

School of Computing

Structured Doctoral Pathway 2020-21

Overview

The School of Computing is a stimulating environment for research, particularly in the areas of localization, data analytics, software engineering, scientific computing and cloud computing. It currently has 60 postgraduate research students and a wide range of funded projects at national and international level.

This document details the structured doctoral pathway for the School of Computing in DCU. While the main focus for each research candidate is to complete a piece of original research presented in thesis format, students are also supported in developing a range of skills and competencies through taught modules and other learning opportunities.

During their registration, all research students may take a mix of credit-bearing modules (Graduate Training Elements or GTEs), and other non-accredited education opportunities such as workshops, seminars and short courses. These opportunities provide both discipline-specific and transferable skills and knowledge to support students in their research and enhance their research qualification. Engagement in these activities is an important aspect of the graduate researcher experience.

Students following the structured pathway must attain a minimum of 20 credits in accordance with university structured PhD requirements. Students should take at least one module each from the discipline-specific, and transferable skills lists of modules. The structured pathway for each PhD student should be discussed and agreed in the first instance with the supervisor and progress recorded on the annual PGR2 form. Once approval has been given, the student can register for their chosen GTE(s) during the online registration process.

Induction and non- accredited training

Students are encouraged to take advantage of the additional training opportunities offered by the Graduate Studies Office (GSO) and by the School as appropriate. All students are required to attend the orientation and induction sessions organised by GSO during year one. GSO communicates details of their training schedule to each student at the beginning of each semester. First-year students are also required to take the Online Research Integrity Training module during year one of their studies.

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Discipline-Specific Skills

7.5 ECTS unless otherwise stated

Transferable Skills

7.5 ECTS unless otherwise stated

SECURE SOFTWARE ENGINEERING

- Systems Software - CA644 (Sem 1)
- Cryptography and Number Theory - CA642 (1)
- Secure Programming - CA647 (Sem 1)
- Formal Programming - CA648 (Sem 2)
- Software Process Quality - CA650 (Sem 2)
- Network Security - CA645 (Sem 2)

DATA ANALYTICS

- Mathematical Methods/Computational Science - CA659 (Sem 2)
- Statistical Data Analysis - CA660 (Sem 1)
- Data Management and Visualisation-CA682(1)
- Data Analytics and Data Mining - CA683 (Sem2)
- Machine Learning - CA684 (Sem 2)
- AI, Information and Info Seeking—CA652 (2)
- Data Analysis and Machine Learning - EE514 (1)
- Computer Vision—EE544 (Sem 2)

ARTIFICIAL INTELLIGENCE

- Foundations of Artificial Intelligence—CA686 (1)
- Machine Learning - CA684 (Sem 2)
- Data Analytics and Data Mining - CA683 (Sem2)
- AI, Information and Info Seeking—CA652 (2)

- Induction - Semester 1, Year 1, Coordinated by GSO (non-accredited)
- Online Research Integrity Training Module (Engineering and Computing stream) (non-accredited)
- Professional Research Practice - CA640 (1)
- Postgraduate Tutoring Principles & Practice - GS602 (5 ECTS) (Sem 1)
- Research Ethics - TP602 (5 ECTS)
- Enterprise Experience for Graduate Research Students - GS606/A (10 ECTS)
- Data Governance CA691 (10 ECTS)
- Advanced Scientific Communication Skills—CA637 (Year Long)
- Entrepreneurship for Engineers - EE507 (2)
- English for Academic Purposes - LC600 (5 ECTS) (Year Long)

Students are also encouraged to engage with centrally and locally offered workshops and seminars that align with their development needs.