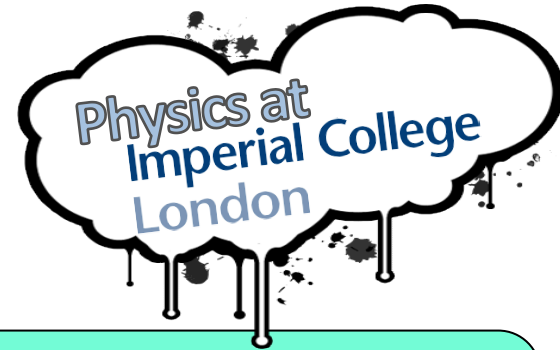


# PHYSICS MSci Degree - F303

*Year One*



- Maths (functions)
- Maths (vectors and matrices)
- Maths (complex analysis)
- Maths (vector calculus)
- Mechanics
- Vibrations & Waves
- Electricity & Magnetism
- Structure of Matter
- Relativity
- Quantum Physics
- Professional Skills I (First Year Seminars)
- Physics Laboratory I
- Physics Project

- Mathematical Analysis (core for Theoretical Physics degrees)
- Electronics (core for BSc and MSci Physics)
- Language Course (Year in Europe only)

*Year Two* CORE (EVERYONE takes these)

OPTIONS (choose one)

- Maths (Fourier)
- Maths (Differential Equations)
- Quantum Mechanics
- Statistics of Measurement
- Thermodynamics
- Atomic Physics
- Nuclear & Particle Physics I
- Electromagnetism
- Solid State Physics I
- Optics
- Statistical Physics
- Professional Skills II
- Physics Laboratory II

- Environmental Physics
- Sun, Stars and Planets
- Language Course (6 offered)
- Mathematical Methods (required for Theoretical Physics)
- Communicating Physics (Level 3 option, required for Science Education degree)

# Year Three

- Atomic & Molecular Physics
- Solid State Physics II
- Nuclear & Particle Physics II
- Professional Skills III
- Physics Laboratory III  
(except Theoretical Physics)
- Comprehensive Papers  
(Tutorial based)



**CORE** (EVERYONE takes these)



MSci Research Project  
Research Interfaces

The information provided on this form represents the course structure as taught in the 2013-14 academic year. While the broad structure of the degrees will not change, students entering in 2014 should expect some minor updating of the Years 3 and 4 programmes in particular.

# Year Four

- Advanced Classical Physics (Required for Theoretical Physics)
- Astrophysics
- Computational Physics (T)
- Communicating Physics
- Complexity & Networks (T)
- Foundations of Quantum Mechanics (T)
- Group Theory (T)
- Lasers, Optics & Biophotonics
- Medical Imaging
- Plasma Physics
- Principles of Instrumentation
- Statistical Mechanics (T)
- Humanities or Business option (see below)



**OPTIONS** (choose five)



- Advanced Particle Physics (T)
- Atmospheric Physics
- Biophysics of Nerve Cells & Networks
- Cosmology
- Device Physics
- General Relativity (T)
- Hydrodynamics & Shocks
- Laser Technology
- Optical Communications Physics
- Plasmonics & Metamaterials
- Quantum Field Theory (T)
- Quantum Information (T)
- Quantum Optics
- Quantum Theory of Matter (T)
- Space Physics
- Unification and the Standard Model (T)

# Variations in Degree Titles

## **F300 BSc Physics:**

First 3 years of MSci F303 but project replaces one option in Year 3

## **F325 BSc Physics with Theoretical Physics:**

First 3 years of MSci F390 but Theoretical Project replaces one option in Year 3

## **F3W3 BSc Physics and Music Performance**

- Majority of 3 years of Physics BSc course spread over 4 years
- Music performance tuition on one instrument at RCM.
- Aural Training, Stylistic Studies & History of Music at RCM.

## **F390 MSci Physics with Theoretical Physics:**

Year 1: Mathematical Analysis option is required  
Year 2: Mathematical Methods option is required  
Year 3: Adv. Classical Phys. required instead of Laboratory III; 3 options must be theoretical (T)  
Year 4: Research Project must be in theoretical physics; 3 options must be theoretical (T)

## **F309 MSci Physics with a Year in Europe:**

Year 1: Language course is required unless fluent speaker  
Year 2: Language course required (instead of being an option).  
Year 3: Spent at partner university;  
Includes major project in a research group;  
Physics lecture courses & exams in host country's language  
Year 4: Courses chosen from Years 3 and 4 of MSci F303 programme

**F3XC BSc Physics with Science Education:** see separate handout

## **Humanities:**

- Creative writing
- European History 1870 -1989
- History of Medicine
- Music and Western Civilisation
- Music Technology
- Philosophy
- Philosophies of Science
- Politics

## **Business School options**

- Entrepreneurship
- Finance and Financial Management
- Business Economics