PHYSICS MSci Degree - F303

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

**Year Two**
- **CORE** (EVERYONE takes these)
  - Maths (Fourier)
  - Maths (Differential Equations)
  - Quantum Mechanics
  - Statistics of Measurement
  - Thermodynamics
  - Atomic Physics
  - Nuclear & Particle Physics
  - Electromagnetism
  - Solid State Physics
  - Optics
  - Statistical Physics
  - Professional Skills II
  - Physics Laboratory II

- **OPTIONS** (choose one each year)
  - Mathematical Analysis (core for Theoretical Physics degrees)
  - Advanced Electronics (core for BSc and MSci Physics)
  - Language Course (Year in Europe only)
  - 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

• Fluid Dynamics
• Light & Matter
• Physics of the Universe
• Professional Skills III
• Physics Laboratory III (except Theoretical Physics)
• Comprehensive Papers (Tutorial based)

CORE (EVERYONE takes these)

Year Four

• Advanced Particle Physics (T)
• Advanced Hydrodynamics
• Atmospheric Physics
• Computational Neuroscience
• Cosmology
• General Relativity (T)
• Laser Technology
• Information Theory
• Nanotechnology in Consumer Electronics

OPTIONS (choose five each year)

• Advanced Classical Physics (Required for Theoretical Physics)
• Astrophysics
• Communicating Physics
• Computational Physics (T)
• Complexity & Networks (T)
• Foundations of Quantum Mechanics (T)
• Group Theory (T)
• Principles of Instrumentation
• Imaging & Biophotonics
• Lasers
• Medical Imaging: X-Rays & Ultrasound
• Medical Imaging: Nuclear Diagnostics & MRI
• Plasma Physics
• Statistical Physics
• Horizons or Business option (see overleaf)

MSci Research Project
Research Interfaces

The information provided on this form represents the course structure as taught in the 2017-18 academic year. While the broad structure of the degrees will not change, students entering in 2018 should expect some minor updating of the Years 3 and 4 programmes in particular.
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 MSci /BSc Physics with Science Education: see separate hand-out

Year 3 Horizons:
Examples
• Advanced Creative Writing
• History of Science, Technology and Industry
• Technology, Justice and Security
• Language (8 offered)
• Science and Humanism
• Music Technology
• Philosophy of Mind

Business School options
• Entrepreneurship
• Finance and Financial Management
• Business Economics
+ Five other business options available