

# School of Chemical Sciences

## Structured Doctoral Pathway 2017-18

### Overview

The School of Chemical Sciences possesses an outstanding track record for postgraduate research, currently home to more than 95 postgraduate students, engaged in taught- and research-based M.Sc. and PhD programmes, in diverse fields. These range from the development of chemical and biological sensors and intelligent materials, to drug design and discovery, and advances in science education. The School houses a suite of state-of-the-art research equipment including high resolution electron microscopy and a range of both mass and magnetic resonance spectrometers. It is one of the most successful Chemistry Schools in Ireland for attracting large-scale research funding, with our researchers having significant roles within a number of recently established, nationally significant university/industry collaborative initiatives, including biomedical diagnostics, biofermentation process analysis, separation science and marine monitoring. Our postgraduate students are ambitious and highly motivated individuals, pursuing postgraduate qualifications through research by working with some of Ireland's most productive research groups.

The School of Chemical Sciences structured PhD programme is tailored to the needs of the School and its postgraduate students. It is a student-centred, flexible, research-focused programme, which aims to provide SCS students with discipline-specific knowledge, generic skills and autonomy to augment and support their postgraduate research. Within the programme, with their supervisor's guidance, students can undertake a range of modules across multiple subject areas, developing both scientific and generic skills. This allows our students to create a truly individual and personalised PhD programme, and create a programme which is tailored to their specific needs.

### Programme Structure

The student's original research as presented in thesis (or in such form appropriate to their discipline) is the sole means of assessment for the award of PhD. In addition, students can normally have accumulated 30 - 90 taught credits. Modules will be taken from the current GTE (Graduate Training Element) offering within the Faculty. Additionally, appropriate level 8 modules may also be taken, in discussion with the student, the supervisory panel and the module coordinator.

All first year students must complete the Research Integrity Online Training Module (RI-PS01).

Normally students will take 10 credits each year for years 1-3, with year 4, if appropriate, focused exclusively on their research.

Students will normally take approximately two-thirds discipline-specific modules and one-third transferable skills/language modules.

The individually-tailored structured pathway for each student should be discussed and agreed in the first instance with their supervisory panel and progress recorded on the annual PGR2 form. Once approval has been granted, students should register for their chosen modules during the online registration process.

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### Induction and Training

All incoming students must complete safety training and postgraduate induction organised by the School of Chemical Sciences in Semester 1. Additionally, all incoming students are encouraged to attend the orientation and induction sessions organised by GSO.

#### Discipline-Specific Skills

##### Tutoring Modules

- **GS602/A:** Postgraduate Tutoring Principles and Practice
- **GS607CH:** Laboratory Tutoring

##### Analytical Modules

- **BDI503:** Advances in Diagnostics and Nanobiotechnology
- **CS507A:** Advanced Experimental Data Processing
- **CS551A:** Advanced Analytical Techniques

##### Bio-based Modules

- **BE517:** Recombinant DNA Technology
- **BE525:** Introduction to Animal Cell Culture Techniques
- **BE532:** Introduction to Proteomics & Mass Spectrometry
- **BE533:** Gene Cloning and Gene Expression 2
- **BE550:** Biosafety and Laboratory Standard Operating Procedures

##### Physics-based Modules

- **PS519:** Advanced Quantum Mechanics
- **MM600:** Labview, Data Acquisition, Analysis & Control
- **PS522:** Microfluidics 2
- **PS523:** Applied Spectroscopy 2

#### Transferable Skills

- **GS604:** Research Ethics
- **GS606:** Enterprise Experience for Graduate Research Students
- **GS608CS:** Strategies for Academic Writing
- **GS609CS:** Strategies for Getting Published
- **RI-PS01:** Research Integrity Online Training Module (non-credit)

Students are encouraged to take additional training opportunities offered by the School and GSO as appropriate throughout their PhD.

Additionally, students are expected to attend/present at relevant local and international conferences.