

# STEM Summer School Research Internship: DM4013

We are excited to run our STEM Summer School project-based programme for Summer 2023. As one of the leading Science and Engineering universities in Ireland, we are excited to offer ten research projects from our Faculty of Science and Engineering.

You will have the opportunity to work alongside researchers, where you will conduct your own pre-approved research project.

You'll enjoy all the benefits of studying in the west of Ireland where it is known for its electric atmosphere, scenic beauty and academic rigour. All while taking part in this prestigious and highly competitive programme which will be sure to set your resume aside from others.





# Stem Research Internship 2023

- 1 Automating Data Identification for more Forensic-Ready Smart Factories
- 2 Your paragraph textKind Computing: A New Paradigm for Integrating Kindness into Software
- 3 Development of biobased quantum dots – Materials development and biocompatibility
- 4 Learn about cybersecurity using ‘Cyber Range’
- 5 Understanding the mechanisms of trace metal toxicity during brain development using in vitro model systems
- 6 Mitigating Cyber threats in healthcare using MITRE ATT&CK Framework
- 7 Data Privacy and Security in U.S.-EU data transfer
- 8 Protecting Genomic data using Cyber Standards
- 9 Trust and Security Provision for Unmanned Aerial Vehicles
- 10 Intrusion Detection and Prevention for Smart Home Networks
- 11 Neural Network Model Selection
- 12 Purification of green extracts from food by-products to obtain bioactive-rich ingredients
- 13 The anti-thrombotic properties of dairy lipids
- 14 Impossible Crystallisation: An Assessment of Solvent Radiolysis in Undersaturated Pharmaceutical Crystallisation
- 15 Development of a digital twin for a metal-bending manufacturing operation
- 16 Design and development of motorcycle impact protection using 3D printing with controlled internal structures
- 17 Real-time signal processing and feature extraction of robotic drilling process
- 18 New natural sweeteners' effects on microbial communication (quorum sensing)
- 19 Application of Deep Learning to detect potentially novel exons/transcript structures in genomic sequences.
- 20 Security of legacy medical devices
- 21 Development of extraction, analytical and purification techniques of plant material to target phytopharmaceuticals
- 22 Energy properties of the products of hydrothermal carbonisation of digested sludge from wastewater treatment plant
- 23 Phosphor recovery from dairy factory waste products in form of fertiliser
- 24 Production of biobased solvents from lignocellulosic biomass
- 25 Recovery of phosphorus from meat and bone meal and its ashes samples regarding potential fertiliser production
- 26 Secondary Bending in Curved Double-Layer Gridshell Assemblies
- 27 Role of Meninges in Concussion: Mechanical and Structural Characterisation of Porcine Meninges Membrane
- 28 Computational and experimental characterisation of a potential antimicrobial resistance factor
- 29 In silico prediction of novel antimicrobial resistance factors in *Klebsiella pneumoniae*
- 30 Antimicrobial susceptibility testing of genetically engineered *Escherichia coli* knockout cells