

| Physics Options | First Year (Junior Freshman) 60 ECTS | Second Year (Senior Freshman) 60 ECTS | Third Year (Junior Sophister) 60 ECTS | Fourth Year (Senior Sophister) 60 ECTS |
|------------------------------------|---|---|---|---|
| *Physics | Physics (PY1P10 & PY1P20) | PY2P10 - Classical Physics PY2P20 - Modern Physics | PY3P01 - Quantum Mechanics PY3P02 - Electromagnetic Interactions I PY3P03 - Condensed Matter I PY3P04 - Condensed Matter II | PY4P01 - Quantum Physics PY4P02 - High Energy Physics PY4P03 - Condensed Matter III PY4P04 - Nanoscience |
| | Maths (MA1S11 & MA1S12) | Maths (MA22S1, MA22S2, MA22S3, MA22S4) | PY3P05 - Atomic & Nuclear Physics PY3P06 - Dynamical Systems PY3P07 - Experimental Techniques PY3PP1 - Practical in Physics | PY4P05 - Electromagnetic Interactions II PY4P06 - Modern Optics PY4P07 - Advanced Topics PY4PP1 – Research Project |
| | Remaining 20 ECTS from Biology, Chemistry, Geology, Geography | Remaining 20 ECTS from Biology, Chemistry, Geology, Geography | Options PY3A03 - Stellar & Galactic Structure OR PY3C01 - Computer Simulation I | |
| *Physics & Astrophysics | Physics (PY1P10 and PY1P20) | PY2P10 - Classical Physics PY2P20 - Modern Physics | PY3A03 - Stellar & Galactic Structure PY3A06 - Statistical Thermodynamics & Astrophysical Spectroscopy PY3A07 - Experimental Techniques for Astrophysics | PY4A03 - Planetary & Space Science PY4A05 - Cosmology PY4C01 - Computer Simulation III PY4P01 - Quantum Physics |
| | Maths (MA1S11 & MA1S12) | Maths (MA22S1, MA22S2, MA22S3, MA22S4) | PY3C01 - Computer Simulation I PY3P01 - Quantum Mechanics PY3P02 - PY3P03 - Condensed Matter I PY3P05 - Atomic & Nuclear Physics PY3AP1 - Practical in Physics & Astrophysics | PY4P02 - High Energy Physics PY4P05 - Electromagnetic Interactions II PY4P06 - Modern Optics PY4AP1 – Research Project |
| | Remaining 20 ECTS from Biology, Chemistry, Geology, Geography | Remaining 20 ECTS from Biology, Chemistry, Geology, Geography | | |

***Note: Students should apply through TR071 Science (general entry). Upon entry, students should select the appropriate Junior Freshman modules as indicated above.**

**Nanoscience,
Physics,
Chemistry of
Advanced
Materials
(TR076)**

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| Physics for Nanoscience (PY1N10 & PY1N20) | PY2N10 - Classical Physics PY2N20 - Modern Physics |
| Chemistry (CH1101 & CH1102) Maths (MA1S11 & MA1S12) | Chemistry (CH1101 & CH1102) Maths (MA22S1, MA22S2, MA22S3, MA22S4) |
| Nanoscience Tutorials | Nanoscience Tutorials |

Physics
 PY3P01 - Quantum Mechanics
 PY3P02 - Electromagnetic Interactions I
 PY3P03 - Condensed Matter I
 PY3P04 - Condensed Matter II

Chemistry
 CH3104 – Solid State
 CH3303 - Quantum Mechanical Concepts in
Physical Chemistry
 CH3304 - Molecular Thermodynamics &
Kinetics
 CH3403- Analytical Methods
 CH3093- Practical in Advanced Materials

Semester 1: Research Project (25 ECTS)

Semester 2: Lectures (35 ECTS)

Physics
 PY4M07 - Advanced Topics from
Advanced Materials
 PY4P03 - Condensed Matter III
 PY4P04 - Nanoscience
 PY4P06 - Modern Optics

Chemistry
 CH4107 - Advanced Physical Chemistry II
 CH4601 - Materials Chemistry 1
 CH4602 - Materials Chemistry 2

**Theoretical
Physics
(TR035)**

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| Physics Physics for Theoretical Physics (PY1T10, PY1T20) | Physics PY2T10 - Classical Physics PY2T20 - Modern Physics |
| Maths MA1111- Linear algebra I MA1123 - Analysis on the real line I MA1241 - Mechanics I MA1212 - Linear algebra II MA1132 - Advanced calculus MA1242 - Mechanics II MA1264 - Introduction C/C++ programming | Maths MA1213 - Introduction to group theory MA2321 - Analysis in several real variables MA2331 - Equations of mathematical physics I MA2341 - Advanced classical mechanics I MA2322 - Calculus on manifolds analysis I MA2332 - Equations of mathematical physics II MA2342 - Advanced classical mechanics II |

Physics
 PY3P03 - Condensed Matter I
 PY3P04 - Condensed Matter II
 PY3P05 - Atomic & Nuclear Physics
 PY3A03 - Stellar & Galactic Structure
 or
 PY3C01 - Computer Simulation I
 PY3TP1 - Practical in Theoretical Physics

Maths
 MA3431 - Classical field theory
 MA3441 - Quantum mechanics I
 MA3443 - Statistical physics I
 MA3432 - Classical electrodynamics
 MA3442 - Quantum mechanics II
 MA3444 - Statistical physics II

Physics Mandatory Modules
 PY4P02 - High Energy Physics
 PY4T01 - Condensed Matter Theory
 PY4T02 - Electron & Photon Physics
 PY4TP1 – Theoretical Physics Practical

Physics Optional Modules
 PY4P04 - Nanoscience
 PY4P07 - Advanced Topics
 PY4A05 - Cosmology
 PY4C01 - Computer Simulation III

Maths
 MA3415 - Introduction to Lie Algebras
 MA3429 - Differential geometry
 MA4445 - Quantum field theory I
 MA3469 - Practical numerical simulations
 MA342H - Partial differential equations
 MA4446 - Quantum field theory II
 MA4448 - General relativity
 MA444D - The Standard Model of Elementary
Particle Physics
 MA4491 - Research assignment
 MA4492 - Project