



Job Description

Research Centre	School of Biotechnology
Post title	Research Assistant Bioprocess Engineering
Post duration	Up to 11-month fixed-term contract

Dublin City University

Dublin City University (DCU) is a young, ambitious and vibrant university, with a mission ‘to transform lives and societies through education, research, innovation and engagement’. Known as Ireland’s ‘University of Enterprise’, DCU is a values-based institution, committed to the delivery of impact for the public good. DCU was named Sunday Times Irish University of the Year 2021.

DCU is based on three academic campuses in the Glasnevin-Drumcondra region of north Dublin. More than 18,000 students are enrolled across five faculties – Science and Health, DCU Business School, Computing and Engineering, Humanities and Social Sciences and DCU Institute of Education.

DCU is committed to excellence across all its activities. This is demonstrated by its world-class research initiatives, its cutting-edge approach to teaching and learning, its focus on delivering a transformative student experience, and its positive social and economic impact. The university continues to develop innovative programmes in collaboration with industry, such as the DCU Futures suite of degrees, which are designed to equip graduates with the skills and knowledge required in a rapidly evolving economy.

DCU’s pursuit of excellence has led to its current ranking among the top 2% of universities globally. It is also one of the world’s Top Young Universities (QS Top 100 Under 50, Times Higher Top 150 Under 100). In the Times Higher Education University Impact Rankings 2021, DCU ranked 23rd in the world for its approach to widening participation in higher education and its ongoing commitment to eradicating poverty, while it ranks 38th globally for its work in reducing inequality and 89th globally for gender equality.

The university is ranked 23rd in the world and first in Ireland for its graduate employment rate, according to the 2020 QS Graduate Employability Rankings. Over the past decade, DCU has been

the leading Irish university in the area of technology transfer, as reflected by licensing of intellectual property.

Background & Role

Grain-4-Lab is a €2.4 million funded sustainability project, part of the SFI Future Innovator Prize Programme (<https://grain4lab.ie/>). The aim of the project is to reduce the reliance on fossil-fuel based single-use plastics in research laboratories, by providing a more sustainable and functionally equivalent alternative. In Grain-4-Lab we take waste products from the brewing and distilling industry and aim to produce a high quality bioplastic alternative.

We are a highly multi-disciplinary team which includes researchers from the fields of bioprocessing, materials science, polymer synthesis, societal change and scientific outreach. Grain-4-Lab operates in close collaboration with an international network of companies and collaborators to develop, test and trial their bioplastic solution. The project was recently featured on Irish national news channel RTE (<https://www.rte.ie/news/ireland/2022/1005/1327355-dcu-scientists/>).

The School of Biotechnology at Dublin City University invites applications for a Research Assistant role in Microbial Bioprocess Engineering to work on the Grain-4-Lab project valorising wastestreams using Lactic Acid Bacteria towards the development of compositable biopolymers. The position is available from December 2022 for 11 months with the possibility of an extension dependant on funding available and ongoing requirements for the project.

The goal of this specific project is bioprocess development & optimisations, both Up-Stream and Down-Stream towards the production of high-quality Lactic Acid from waste feedstocks. Extensive bench-scale development & optimisation using Process Analytical Tools will be required along with pilot and production scale testing. This is an excellent opportunity for graduates looking to get practical experience in development of a bench-scale bioprocess, while supporting scale-up and down-stream processing. The work will be undertaken in the Microbial Bioprocessing Facility (School of Biotechnology) but the project will involve collaboration with the Schools of Physical Sciences, Chemical Science, and Nursing, Psychotherapy and Community Health in Dublin City University.

Principal Duties and Responsibilities

Reporting to their Principal Investigator the Research Assistant will:

- Conduct a specified programme of work under the supervision and direction of a Postdoctoral Researcher and the Principal Investigator.
- The research assistant will assist with the development of a microbial bioprocess and downstream purification methods including: waste-valorisation, batch and fed-batch bioprocess development, Design of Experiments (DoE), micro-filtration, UF/DF and chromatography.
- The research assistant will perform shake-flask studies, along with running bench-scale and pilot-scale bioreactors and developing the down-stream process including using microfiltration systems, UF/DF systems and chromatography.

Minimum Criteria

Essential:

- Applicants should have an undergraduate degree in the following fields: Bioprocess Engineering, Chemical Engineering, Mechanical Engineering or Microbial Biotechnology.

Desirable:

- Experience in LabVIEW programming, microbial bioprocessing and down-stream processing techniques advantageous.
- Applicants should be able to demonstrate their ability to work in multidisciplinary and high collaborative projects.

Essential Training

The postholder will be required to undertake the following mandatory compliance training: Orientation, Health & Safety and Data Protection (GDPR). Other training may need to be undertaken when required.