



Research Project



Why study this module?

You are required to complete this module, in order to gain an MSc in Biomedical Science. By taking this module, you will experience what it is like to do biomedical research.

Module content

The aim of this module is to provide hands-on experience of the rigours of scientific research, from experimental design, to execution of experiments and evaluation of results. You will be educated as to best practice for literature searching, experimental design, laboratory practice, statistical methods, reporting of results and graduate-level discussion of research data.

Learning outcomes

On completion of this module you will be able to:

- Carry out a literature search on your chosen research topic
- Design and follow an experimental plan, projected to meet research objectives
- Monitor progress of research and adjust experimental plan accordingly
- Prepare and deliver a 15 – 20 minute presentation on your project
- Write a good-quality MSc thesis that summarises, in scientific language, the background to the research, methods used and results obtained
- Produce a postgraduate-level discussion of your research, as part of your thesis

Who is the target audience?

Science and Engineering graduates who wish to learn the skills needed to carry out biomedical research, in order to then embark on a research career. The module is also suitable for those hoping to move from a production to a R&D environment.

Module facts

Course level: Level 9

Module credit: 30 ECTS. Gain transcript or use towards PG Cert/PG Dip/MSc qualification in Biomedical Science

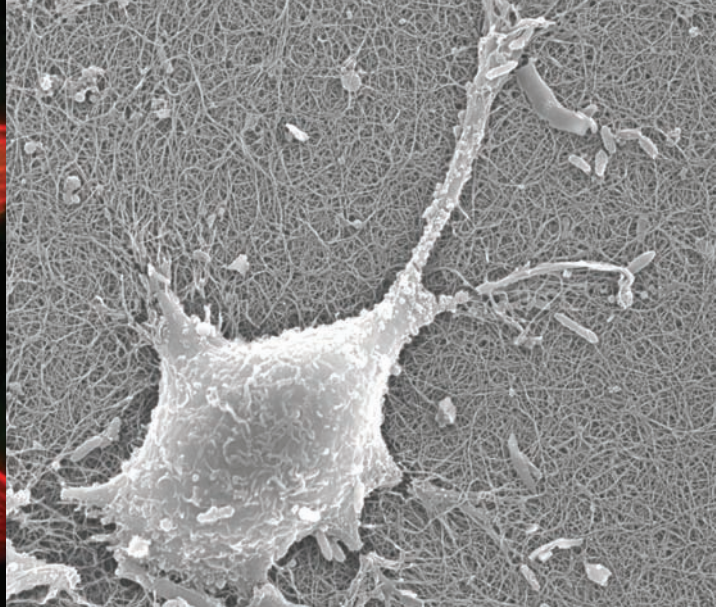
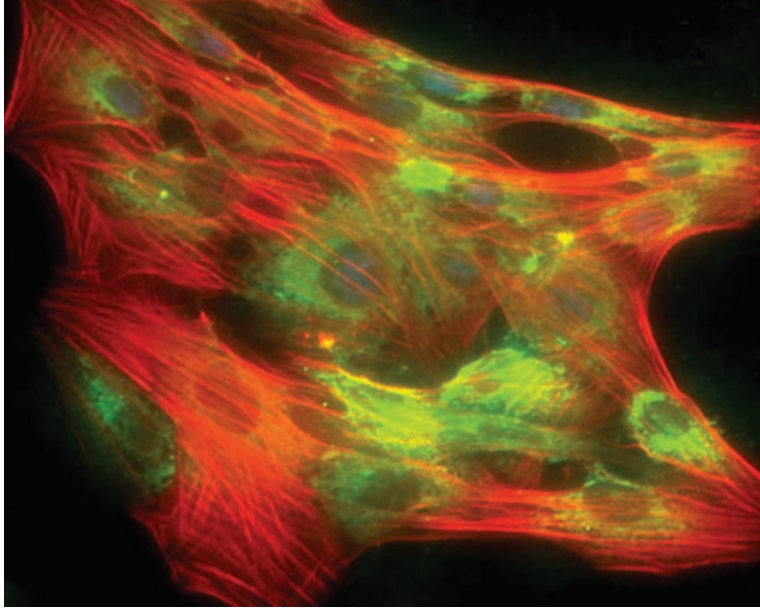
Duration: Over one semester

Entry Requirements: Please refer to the application section of the programme brochure

Fees: €1,000

Applying: www.nuigalway.ie/apply

Closing date: 2 – 8 weeks prior to module start date



Module topics

Production of project outline

- Project aim(s)
- Proposed project schedule
- Methodology
- Work-based supervisor

How to carry out a research project

- Design of proposed experiments
- Working in a research team
- Execution of experiments
- Data analysis
- Summary of results
- Discussion of research

Presentation of research project results

- Oral presentation
- MSc thesis
- Scientific writing and communication

Student testimonial



Catherine Dolphin

Current position:

Proposal Development Associate II at ICON Clinical Research.

Position held while completing module:

Clinical Trials Administrator/Business Operations Lead, Country Clinical Operations, Pfizer Healthcare Ireland.

“Whilst many of my classmates opted to conduct their research projects at their place of work, I eagerly availed of the opportunity to complete my research project under the tutelage of the course director Dr. Una FitzGerald at the National Centre for Biomedical & Engineering Sciences (NCBES), for which I received a First Class Honours. The topic of my research project was ‘Characterisation of Endoplasmic Reticulum Stress Signaling Molecules during Oligodendrocyte Differentiation’ as it pertained to Multiple Sclerosis. During my four months in the laboratory at the NCBES, I was able to consolidate and cement my previous learning and implement in practice what I had learned in theory through the strong hands-on support of the highly enthusiastic Dr. FitzGerald and her wonderful research team at the Multiple Sclerosis & Stroke Research Group. It was a great opportunity to learn from others and contribute to the overall research goals of the group. On completion of my research I was delighted to be selected to orally present my research at the Neuroscience Ireland Conference 2008 and had my thesis abstract published in the Irish Journal of Medical Science as a consequence.”



Module Director

Dr. Una FitzGerald

Dr. Una FitzGerald is a lecturer in Biomedical Engineering Science, based in the NCBES. Una graduated from NUI Galway with a BE in Industrial Engineering and transferred to the biotechnology field

through completion of a Masters degree in Biotechnology, also at NUI Galway. Following a brief spell in Nochttech Ltd. where she worked on the setting up of a monoclonal antibody production facility in Dublin, Una spent a year in France for Sanofi -Elf Bioresearch (Labège), developing serum-free media for suspension culture of IL-2-producing CHO cells. This led to a job as a junior manager in a large-scale pharmaceutical production plant at Celltech Ltd. (Slough, England). After completing a PhD at the University of Strathclyde, Glasgow, Una spent the next 9 years working as a postdoctoral researcher in Glasgow working in cancer and neuroscience-related fields. In 2002 she joined Prof. Samali's Apoptosis Research group. Before taking up the post as coordinator of the MSc in Biomedical Science

(via distance learning) in 2006, Una spent 18 months lecturing on and coordinating the full-time Masters programme in Biomedical Science. In addition to teaching, Una manages a research group focusing on Multiple Sclerosis and neurodegenerative disorders. She currently supervises two PhD students and a senior researcher and has supervised three PhD students to completion. The research theme in her group centres around the endoplasmic stress signaling pathway and its impact on the pathology and repair of neurodegenerative disorders. This research is carried out using a range of techniques in cell and molecular biology, immunohistochemistry and imaging. Una is also actively involved in neuroscience outreach to schools and the public, as the chief organiser of the annual ‘Brain Awareness Week’ event run by the Galway Neuroscience Group at NUI Galway.

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