



TR061: Chemical Sciences Foundation Scholarship Examination 2023-24 Information for Scholarship Candidates

Foundation Scholarship as described in the College Calendar:

“The objective of the foundation scholarship examination is to identify students who, at a level of evaluation appropriate to the Senior Freshman year, 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”

The objective of the Scholarship examination in Science is to identify and reward undergraduate students with outstanding knowledge and ability in each of the four Science degree programmes (TR060, Biological and Biomedical Sciences; TR061, Chemical Sciences; TR062, Geography and Geoscience; TR063, Physical Sciences). Such students should demonstrate an understanding and knowledge of their chosen field with some degree of originality and flair, and not simply a high level of performance in basic coursework.

The Scholarship examination is taken by Senior Freshman students in each degree and is based on the designated course work presented in the Junior Freshman and the first semester of the Senior Freshman years. In addition, students might also be examined on designated non-coursework material, which is specific for each degree.

An application form and Foundation Scholarship regulations can be accessed on the Examinations and Timetables Office webpage:

<https://www.tcd.ie/academicregistry/exams/scholarship/>

Recommendations for Scholarship will be based on the achievement of an overall first-class result with first class marks in at least two of the three papers examined and a mark of 65% or over in each paper.

Important Scholarship Dates:

- Deadline for online applications: 18th October - 1 November 2023
- Submission of online withdrawal forms: 6th November – 10 December 2023
- Foundation Scholarship Examinations: 8th – 13th January 2024 inclusive (some exams may be held in the preceding week).
- Announcement of Election to Scholarship: Trinity Monday 22nd April 2024



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TR061: Chemical Sciences

Contact: Prof Valeria Nicolosi (nicolov@tcd.ie) and Dr Noelle Scully (sfchem@tcd.ie)

TR061 candidates presenting for Scholarship examinations will sit three examination papers. Two in Chemistry and a third paper chosen from one of the following:

- Biology, Paper 2 (details outlined below)
- Maths, Paper 1 or Maths Paper 2 (details outlined below)
- Physics, Paper 1 or Physics Paper 2 (details outlined below)

Both chemistry examinations will be three hours in duration. The subject examined will cover JF coursework and material covered in Semester 1 of Senior Freshman chemistry. Candidates will have to answer all five questions on each paper, two of which will be general questions, integrative in nature and not necessarily based on coursework. All questions will have equal weighting.

The Foundation Scholarship examination in Chemistry examines the subject as covered in Junior Freshman year and in semester 1 of the Senior Freshman year. The questions examine the candidate's ability to problem solve and to synthesize and integrate knowledge across the Freshman chemistry material.

Candidates must exhibit the ability to apply knowledge and informed critical thinking in all three disciplines of chemistry.

BIOLOGY for Chemical Sciences (TR061)

Contact: Dr Glynis Robinson (robinsog@tcd.ie)

Chemical Sciences candidates will sit a paper covering the Senior Freshman module BYU22C01: From Molecules to Cell II. The paper will be of three hours duration, six questions, answer three.

MATHEMATICS for Chemical Sciences (TR061)

Contact: Ruth Britto (brittor@tcd.ie)

Paper 1, two hrs in duration, will be a general paper, testing the ability of candidates to solve unseen problems in mathematics and mathematical modelling, using in particular the skills developed in the modules MAU11S01 and MAU11S02 of the Junior Freshman year.

Paper 2, two hrs in duration, will consist of problems concerning the subject matter of the two Senior Freshman modules offered in the Michaelmas term (MAU22S01 Multivariable calculus for science and MAU22S03 Fourier analysis for science). The material from the Junior Freshman year (modules MAU11S01 and MAU11S02) is assumed as background to the Senior Freshman modules, but the problems on Paper 2 will be targeted at material covered in MAU22S01 and MAU22S03.



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PHYSICS for Chemical Sciences (TR061)

Contact: Prof. D. McCloskey (mccloskd@tcd.ie) and Prof. C. McGuinness (cmcguin@tcd.ie)

For the Physics papers, both Junior Freshman and Michaelmas term Senior Freshman topics will be examined through questions of a higher standard than those to be found at the end-of-semester module Examinations. There are two papers in Physics for all students, each of 2 hours in duration. Each paper will consist of 3 sections of 2 questions each. Each paper will be graded by taking the highest scored question from each section, plus the best mark from all remaining answered questions, for a total of 4 marked questions.

The first Physics paper will have one section on Thermodynamics, one section on Oscillations and one general Physics section.

The second Physics paper will have one section on Electricity and Magnetism, one section on Materials and one general Physics section.

The general Physics section of each paper will consist of questions drawn from all material in the Junior Freshman year and the first semester of Senior Freshman years.

Note: The information provided in this leaflet is accurate at time of preparation. Any revisions will be notified to students via e-mail and the Science Course Office Website:
<https://www.tcd.ie/Science/>