

PROGRAMME SPECIFICATION

Name, title and level of final qualification(s)	BSc Planetary Exploration with Astronomy and Astrobiology (Level 6)
Name and title of any exit qualification(s)	Dip HE Planetary Exploration with Astronomy and Astrobiology Cert HE Planetary Science with Astronomy Cert CE Science
Is the programme offered with a Foundation Year?	Yes
Awarding Body	University of London
Teaching Institution(s)	Birkbeck, University of London
Home School/other teaching departments	School of Natural Sciences
Location of delivery	Central London and Online
Language of delivery and assessment	English
Mode of study, length of study and normal start month	Full-time (3 years) Part-time (4 years) Full-time with Foundation Year (4 years) September
Professional, statutory or regulatory body	N/A
QAA subject benchmark group(s) Higher Education Credit Framework for England	Earth Sciences, Environmental Sciences and Environmental Studies
UCAS code	F601; F605 with FY
Birkbeck Course Code	UUBSPEXA_C (3 years full-time) UBSPEXAA_C (4 years part-time) UUBFPEXA_C (4 years full-time with FY)
HECoS Code	(101103) planetary science (100414) astronomy
Start date of programme	October 2010
Date of programme approval	Summer 2010
Date of last programme amendment approval	November 2024
Valid for academic entry year	2025-26
Programme Director	Ian Crawford
Date of last revision to document	26/11/2024

Admissions requirements

For the **3-year full time BSc**, a minimum of three A-levels, with minimum expected grades of CCC (ideally two should be in scientific subjects).

UCAS tariff: 104, A level BCC

The UCAS tariff score is applicable to you if you have recently studied a qualification that has a UCAS tariff equivalence. UCAS provides a [tariff calculator](#) for you to work out what your qualification is worth within the UCAS tariff.

We welcome applicants without traditional entry qualifications as we base decisions on our own assessment of qualifications, knowledge and previous work experience. We may waive formal entry requirements based on judgement of academic potential.

Applicants to the **BSc with Foundation Year** are normally expected to have gained 48 UCAS tariff points. Completion of the integrated Foundation Year provides a progression route into Year 1 of the full-time BSc

Course aims

Main Aims

This is a very exciting time for planetary science, with new data being returned by spacecraft throughout the Solar System. There is also considerable scientific interest in the possibility of discovering life elsewhere in the Universe. This BSc programme provides a broadly based introduction to planetary science and exploration, including their geological, astronomical and astrobiological aspects.

Consistent with the general aim of the teaching provision within the College to provide higher education both for (a) people otherwise engaged during the day and (b) through UCAS admission, and in line with the benchmark statements for Earth Sciences (ES3), our BSc Degree in Planetary Exploration with Astronomy and Astrobiology aims to:

- Provide research-based teaching to enable students to gain a multi-disciplinary understanding of planetary science, geology, astrobiology, and astronomy;
- Widen admission, in particular through distance learning, to include those with genuine ability and enthusiasm but lacking traditional academic qualifications;
- Foster independent and critical thought so that students can reach appropriate conclusions based on relevant evidence;
- Provide general skills in learning, information technology, data processing and communication appropriate to any subsequent employer;
- Provide research skills and a knowledge base that would allow graduates to proceed to masters and PhD programmes in the UK and abroad.

Distinctive Features

The BSc is taught face-to-face either full- or part-time in the evenings. Additionally, the BSc can be taken entirely by online distance learning via live streaming. In addition to the theoretical aspects of the planetary sciences (including astronomy and astrobiology), the programme also includes the opportunity for in-person residential geological field classes, as well as a virtual planetary exploration analogue mission. Students will undertake an independent research project in their final year.

Course structure

Level	Module Code	Module Title	Credit	Status	Teaching term(s)
Full-time with Foundation Year – 4 years					
Year 0 [120 credits]					
3	CASE002S3	Fundamentals of Study	30	Core	T1
4	FFSC012H4	Chemistry 1	15	Core	T1
4	FFSC022H4	Chemistry 2	15	Core	T2
3	SC10001S3	Foundation Year Mathematics	30	Core	T2
4	SC11005S4	Introduction to Earth and Planetary Science	30	Core	T3
Year 1 [120 credits]					
4	SCES060S4	Earth as a Planet	30	Comp	1
4	SCES071H4	Introduction to Planetary Science and Space Exploration	15	Comp	1
4	SCES061S4	Planetary Materials	30	Comp	2
4	SCES001H4	Foundations of Astronomy	15	Comp	2
4 4	SCES062S4 or SCES063S4	Introduction to Field Geology OR Introduction to Field Geology (Virtual) [to be taken by distance-learning (fully-online) students unable to attend SCES06SH4; available to in-person students in exceptional circumstances]	30	Comp	3
Year 2 [120 credits]					
5	SCES072S5	Geology of the Solar System	30	Comp	1
5	SCES005H5	Igneous Petrology	15	Comp	1
5	SCES064S5	Planetary Geophysics	30	Comp	2
5	EASC064H5	Introduction to Astrobiology	15	Comp	2
5	SCES066H5	Preparation for BSc Research Project	15	Comp	3
Plus ONE Level 5 option, selected from:					
5	SCES073H5	Planetary Exploration Analogue Mission	15	Option	3
5	EASC054H5	Field Mapping Training	15	Option	3
5	SCES067H5	Virtual Field Mapping Training [available in exceptional circumstances to in-person and distance learning students who are unable to take either the virtual Planetary Exploration Analogue Mission or EASC054H5.]	15	Option	3

Year 3 [120 credits]					
6	SCES035H6	Remote Sensing and Planetary Surfaces	15	Comp	1
6	SCES022H6	Physical Principles of Astronomy	15	Comp	1
6	EASC059H6	Volcanism in the Solar System	15	Comp	1
6	SCES047H6	Planetary Interiors	15	Comp	2
6	SCES074H6	Frontiers in Astrobiology	15	Comp	2
6	SCES002H6	Comets, Asteroids and Meteorites	15	Comp	2
6	SCES070S6	BSc Research Project	30	Comp	3
Full-time – 3 years					
Year 1 (120 credits)					
4	SCES060S4	Earth as a Planet	30	Comp	1
4	SCES071H4	Introduction to Planetary Science and Space Exploration	15	Comp	1
4	SCES061S4	Planetary Materials	30	Comp	2
4	SCES001H4	Foundations of Astronomy	15	Comp	2
4 4	SCES062S4 or SCES063S4	Introduction to Field Geology OR Introduction to Field Geology (Virtual) [to be taken by distance-learning (fully-online) students unable to attend SCES062H4, available to in-person students in exceptional circumstances]	30	Comp	3
Year 2 (120 credits)					
5	SCES072S5	Geology of the Solar System	30	Comp	1
5	SCES005H5	Igneous Petrology	15	Comp	1
5	SCES064S5	Planetary Geophysics	30	Comp	2
5	EASC064H5	Introduction to Astrobiology	15	Comp	2
5	SCES066H5	Preparation for BSc Research Project	15	Comp	3
Plus ONE Level 5 option, selected from:					
5	SCES073H5	Planetary Exploration Analogue Mission	15	Option	3
5	EASC054H5	Field Mapping Training	15	Option	3
5	SCES067H5	Virtual Field Mapping Training [available in exceptional circumstances to in-person and distance learning students who are unable to take either the virtual Planetary Exploration Analogue Mission or EASC054H5.]	15	Option	3
Year 3 (120 credits)					
6	SCES035H6	Remote Sensing and Planetary Surfaces	15	Comp	1
6	SCES022H6	Physical Principles of Astronomy	15	Comp	1
6	EASC059H6	Volcanism in the Solar System	15	Comp	1

6	SCES047H6	Planetary Interiors	15	Comp	2
6	SCES074H6	Frontiers in Astrobiology	15	Comp	2
6	SCES002H6	Comets, Asteroids and Meteorites	15	Comp	2
6	SCES070S6	BSc Research Project	30	Comp	3
Part-time - 4 years					
Year 1 [90 credits]					
4	SCES060S4	Earth as a Planet	30	Comp	1
4	SCES071H4	Introduction to Planetary Science and Space Exploration	15	Comp	1
4	SCES061S4	Planetary Materials	30	Comp	2
4	SCES001H4	Foundations of Astronomy	15	Comp	2
Year 2 [90 credits]					
5	SCES072S5	Geology of the Solar System	30	Comp	1
5	SCES064S5	Planetary Geophysics	30	Comp	2
4	SCES062S4 or SCES063S4	Introduction to Field Geology OR Introduction to Field Geology (Virtual) [to be taken by distance-learning (fully-online) students unable to attend SCES062S4; available to in-person students in exceptional circumstances]	30	Comp	3
Year 3 [90 credits]					
5	SCES005H5	Igneous Petrology	15	Comp	1
6	SCES035H6	Remote Sensing and Planetary Surfaces	15	Comp	1
5	EASC064H5	Introduction to Astrobiology	15	Comp	2
6	SCES047H6	Planetary Interiors	15	Comp	2
5	SCES066H5	Preparation for BSc Research Project	15	Comp	3
Plus ONE Level 5 option, selected from:					
5	SCES073H5	Planetary Exploration Analogue Mission	15	Option	3
5	EASC054H5	Field Mapping Training	15	Option	3
5	SCES067H5	Virtual Field Mapping Training [available in exceptional circumstances to in-person and distance learning students who are unable to take either the virtual Planetary Exploration Analogue Mission or EASC054H5.]	15	Option	3
Year 4 [90 credits]					
6	EASC059H6	Volcanism in the Solar System	15	Comp	1
6	SCES022H6	Physical Principles of Astronomy	15	Comp	1
6	SCES074H6	Frontiers in Astrobiology	15	Comp	2
6	SCES002H6	Comets, Asteroids and Meteorites	15	Comp	2
6	SCES070S6	BSc Research Project	30	Comp	3

Core:	<i>Module must be taken and passed by student</i>
Compulsory:	<i>Module must be taken but can be considered for compensated credit (see CAS regulations paragraph 24)</i>
Option:	<i>Student can choose to take this module</i>

Organisation of the material

The material is organised into both 30-credit and 15-credit modules that build towards the 360 credits required to complete the BSc. The material is delivered over Terms 1, 2 and 3 (Term 1 October-December; Term 2 January-March; Term 3 May-July). Delivery of modules occurs as follows:

- i) During the evenings from Monday through to Friday from 6.00-9.00pm, through face-to-face attendance in central London, or via live-streamed video. A 15-credit module would typically be completed in a single term of 11 weeks, with 10 weeks of teaching and a final exam week.
- ii) For students opting to take them, the residential field classes occur in two 10-day blocks located either in the UK or overseas. They occur in Term 3. These field classes are intended for face-to-face participation at the chosen field location, however we also offer a different suite of virtual field classes intended for asynchronous participation in the case of exceptional circumstances (including disability and other issues that may hinder participation in the field).
- iii) 15- and 30-credit modules are examined through a variety of combinations of exams (face-to-face or online), homework assignments, and student presentations. All assessments are to be completed by the end of each term.

How you will learn

Your learning and teaching is organised to help you meet the learning outcomes (below) of the course. As a student, we expect you to be an active learner and to take responsibility for your learning, engaging with all of the material and sessions arranged for you.

Each course is divided into modules. You will find extensive information on the virtual learning site, Moodle (see Academic Support below), about each of your modules. This will include what to expect, the work you need to prepare, links to reading lists, information about how and when you will be assessed, etc. Additionally, video recordings of all class sessions are collected in Moodle for catching up if you miss a class session and/or for later revision.

Teaching is through a combination of classroom and field teaching that is designed to build up your skills and train you to carry out independent work and independent research during your Project. The ability to conduct independent work and research will facilitate transition to employment in industry, study at masters or PhD level (subject to final classification), and your your personal intellectual endeavours.

Students on the distance learning (fully-online) route through the programme equally are supported via the resources on Moodle, as described above. Instead of attending classes on-site, if you have chosen to study by distance learning, you will “attend” virtually, through live streamed lectures and practicals. This offers real-time Q&A interaction with the lecturer and with classmates. Beyond the scheduled, vitriual class sessions, lecturers are available during published office hours to discuss lecture content via email, telephone, or, if appropriate, live video link.

How we will assess you

The course will use a variety of assessment methods. Assessment is used to enhance your learning rather than simply to test it. For most of the modules associated with this course, your

assessment will be through a combination of exams (in-person or online), homework assignments, and presentations. All assessments are to be completed by the end of each term.

Learning outcomes (what you can expect to achieve)

'Learning outcomes' indicate what you should be able to know or do at the end of your course. Providing them helps you to understand what your teachers will expect and also the learning requirements upon which you will be assessed.

At the end of this degree programme, you should be able to:

- 1) Summarize the history of space exploration and describe the key principles of planetary exploration.
- 2) Describe and understand the astronomical context of the Solar System and how this astronomical knowledge has been obtained.
- 3) Describe and understand the processes involved in the origin and geological evolution of the Earth and the other planets and their moons.
- 4) Carry out practical skills in field geology relevant to planetary exploration.
- 5) Demonstrate a broad range of transferable skills including technical, IT, computing, communication, organisational and research skills.

Careers and further study

A Degree in Planetary Exploration with Astronomy and Astrobiology may lead to postgraduate opportunities or careers in the following areas:

- Postgraduate (PhD or MSc) studies in related fields;
- The developing field of extraterrestrial resources;
- Education;
- Museum and library work;
- Publishing and broadcasting;
- Any career which requires a generic science degree, but which doesn't require this to be in a specific subject area.

Birkbeck's BSc graduates will complete with a set of valuable attributes, for example:

- The ability to work as part of a team and/or as an individual
- High-level oral and written communication skills in English, computer numerical skills and computer graphics skills
- Research skills
- Skills in evaluating and assessing types of information
- The ability to present yourself and an argument

Birkbeck offers a range of careers support to its students. You can find out more on [the careers pages of our website](#).

Academic regulations and course management

Birkbeck's academic regulations are contained in its [Common Award Scheme Regulations](#) and Policies published by year of application on the Birkbeck website.

You will have access to a course handbook on Moodle and this will outline how your course is managed, including who to contact if you have any questions about your module or course.

Support for your study

Your learning at Birkbeck is supported by your teaching team and other resources and people in the College there to help you with your study. Birkbeck uses a virtual learning environment

called Moodle and each course has a dedicated Moodle page and there are further Moodle sites for each of your modules.

Birkbeck will introduce you to the Library and IT support, how to access materials online, including using Moodle, and provide you with an orientation which includes an online Moodle module to guide you through all of the support available. You will also be allocated a personal tutor and provided with information about learning support offered within your School and by the College.

[Please check our website for more information about student support services.](#) This covers the whole of your time as a student with us including learning support and support for your wellbeing.

We can offer some financial support in the form of small bursaries to help fund fieldwork and study materials, facilitated by financial contributions from alumni.

Quality and standards at Birkbeck

Birkbeck's courses are subject to our quality assurance procedures. This means that new courses must follow our design principles and meet the requirements of our academic regulations. Each new course or module is subject to a course approval process where the proposal is scrutinised by subject specialists, quality professionals and external representatives to ensure that it will offer an excellent student experience and meet the expectation of regulatory and other professional bodies.

You will be invited to participate in an online survey for each module you take. We take these surveys seriously and they are considered by the course team to develop both modules and the overall courses. Please take the time to complete any surveys you are sent as a student.

We conduct an annual process of reviewing our portfolio of courses which analyses student achievement, equality data and includes an action plan for each department to identify ongoing enhancements to our education, including changes made as a result of student feedback.

Our periodic review process is a regular check (usually every four years) on the courses by department with a specialist team including students.

Each course will have an external examiner associated with it who produces an annual report and any recommendations. Students can read the most recent external examiner reports on the course Moodle pages. Our courses are all subject to Birkbeck Baseline Standards for our Moodle module information. This supports the accessibility of our education including expectations of what information is provided online for students.

The information in this programme specification has been approved by the College's Academic Board and every effort has been made to ensure the accuracy of the information it contains.

Programme specifications are reviewed periodically. If any changes are made to courses, including core and/or compulsory modules, the relevant department is required to provide a revised programme specification. Students will be notified of any changes via Moodle.

Further information about specifications and an archive of programme specifications for the College's courses is [available online](#).

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