Department of Physics

About the Department

The Department of Physics is one of the major centres for physics in the University of London. It has an international reputation for its research and excellent record of teaching, being consistently ranked near the top of the league tables. There is a diverse course range, covering all areas of the subject, including experimental, theoretical and computational physics.

Entry requirements

The courses listed below are open to all Study Abroad, International and European Exchange students, subject to any required previous knowledge or qualifications, as stated in the course outlines below.

Each course is 15 UK credits and starts in either the Autumn Term (September) or the Spring Term (January).

First year courses: There are no formal requisites for first year courses. However, a good mathematical background is seen as very beneficial to students.

The information contained in the course outlines on the following pages is correct at the time of publication but may be subject to change as part of our policy of continuous improvement and development.

First year courses: There are no formal pre-requisites for first-year courses. However, a good mathematical background is seen as very beneficial to students.

Course code	Course name	15 or 30 UK credits	Start date	Course description/including pre-requisites
PH1110	**Mathematics for Scientists 1**	15 UK credits	September 2025	**PH1110 Course specification**
PH1120	**Mathematics for Scientists 2**	15 UK credits	January 2026	**PH1120 Course specification**
PH1320	**Classical Mechanics**	15 UK credits	September 2025	**PH1320 Course specification**
PH1420	**Fields and Waves**	15 UK credits	January 2026	**PH1420 Course specification**
PH1620	**Classical Matter**	15 UK credits	September 2025	**PH1620 Course specification**
PH1920	**Physics of the Universe**	15 UK credits	January 2026	**PH1920 Course specification**

Second year courses: A solid foundation in Physics and Mathematics is required for year two courses, as well as the completion of a first-year undergraduate mathematics/statistics course for scientists.

Course code	Course name	15 or 30 UK credits	Start date	Course description/including pre-requisites
PH2130	Mathematical Methods	15 UK credits	September 2025	**PH2130 Course specification**
PH2210	Quantum Mechanics	15 UK credits	September 2025	**PH2210 Course specification**
PH2310	Optics	15 UK credits	January 2026	**PH2310 Course specification**
PH2420	Electromagnetism	15 UK credits	September 2025	**PH2420 Course specification**
PH2610	Classical and Statistical Thermodynamics	15 UK credits	January 2026	**PH2610 Course specification**
PH2710	The Solid State	15 UK credits	January 2026	**PH2710 Course specification**

Third year courses: Please note that these are advanced courses, typically equal to senior year/graduate level in the USA. Advanced knowledge and extensive experience in the subject area is required for year three courses.

Course code	Course name	15 or 30 UK credits	Start date	Course description/including pre-requisites
PH3040	Energy and Climate Science	15 UK credits	January 2026	**PH3040 Course specification**
PH3130	Advanced Classical Physics	15 UK credits	September 2025	**PH3130 Course specification**
PH3150	Further Mathematical Methods	15 UK credits	January 2026	**PH3150 Course specification**
PH3210	Quantum Theory	15 UK credits	September 2025	**PH3210 Course specification**
PH3520	Particle Physics	15 UK credits	September 2025	**PH3520 Course specification**
PH3710	Metals and Semiconductors	15 UK credits	January 2026	**PH3710 Course specification**
PH3730	Superconductivity and Magnetism	15 UK credits	January 2026	**PH3730 Course specification**
PH3910	General Relativity and Cosmology	15 UK credits	January 2026	**PH3910 Course specification**
PH3920	Stellar Astrophysics	15 UK credits	January 2026	**PH3920 Course specification**
PH3930	Particle Astrophysics	15 UK credits	January 2026	**PH3930 Course specification**

Fourth year courses: These are intercollegiate courses. Details for the level of knowledge for these courses can be provided on application.

Course code	Course name	15 or 30 UK credits	Start date	Course description/ including pre-requisites
PH4130	Advanced Classical Physics	15 UK credits	September 2025	**PH4130 Course specification**
PH4150	Further Mathematical Methods	15 UK credits	January 2026	**PH4150 Course specification**
PH4211	Statistical Mechanics	15 UK credits	January 2026	**PH4211 Course specification**
PH4226	Advanced Quantum Theory	15 UK credits	September 2025	**PH4226 Course specification**
PH4320	Advanced Astrophysics	15 UK credits	September 2025	**PH4320 Course specification**
PH4321	Research Topics in Astrophysics	15 UK credits	January 2026	**PH4321 Course specification**
PH4442	Advanced Particle Physics	15 UK credits	September 2025	**PH4442 Course specification**
PH4450	Particle Accelerator Physics	15 UK credits	September 2025	**PH4450 Course specification**
PH4472	Orders and Excitations in Quantum Materials	15 UK credits	January 2026	**PH4472 Course specification**
PH4475	Nano-Electronics & Quantum Technology	15 UK credits	September 2025	**PH4475 Course specification**
PH4515	Statistical Data Analysis	15 UK credits	September 2025	**PH4515 Course specification**
PH4610	Gravitational Wave Astronomy	15 UK credits	September 2025	**PH4610 Course specification**