



TUS

**Technological University of the Shannon:
Midlands Midwest**
Ollscoil Teicneolaíochta na Sionainne:
Lár Tíre Iarthar Láir

POSTGRADUATE RESEARCH OPPORTUNITY

Project Title: Regenerative Value Systems for Irish Grown Wool in Ireland (REVEIRE)

Project Description

Regenerative Value Systems for Irish Grown Wool in Ireland (REVEIRE) is an all-island collaborative project led by University College Cork (UCC), together with partners Munster Technological University (MTU), Technological University of the Shannon: Midlands Midwest (TUS), University of Ulster (UU), Teagasc (Athenry) and the Irish Grown Wool Council (IGWC) and funded by the Environmental Protection Agency (EPA) under the EPA Research Programme.

This project is to develop ways for wool to evolve from a waste farm product with negative return on investment, i.e., shearing to a valuable product and provide data and evidence to inform Government policies, initiatives and investments required for regenerating the Irish grown wool industry for a sustainable circular bioeconomy.

PhD studentship

This PhD studentship will investigate novel and scalable scouring applicable for Irish grown wool using cascading biorefinery principles. Innovative methods utilising ultrasound and enzymes will be assessed to study their applicability in improving scouring efficiencies of Irish grown wool and ability to produce smoother fibres whilst reducing wastewater generation and energy needs. Dry scouring using supercritical CO₂ as a novel process will also be tested for its efficacy on Irish grown wool. Lanolin recovery and valorisation of wastewater in a cascading biorefinery from water-based scouring processes will be assessed. Extraction of lanolin will be optimised, focussing on the use of green solvents, while wastewater valorisation via anaerobic digestion will be evaluated to produce renewable gas and recirculation of nutrient as biofertiliser. The optimal scouring-based biorefinery will be evaluated using technoeconomic and life cycle assessments (TEA and LCA).

PhD studentship mainly at Centre for Applied Bioscience Research (CABR; previously Shannon Applied Biotechnology Centre), TUS, Moylish Campus, Limerick. The student will need to spend 6 months at University College Cork (UCC) for an exchange and carry out experiments.

Salary: Tax-free stipend of €25,000 p.a. and tuition fees covered at the EU rate. Non-EU applicants may be required to pay additional non-EU fees.

Duration and Start Date: 3 years duration, starting September 1st, 2025

Funding Agency: Environmental Protection Agency (EPA)

Type of Degree Offered: PhD



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Minimum Qualifications

We are seeking a self-motivated candidate with a strong interest in chemical/biological extraction and wastewater treatment.

Applicants should have a primary Bachelor's or Master's degree in chemical, environmental or biological sciences/engineering or relevant disciplines, with a minimum classification of 2.1 honours or equivalent.

Experience Necessary/Any Other Requirements:

- Ability to develop new skills / knowledge
- Evidence of good analytical and computer skills
- Presentation skills
- Time management skills
- Written communication skills
- Ability to work under instruction and as part of a team
- Initiative encouraged
- Extensive hands-on practical laboratory experience is required. Previous experience with instrument analysis like GC/HPLC, IC, FTIR, TOC, ICP is an advantage.
- IELTS [International English Testing System] Applicants must have a minimum of 6.0 with no component score less than 6.0.

Research Supervisors: The candidate will be part of a multidisciplinary and multi-lab team, supervised by Dr Yin Zhu (Lead supervisor; TUS Midwest), Dr Catherine Collins (Co-supervisor; TUS Midwest), Dr Archishman Bose (Co-supervisor; UCC)

For further information, please contact:

Dr Yin Zhu (Yin.Zhu@tus.ie), Department of Applied Science and LIFE Biosciences and Research Institute, Moylish campus, TUS Midwest.

Closing Date for Applications: 15th July 2025

Please submit your completed application to: pro@tus.ie

Please reference **Project Title** in all correspondence.

Download the TUS Scholarship application form here:

<https://tus.ie/rdi/research/office/funded-research/>