ROYAL COLLEGE OF MUSIC
London

BSC IN PHYSICS AND MUSIC PERFORMANCE

Programme at a glance

Updated 18 September 2017

Imperial College London

Programme Structure

Year 1			
RCM Modules			
Principal Study 1	Level 4	60 RCM credits (=30 ECTS credits)	30 hours of music tuition and associated practice. Assessment is by examination and recital.
Professional Portfolio (Alexander Technique)	Level 4	10 credits (=5 ECTS credits)	Ten-week Alexander Technique course and a lecture series. Assessment is by presentation and a diary.
Imperial Modules			
Mathematics	Level 4	15 ECTS credits	Approximately 70 lectures supported by tutorials. Assessment is by regular coursework and a three-hour examination.
Mechanics, Vibrations and Waves	Level 4	8 ECTS credits	Approximately 34 lectures supported by tutorials. Assessment is by regular coursework and a two-hour examination.
Electricity, Magnetism and Relativity	Level 4	7.5 ECTS credits	Approximately 30 lectures supported by tutorials. Assessment is by regular coursework and a two-hour examination.
Quantum Physics and Structure of Matter	Level 4	7.5 ECTS credits	Approximately 36 lectures supported by tutorials. Assessment is by regular coursework and a two-hour examination.
Professional Skills and Basic Electronics I	Level 4	5 ECTS credits	Approximately 8 lectures on Electronics and 10 Professional Skills tutorials with associated team projects. Assessment is by coursework, a group presentation, a problem-solving test and electronics test, which is prepared for through tutorials.
Laboratory and Computing I	Level 4	9 ECTS credits	Approximately 80 timetabled hours of laboratory work and computing classes. Assessment is by continuous assessment and written reports.
Students must achieve an aggregate mark of at least 40% in each module to progress to year 2			

Year 2			
RCM Modules			
Principal Study 2	Level 5	60 RCM credits (=30 ECTS credits)	30 hours of music tuition and associated practice. Assessment is by examination and recital.
Aural Training	Level 4	10 credits (=5 ECTS credits)	22 one-hour classes. Assessment is by practical and written examinations.
Historical Studies	Level 4	20 credits (=10 ECTS credits)	22 group lectures and weekly one-hour seminars. Assessment is by a research project, essays, a presentation and a listening examination.
Students may replace Historical Studies with Practical Musicianship (see year 3) if desired. In this case, Historical Studies must be taken in year 3.			
Imperial Modules			
Quantum Mechanics	Level 5	6 ECTS credits	Approximately 25 lectures supported by tutorials. Assessment is by regular Assessed Problem Sheets and a two-hour examination.
Thermodynamics and Statistical Physics	Level 5	7 ECTS credits	Approximately 30 lectures supported by tutorials. Assessment is by regular Assessed Problem Sheets and a two-hour examination.
Atomic, Nuclear and Particle Physics	Level 5	6 ECTS credits	Approximately 25 lectures supported by tutorials. Assessment is by regular Assessed Problem Sheets and a two-hour examination.
Solid State Physics	Level 5	5 ECTS credits	Approximately 20 lectures supported by tutorials. Assessment is by regular Assessed Problem Sheets and a two-hour examination.
Mathematics and Statistics of Measurement	Level 5	9 ECTS credits	Approximately 37 lectures supported by tutorials. Assessment is by regular Assessed Problem Sheets and a two-hour examination.
Professional Skills II	Level 5	2 ECTS credits	Preparation of an essay on a physics topic. Assessment is through an essay plan and the essay itself.
Students must achieve an aggregate mark of at least 40% in each module to progress to year 3			
Year 3			
RCM Modules			
Principal Study 3	Level 5	60 RCM credits (=30 ECTS credits)	30 hours of music tuition and associated practice. Assessment is by examination and recital.
Practical Musicianship	Level 4	20 credits (=10 ECTS credits)	22 group one-hour classes. Assessment is by portfolios, a practical examination and a written examination.
Students who took Practical Musicianship in year 2 must take Historical Studies in year 3 instead.			

Imperial Modules			
Electromagnetism and Optics	Level 5	9 ECTS credits	Approximately 36 lectures supported by tutorials. Assessment is by regular Assessed Problem Sheets and a two-hour examination.
Physics Electives	Various	6 ECTS credits	6 ECTS credits of electives from Groups A or B (see BSc Elective Options below)
Project or Essay Project (Elective E)	Level 6	9 ECTS credits	Approximately 100 timetabled hours of project work together with associated private study. Assessment is by written reports, continuous assessment and a viva.
Students may take their project or essay project in year 4 instead of year 3. An elective would then be taken in year 3 in place of the project and one less elective in year 4.			
Comprehensive Physics and Professional Skills III	Level 6	18 ECTS credits	Approximately 24 tutorials developing problem-solving skills. Assessment is by two 3-hour examinations. Professional Skills constitutes a teamwork exercise based on an innovative idea. Assessment is by a short paper and presentation.
Students must achieve an aggregate mark of at least 40% in each module to progress to year 4			

Year 4

RCM Modules			
Principal Study 4	Graduation level	60 RCM credits (= 30 ECTS credits)	30 hours of music tuition and associated practice. Assessment is by examination and recital.
Principal Study can be increased to 80 RCM credits (40 ECTS) and 40 hours of tuition. This requires authorisation from the RCM and means fewer Imperial options are available (see below).			

Imperial Modules

There are three permissible study combinations in year 4:

- 30 ECTS credits of Principle Study 4 (RCM) and 30 ECTS credits of Imperial electives, of which 24 must be in physics (total 60 ECTS credits).
- 30 ECTS credits of Principle Study 4 (RCM), 10 ECTS credits of RCM electives (Group F) and 24 ECTS credits of Imperial electives, of which 18 must be in physics (total 64 ECTS credits).
- 40 ECTS credits of Principle Study 4 (RCM) and 24 ECTS credits of Imperial electives, of which 18 must be in physics (total 64 ECTS credits).

For information on elective options see BSc Elective Options below.

Students must achieve an aggregate mark of at least 40% to graduate

BSc Programme Modules and Levels of Study

Each module in our undergraduate programme is assigned a level according to the Framework for Higher Education Qualifications in England, Wales and Northern Ireland (FHEQ) credit system. Core modules in years 1 and 2 can be taken at levels 4, 5 or 6. Optional modules in years 3 and 4 are taken at levels 5 and 6. Therefore, these levels do not necessarily equate to year of study (except in Principal Study).

Please note that the RCM does not use module codes.

The FHEQ credit system converts easily into the European Credit Transfer System (ECTS), with 2 RCM credits equalling 1 ECTS credit. Imperial College assigns ECTS credits to their modules. The BSc in Physics and Music Performance accrues a total of at least 309 ECTS credits.

BSc Elective Options

Please note that optional modules may be subject to change according to student numbers and availability of professors.

Elective Group A (Imperial) – Maximum of one can be taken during the programme		
Mathematical Methods	Level 5	6 ECTS credits
Environmental Physics	Level 5	6 ECTS credits
Sun, Stars & Planets	Level 5	6 ECTS credits
Elective Group B (Imperial) – Majority of physics electives should be from this group, including at least 12 ECTS in year 4		
Fluid Dynamics	Level 6	1.5 ECTS credits
Light & Matter	Level 6	6 ECTS credits
Physics of the Universe	Level 6	4.5 ECTS credits
Computational Physics	Level 6	6 ECTS credits
Advanced Classical Physics	Level 6	6 ECTS credits
Astrophysics	Level 6	6 ECTS credits
Communicating Physics	Level 6	6 ECTS credits
Complexity & Networks	Level 6	6 ECTS credits
Foundations of Quantum Mechanics	Level 6	6 ECTS credits
Group Theory	Level 6	6 ECTS credits
Lasers	Level 6	3 ECTS credits
Imaging & Biophotonics	Level 6	3 ECTS credits
Medical Imaging: X-Rays & Ultrasound	Level 6	3 ECTS credits
Medical Imaging: Nuclear Diagnostics & MRI	Level 6	3 ECTS credits
Plasma Physics	Level 6	6 ECTS credits
Principles of Instrumentation	Level 6	6 ECTS credits
Statistical Mechanics	Level 6	6 ECTS credits

Elective Group C (Imperial) – Maximum of 8 ECTS can be taken during the programme		
Advanced Particle Physics	Level 7	6 ECTS credits
Atmospheric Physics	Level 7	6 ECTS credits
Computational Neuroscience	Level 7	6 ECTS credits
Nanotechnology in Consumer Electronics	Level 7	3 ECTS credits
General Relativity	Level 7	6 ECTS credits
Advanced Hydrodynamics	Level 7	3 ECTS credits
Laser Technology	Level 7	6 ECTS credits
Optical Communications	Level 7	3 ECTS credits
Information Theory	Level 7	3 ECTS credits
Plasmonics & Metamaterials	Level 7	6 ECTS credits
Quantum Field Theory	Level 7	8 ECTS credits
Quantum Information	Level 7	6 ECTS credits
Quantum Optics	Level 7	6 ECTS credits
Quantum Theory of Matter	Level 7	6 ECTS credits
Cosmology	Level 7	6 ECTS credits
Space Physics	Level 7	6 ECTS credits
Unification	Level 7	8 ECTS credits
Elective Group D (Imperial) – Maximum of one can be taken during the programme		
Imperial Horizons	Level 6	6 ECTS credits
Business for Professional Engineers & Scientists	Level 6	6 ECTS credits
Elective Group E (Imperial) – One must be taken in either year 3 or year 4		
Physics Project	Level 6	9 ECTS credits
Physics Essay III	Level 6	9 ECTS credits

For more detailed descriptions of the **Imperial College elective options**, please refer to the Department of Physics Undergraduate and Masters Degree Courses List webpage.

Elective Group F (RCM)		
Advanced Stylistic Studies	Level 6	10 ECTS credits
Alexander Technique	Level 5	10 ECTS credits
Alexander Technique	Level 6	10 ECTS credits
Aural in Professional Context	Level 6	10 ECTS credits
Chamber Music (including Duo)	Level 5	10 ECTS credits
Chamber Music (including Duo)	Level 6	10 ECTS credits
Classical CD Production	Level 5	10 ECTS credits
Conducting	Level 5	10 ECTS credits
Conducting	Level 6	10 ECTS credits
Contemporary Music in Action	Level 6	10 ECTS credits
Historical Performance	Level 6	10 ECTS credits
Historical Studies	Level 5	10 ECTS credits
Historical Studies	Level 6	10 ECTS credits
Repertoire Project	Level 6	10 ECTS credits
Research Project HIP	Level 6	10 ECTS credits

For more detailed descriptions of the **RCM elective options**, please refer to the module descriptions in our BMus(Hons) Programme at a Glance document.