

School of Physical Sciences

Structured Doctoral Pathway 2019-20

Overview

The School of Physical Sciences' structured doctoral pathway will lead to a PhD in one of the areas of research expertise within the School. The School's structured PhD programme is designed to align with the strategic direction of the University in terms of education, research excellence and translational focus. The programme provides core discipline-specific modules in advanced topics of modern physics centered on core areas of research in the School – including nanoscale physics (semiconductors, optical sensors, lithography and quantum technology), biomedical physics, plasma physics and astrophysics and physics/STEM education research. For each of these modules, fundamental theory is taught along with relevant research methods and techniques. In addition, the programme also offers a range of modules which focus on students acquiring a broad range of generic and transferable skills – as desired in a modern professional environment. The programme offers flexibility so that each student can select the suite of modules most appropriate for their own specific needs and ambitions.

Programme Structure

The School of Physical Sciences' assessment continues to be based solely on the student's original research work presented as a written thesis. To facilitate the greatest degree of flexibility for graduate students, a Physics structured master's pathway is also provided.

The PhD programme is based on students obtaining 270 credits for the research thesis plus between 35 and 55 credits from appropriate GTE modules – at least 20 credits from "Core Discipline-Specific Modules" and up to 15 credits from "Recommended Elective Generic/Transferable Skills Modules" and 20 credits from "Other Elective Generic and Transferable Skills".

The MSc programme is based on students obtaining 180 credits for the research thesis and 20 credits from appropriate modules – at least 10 credits from "Core Discipline-Specific Modules", and a total of 10 further credits from "Recommended Elective Generic/Transferable Skills Modules" and "Other Elective Generic and Transferable Skills".

It is also School policy that all students who are assigned to teaching-related responsibilities must complete GS607PS 'Laboratory tutoring', a 10-credit module to be taken over at least two years. In order to best serve the needs of each individual student, modules can also be taken from the current GTE offering across the faculties in DCU, on both PhD and MSc pathways. Guidelines are issued to students, along with advice from their supervisory panel, to enable them to make suitable choices.

All first year research students must also take the Online Research Integrity Training Module (Natural and Physical Sciences stream). Students wishing to register for GTE modules should access the Faculty's GTE programme through their portal pages. All other registration issues/queries should be directed to Registry.

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Core Discipline- Specific Skills

PhD pathway (20 ECTS) / MSc pathway (10 ECTS)

- **GS607PS:** Laboratory Tutoring (10 ECTS)★
- **PS522:** Microfluidics II (5 ECTS)
- **PS523:** Applied Spectroscopy II (5 ECTS)
- **PS524:** Plasma Science and Technology II (5 ECTS)

★ This module must be taken over at least two years, and should be started in year one.

Recommended Generic/ Transferable Skills Modules

PhD pathway (15 ECTS) / MSc pathway (up to 10 ECTS)*

- **MM532:** Computational Thermo-Fluid Dynamics (7.5 ECTS)
- **MM600:** Labview, Data Acquisition, Analysis and Control (7.5 ECTS)
- **GS604:** Research Ethics (5 ECTS)
- **LC600:** English for Academic Purposes (5 ECTS)
- **GS601:** Intellectual Property & Commercialisation (5 ECTS)
- **GS602:** Postgraduate Tutoring Principles & Practice (5 ECTS)
- **NS5055:** Qualitative Research Summer School (5 ECTS) (Limited places. Students must also register for summer school sessions separately.)
- **MT610:** Qualitative Research Methods (5 ECTS)
- **GS608CS:** Strategies for Academic Writing (5 ECTS)
- Online Research Integrity Training Module (Physical and Natural Sciences stream)(non-accredited)

Other Elective Generic and Transferable Skills

Doctoral Pathway - Select up to 20 ECTS
Master's Pathway - Select up to 10 ECTS

Modules may be selected from above listing or from the broader Faculty of Science & Health GTE listing.

All research students are required to attend the orientation and induction programme coordinated by the GSO.

Students are also encouraged to engage with centrally-offered workshops & seminars that align with their development needs at a given time.

*A combined total of 10 credits may be taken from "Recommended Elective Generic/Transferable Skills Modules" and "Other Elective Generic and Transferable Skills".