



Trinity College Dublin

Coláiste na Tríonóide, Baile Átha Cliath

The University of Dublin

Junior Sophister (3rd Year) & Senior Sophister (4th Year) Moderatorships

In the Junior and Senior Freshman years Physical Sciences (TR063 students complete a course of study which will qualify them to compete for a place in one of the following Moderatorships at the end Senior Freshman year:

- **Physics**
- **Physics and Astrophysics**
- **Nanoscience** (entered through Physical Sciences or through Chemical Sciences)

Videos on Physical Sciences and Moderatorships in Physical Sciences

Links to videos on Physical Sciences and on the Moderatorships in Physical Sciences are available from this webpage on the School of Physics: <https://www.tcd.ie/Physics/openday/>

Junior Sophister

Students in Junior Sophister year take 40 credits of core modules and 20 credits of Open Modules and Trinity Electives. Open Modules are science modules that are aligned to the students' core discipline. Trinity Electives are 5 ECTS modules that cover a wide range of languages and cultures, Trinity's research themes or grand societal challenges and are provided by schools from across the College - see here for the list of 43 available electives <https://www.tcd.ie/trinity-electives/electives/> Science students can take either one or two Trinity Electives – with a maximum of one per semester.

In Junior Sophister students can opt to do a study abroad year known as Erasmus [link](#)

Senior Sophister

In the Senior Sophister year the core modules in each of the Moderatorships cover further advanced topics and provide a varied range of other Open modules to choose from within the differing Moderatorships. In particular, all students will complete a Capstone research project in their Senior Sophister year where they are full-time researchers in a research group.

Sophister Course Structure Diagrams

Detailed information on syllabus of these Sophister modules is available in the School of Physics Undergraduate Handbook. <https://www.tcd.ie/Physics/study/current/undergraduate/handbook/>

The following pages list the core and open modules available in each moderatorship and the course structure of the Sophister years:

Junior Sophister TR063 – PHYSICS

40 Credits core + 20 Credits Open modules or Trinity Elective modules

Semester 1: Core		Semester 2: Core	
Core Modules (40 credits)	PYU33P01: Quantum Mechanics I (5 credits)	PYU33P03: Condensed Matter I (5 credits)	
	PYU33P15: Atomic Physics and Statistical Thermodynamics (5 credits)	PYU33P04: Semiconductor Physics (5 credits)	
	PYU33PP3: JS Physics Laboratory (10 credits)		
	PYU33P02: Electromagnetic Interactions I (5 credits)	PYU33PP4: JS Physics Laboratory (5 credits)	
Semester 1: Open – choose 2 of 3		Semester 2: Open – choose 2 of 3	
Open or Trinity Elective Modules (20 credits)	PYU33C01: Computer Simulation I (5 credits)	PYU33P07: Experimental Techniques (5 credits)	
	PYU33A03: Stellar & Galactic structure (5 credits)	PYU33A17: Experimental Techniques for Astrophysics (5 credits)	
	Trinity Elective 1 (5 credits)	Trinity Elective 2 (5 credits)	

Senior Sophister TR063 – PHYSICS

40 Credits Core modules + 20 Credits Open modules

		Semester 1: Core	Semester 2: Core
Core Modules (40 credits)		PYU44PP2: Capstone Research Project (20 credits) – Assessment in Semester 2	
	Project only in first 9 weeks of semester 1	PYU44PP5: Problem solving (5 credits) PYU44P11: Advanced Quantum Mechanics, Nuclear Structure and High Energy Physics (10 credits)	PYU44P05: Electromagnetic Interactions II (5 credits)
		Semester 1: Open modules	Semester 2: Open modules
Open Modules (20 credits)			PYU44N02: Nanoscience, complex fluids and polymers (10 credits)
			PYU44P13: Magnetism & Superconductivity
			PYU44P06: Modern Optics
		Take 4 Open modules which total 20 credits	PYU44T20: Quantum Optics and Information
			PYU44A05: Cosmology
			PYU44C01: Computer Simulation II
			PYU44P17: Energy Science

Junior Sophister TR063 – PHYSICS AND ASTROPHYSICS

40 Credits core + 20 Credits Open modules or Trinity Elective modules

Core Modules (40 credits)

Semester 1: Core

PYU33P01: Quantum Mechanics I
(5 credits)

PYU33A03: Stellar & Galactic
Structure (5 credits)

PYU33AP3: JS Physics Laboratory (10 credits)

PYU33P02: Electromagnetic
Interactions I (5 credits)

Semester 2: Core

PYU33P03: Condensed Matter I
(5 credits)

PYU33A17: Experimental Techniques
for Astrophysics (5 credits)

PYU33AP4: JS Astrophysics Laboratory
(5 credits)

Open or Trinity Elective
Modules
(20 credits)

Semester 1: Open – first is core then choose 1 of 2

*PYU33P15: Atomic Physics and
Statistical Thermodynamics
[Mandatory] (5 credits)

PYU33C01: Computer Simulation I
(5 credits)

Trinity Elective 1
(5 credits)

Semester 2: Open – choose 2 of 3

PYU33P04: Semiconductor Physics
(5 credits)

PYU33P07: Experimental techniques
(5 credits)

Trinity Elective 2
(5 credits)

Senior Sophister TR063 – PHYSICS AND ASTROPHYSICS

50 Credits Core modules + 10 Credits Open modules (AY 21/22)

		Semester 1: Core	Semester 2: Core
Core Modules (50 credits)		PYU44PP2: Capstone Research Project (20 credits) – Assessment in Semester 2	
	Project only in first 9 weeks of semester 1	PYU44PP5: Problem solving (5 credits) PYU44P11: Advanced Quantum Mechanics, Nuclear Structure and High Energy Physics (10 credits) PYU44A01: Planetary and Space Science and Cosmology (10 credits)	PYU44P05: Electromagnetic Interactions II (5 credits)
Open Modules (10 credits)		Semester 1: Open modules	Semester 2: Open modules
		Take 2 Open modules which total 10 credits	PYU44P13: Magnetism & Superconductivity PYU44P06: Modern Optics PYU44C01: Computer Simulation II PYU44P17: Energy Science

Junior Sophister TR063 – NANOSCIENCE

40 Credits core + 20 Credits Open modules or Trinity Elective modules

Semester 1: Core		Semester 2: Core	
Core Modules (40 credits)	PYU33P01: Quantum Mechanics I (5 credits)	PYU33P03: Condensed Matter I (5 credits)	
	CHU33405: Analytical and Computational Methods (5 credits)	CHU33307: Solid State Materials and Modelling (5 credits)	
	PYU33NP3: Nanoscience Physics Laboratory (10 credits)		
	CHU33609: Analytical and Computational Methods Workshops Nanoscience (5 credits)	CHU33603: Practical in Physical Chemistry and Nanoscience (5 credits)	
Semester 1: Open modules both core		Semester 2: Open – first is core then choose 1 of 3	
Open or Trinity Elective Modules (20 credits)	* Trinity Elective 1 (Nanoscience students obliged to take a TE in S1)	* CHU33107: Organometallics and Coordination Chemistry (5 credits)	
	* PYU33P02: Electromagnetic Interactions I (5 credits)	PYU33P04: Semiconductor Physics (5 credits)	
		CHU33105: Chemistry of Polymers and Macromolecules (5 credits)	
	* Indicates a mandatory selection	Trinity Elective 2 (5 credits)	

Senior Sophister TR063 – NANOSCIENCE

45 Credits Core modules + 15 Credits Open modules (AY 21/22)

Semester 1: Core		Semester 2 Core	
Core Modules (45 credits)	PYU44NP2: Capstone Research Project (20 credits) – Assessment in Semester 2		
	Project only in first 9 weeks of semester 1	PYU44NP5: Problem solving (5 credits)	CHU44304: Physical Chemistry (5 credits)
		PYU44N02: Nanoscience, complex fluids and polymers (10 credits)	
		CHU44004: Inorganic chemistry (5 credits)	
Semester 1: Open modules		Semester 2: Open modules	
Open Modules (15 credits)	Take 2 or 3 Open modules which total 15 credits		
			PYU44P13: Magnetism & Superconductivity (5 credits)
			PYU44P06: Modern Optics (5 credits)
			PYU44P05: Electromagnetic Interactions II (5 credits)
			PYU44P17: Energy Science (5 credits)
			CHU44167: Advanced Physical Chemistry (10 credits)
			CHU44005: Advanced Inorganic Chemistry (10 credits)
		CHU44705: Advanced Computational Chemistry (10 credits)	

Trinity Electives by Semester 2020/21

Semester 1

TEU00381	Ancient Culture Lab: Homer's Experience and the Greek Language
TEU00371	Becoming Human: The Science of Us
TEU00121	Cancer: The Patient Journey
TEU00351	The Chemistry of Periodic Elements
TEU00131	Chinese Language and Culture (Beginners)
TEU00141	Cultures and Societies of the Middle East and North Africa
TEU00031	Design Thinking
TEU00151	Displacement: exploring the human experience of forced migration
TEU00041	Emergence of Technologies
TEU00171 & TEU00161	French Language and Culture (Beginners and Advanced)
TEU00191/ TEU00181	German Language and Culture (Beginners and Advanced)
TEU00081	Idea Translation Lab
TEU00101	Irish Landscapes: Interdisciplinary Perspectives
TEU00211 & TEU00201	Irish Language and Culture (Beginners and Advanced)
TEU00341	Irish Sign Language
TEU00321 & TEU00331	Italian Language and Culture (Beginners and Advanced)
TEU00221	Japanese Language and Culture (Beginners)
TEU00231	Korean Language and Culture (Beginners)
TEU00251 & TEU00241	Spanish Language and Culture (Beginners and Advanced)
TEU00291	Travel and English Literature
TEU00301	Vaccines – Friend or Foe
TEU00311	What is the Internet doing to me? (Security and Privacy for people in a connected world)
TEU00011	A World to Discover: Travel Memoirs and Memorabilia at Trinity

Semester 2

TEU00262	The Art of the Megacity
TEU00122	Cancer: The Patient Journey
TEU00132	Chinese Language and Culture (Beginners)
TEU00452	Contemporary Art Angles
TEU00142	Cultures and Societies of the Middle East and North Africa
TEU00422	Decoding Genetics: The building blocks of life
TEU00152	Displacement: exploring the human experience of forced migration
TEU00052	Energy in the 21 st Century
TEU00062	Engaging in the Digital World: Today and Tomorrow
TEU00272	The Ethics Lab: Responsible Action in the Real World
TEU00172 & TEU00162	French Language and Culture (Beginners and Advanced)
TEU00072	From Planets to the Cosmos
TEU00192 & TEU00182	German Language and Culture (Beginners and Advanced)
TEU00362	Hacking your health: the science of exercise and fitness
TEU00402	How to live long and prosper – A lifespan approach
TEU00082	Idea Translation Lab
TEU00212 & TEU00202	Irish language and Culture (Beginners and Advanced)
TEU00342	Irish Sign Language
TEU00322 & TEU00332	Italian Language and Culture (Beginners and Advanced)
TEU00222	Japanese Language and Culture (Beginners)
TEU00232	Korean Language and Culture (Beginners)
TEU00422	Language and Communication in the Digital Age
TEU00392	Latin: One Language, Many Cultures
TEU00412	The Politics of Peace and Conflict in a Globalised World
TEU00112	Social Innovation – Tools for Social Change
TEU00252 & TEU00242	Spanish Language and Culture (Beginners and Advanced)
TEU00462	Sustainable Development Goals and Policy Evaluation: Global Development One Target at a Time
TEU00432	Thinking Digitally and Culturally
TEU00282	Toolkit for a Smart & Sustainable World
TEU00292	Travel and English Literature