and earthquakes, to understanding atmosphere, weather and climate. This provides a firm foundation in geology, physics, mathematics and computing.

Key information

Programme starts
September 2021

Location
London, Bloomsbury

Degree benefits
// Our department delivers world-leading research (top 20 in Times Higher Education 2020 World rankings by subject) embracing the origins and history of life, Earth’s composition and structure, earthquake and volcanic hazards, and past and present climate change, and these are fully integrated within our taught programme.

// UCL has state-of-the-art geophysical instruments including the new technique of ground penetrating radar (GPR), a new magnetometer/gradiometer (for archaeological and environmental surveys) and new, modern seismics.

// The department scored 100% for overall satisfaction in the 2019 National Student Survey. Teaching is delivered by all of our research-active staff guaranteeing up-to-the-minute understanding and providing opportunities to take part in cutting-edge research activities.

// We have recently moved into the renovated Kathleen Lonsdale Building with new, world-class facilities include bespoke teaching laboratories, new microscope facilities and student study areas, all in the heart of the department, next to staff offices and research laboratories.

Accreditation
This programme is accredited by the Geological Society. Undergraduate students may join the Geological Society as a Candidate Fellow and can become a Fellow of the Society upon graduation. A Fellow of the Society with relevant postgraduate experience in the practice of geology has the opportunity to apply for Chartered Geologist (CGeol) status.

Degree structure

In each year of your degree you will take a number of individual modules, normally valued at 15 or 30 credits, adding up to a total of 120 credits for the year. Modules are assessed in the academic year in which they are taken. The balance of compulsory and optional modules varies from programme to programme and year to year. A 30-credit module is considered equivalent to 15 credits in the European Credit Transfer System (ECTS).

In their first two years all students study a common geophysics syllabus covering the fundamentals of mathematics, mechanics, electricity and magnetism, Earth materials, structural geology and tectonics, global geophysics and Earth processes. Theoretical studies are integrated with a large element of illustrative practical work both in the laboratory and in the field.

In the third and fourth years there are more advanced modules in seismology, geodynamics and global tectonics and there is the opportunity to specialise in, for example, the environmental aspects of the subject such as groundwater resources.

We take a modern approach to teaching with modules based around laboratory practicals and theory workshops. Fieldwork provides a unique opportunity to develop independent and team skills and problem-solving abilities.

The first three years of the MSci programme are identical to the BSc programme. However, the additional fourth year of the MSci allows for a major individual research project and advanced optional modules, providing extra depth and breadth of knowledge.

Upon successful completion of 480 credits, you will be awarded a MSci (Hons) in Geophysics.

Please note that the list of modules given here is indicative. This information is published a long time in advance of enrolment and module content and availability is subject to change.

YEAR ONE
Compulsory module(s)

- Classical Mechanics
- Dynamic Earth
- Earth Materials
- From Petrology to Petrogenesis (including Cornwall fieldwork)
- Mathematical Methods I
- Mathematical Methods II
- Surface Processes (including Dorset/Devon fieldwork)
- The Earth

Optional modules

- All first-year modules are compulsory.

YEAR TWO
Compulsory module(s)

- Electricity and Magnetism
- Global Geophysics
- Numerical Methods for Earth Sciences
- Mathematical Methods III
- Structural Geology and Tectonics

Optional modules

- You will select 45 credits from the following options:
  - Igneous Petrology
  - Isotope Geology
  - Maps, Images and Structures (including fieldwork)
  - Surface Processes and Structures (including fieldwork)
  - Principles of Climate
- or any appropriate modules in Physics, Maths, Statistics or Chemistry
## YEAR THREE

### Compulsory modules(s)
- Field Geophysics (including fieldwork)
- Geodynamics and Global Tectonics
- Seismology I
- Seismology II

### Optional modules
You will select 60 credits from the following:
- Advanced Geochemistry
- Climate and Energy
- Crustal Dynamics, Mountain Building and Basin Evolution (including Betics fieldwork)
- Earth Resources and Sustainability
- Groundwater Science
- Marine Geology
- Ocean Physics and Climate Change
- or any appropriate modules in Physics, Maths, Statistics or Chemistry (subject to course conflict)

## FINAL YEAR

### Compulsory modules(s)
- Earth and Planetary System Science (including fieldwork)
- Independent MSci Project

### Optional modules
You will select 60 credits from the following:
- Deep Earth and Planetary Modelling
- Earth and Planetary Materials
- Earthquake Seismology and Earthquake Hazards
- Melting and Volcanism
- Physical Volcanology and Volcanic Hazard
- Tectonic Geomorphology
- You may take up to 30 credits outside the department.

## Your learning
We use a mixture of lectures, practical classes, field courses, directed reading, problem-orientated learning, private study and tutorials to enable you to gain the theoretical knowledge and practical skills demanded by the programme, as well as to develop key transferable skills such as critical analysis, report writing, team working and organisational skills.

## Assessment
You will be assessed by a combination of written examinations, practical examinations, coursework, independent project reports and sometimes an oral examination.

## Accessibility
Details of the accessibility of UCL buildings can be obtained from AccessAble. Further information can also be obtained from the UCL Student Support & Wellbeing team.

## Your career
Together with subject-specific skills, geophysics graduates have a wide range of transferable skills, developed through fieldwork, computer modelling and independent research, which are highly valued by employers in general, offering opportunities for careers in the City, commerce and government.

All our students are encouraged and helped towards making informed career choices. We have excellent relationships with many employers in diverse aspects of the Earth and planetary sciences, and students are actively guided towards achieving their potential at UCL in preparation for their future careers.

## Your application
Application for admission should be made through UCAS (the Universities and Colleges Admissions Service). Applicants currently at school or college will be provided with advice on the process; however, applicants who have left school or who are based outside the United Kingdom may obtain information directly from UCAS.
### Entry requirements

**A LEVELS**

**Standard Offer:** AAB. Mathematics and Physics required.

**GCSE:** English Language and Mathematics at grade C or 5. For UK-based students, a grade C or 5 or equivalent in a foreign language (other than Ancient Greek, Biblical Hebrew or Latin) is required. UCL provides opportunities to meet the foreign language requirement following enrolment, further details at: www.ucl.ac.uk/ug-reqs.

**Contextual Offer:** BBB. Mathematics and Physics required.

**GCSE:** English Language and Mathematics at grade C or 5. For UK-based students, a grade C or 5 or equivalent in a foreign language (other than Ancient Greek, Biblical Hebrew or Latin) is required. UCL provides opportunities to meet the foreign language requirement following enrolment, further details at: www.ucl.ac.uk/ug-reqs.

**IB DIPLOMA**

**Standard Offer:** 36 points. A score of 17 points in three higher level subjects including Mathematics and Physics, with no score lower than 5.

**Contextual Offer:** 32 points. A score of 15 points in three higher level subjects including Mathematics and Physics, with no score lower than 5.

**CONTEXTUAL OFFERS – ACCESS UCL SCHEME**

As part of our commitment to increasing participation from underrepresented groups, students may be eligible for a contextual offer as part of the Access UCL scheme. For more information see www.ucl.ac.uk/ug-reqs.

**OTHER QUALIFICATIONS**

UCL considers a wide range of UK and international qualifications for entry into its undergraduate programmes. Full details are given at: www.ucl.ac.uk/otherquals.

**UNDERGRADUATE PREPARATORY CERTIFICATES (International foundation courses)**

UCL Undergraduate Preparatory Certificates (UPCs) are intensive one-year foundation courses for international students of high academic potential who are aiming to gain access to undergraduate degree programmes at UCL and other top UK universities.

Typical UPC students will be high achievers in a 12-year school system which does not meet the standard required for direct entry to UCL.

For more information see: www.ucl.ac.uk/upc.

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### TUITION FEES

The fees indicated are for undergraduate entry in the 2021/22 academic year. The UK fees shown are for the first year of the programme at UCL only. Fees for future years may be subject to an inflationary increase. The Overseas fees shown are the fees that will be charged to 2021/22 entrants for each year of study on the programme, unless otherwise indicated below.

<table>
<thead>
<tr>
<th>Country</th>
<th>Fees (2021/22)</th>
</tr>
</thead>
<tbody>
<tr>
<td>UK</td>
<td>£9,250</td>
</tr>
<tr>
<td>Overseas</td>
<td>£31,200</td>
</tr>
</tbody>
</table>

Full details of UCL’s tuition fees, tuition fee policy and potential increases to fees can be found on the UCL Students website.

### ADDITIONAL COSTS

The department makes a substantial contribution towards fieldwork costs (ranging between £150-800 per student per trip), covering all accommodation and in-field transportation for all fieldwork which is organised by the department. The majority of the fieldtrips include breakfast and/or dinner. Some fieldtrips in the second year are self-catered. Students are expected to cover their transportation to and from the beginning of the field location for some of the 2nd and 3rd year non-UK field trips (cost of a return flight/train or bus), at an estimated cost of £200-£400. Costs for years 1-3 are the same as for the corresponding BSc. In the fourth year, there is a 4-day trip to Germany. Students are expected to cover their transport to Germany (~£150). In-field transportation and accommodation (half-board) are covered by the department, so students are expected to cover lunches (~£50).

A guide including rough estimates for these and other living expenses is included on the UCL Fees and funding pages. If you are concerned by potential additional costs for books, equipment, etc., please get in touch with the relevant departmental contact (details given on this page).

### FUNDING

Various funding options are available, including student loans, scholarships and bursaries. UK students whose household income falls below a certain level may also be eligible for a non-repayable bursary or for certain scholarships. Please see the Fees and funding pages for more details.

### CONTACT

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### UK withdrawal from the EU

For up-to-date information relating to specific key questions following the UK’s withdrawal from the EU, please refer to: www.ucl.ac.uk/brexit.