

Foundation Scholarship - Examination Requirements

Course of Study: Theoretical Physics

School/Discipline: School of Mathematics

Academic Year: 2020/21

Foundation Scholarship involves a searching examination, set and assessed so as to select students of outstanding ability. The objective of the Foundation Scholarship examination is to identify students who can consistently demonstrate exceptional knowledge and understanding of their subjects. The examination requires candidates to demonstrate: skill in synthesising and integrating knowledge across the full range of the set examination materials; rigorous and informed critical thought; and, in appropriate disciplines, a highly-developed ability to solve problems and apply knowledge.

Please include a brief statement below which explains how your examinations succeed in identifying the qualities associated with Scholarship.

The Theoretical Physics Scholarship examination will require an understanding of the course material that is of an advanced level and, in particular, will test students ability to use their knowledge in solving new problems. Students should be able to take the taught material as a starting point for in-depth and cogent analysis. A proper grasp of mathematics and its application to physical problems must be demonstrated. There will be two papers in Mathematics and two papers in Physics each of two hour duration. The relevant Junior Fresh and the Senior Fresh Michaelmas term subjects will be examined through questions of a higher standard than those found at the Annual Examinations.

Maths Paper D is a general paper consisting of unseen problems in mathematics and mathematical modelling that can be attempted by students who took the compulsory modules MAU11101, MAU11102, MAU11201 and MAU11202 during their Junior Fresh year.

Maths Paper E consists of problems related to the modules MAU23401 and MAU23403.

The first Physics paper (XSCH3079) will have one section on Thermodynamics, one section on Oscillations and one General Physics section. The second Physics paper (XSCH3313) will have one section on Electricity and Magnetism, one section on Materials, and one general section. The General Physics section of each paper will draw on all material in the Junior and the first semester of Senior Fresh years excepting Special Relativity but including classical mechanics.