



Maynooth University Ollscoil Mhá Nuad

Faculty of Science and Engineering Doctoral Scholarship: Department of Biology

Details of the Scholarship Award

The Faculty of Science and Engineering at Maynooth University is pleased to announce that a Maynooth University Doctoral Scholarship will be available in the Department of Biology at Maynooth University for a suitably qualified and successful applicant intending to commence their studies in September 2026.

Project Title: Increasing crop resilience to climate change using plant fungal symbionts.

Supervisor: Dr. Grace Hoysted, Department of Biology

Co-supervisor: Prof. Emmanuelle Graciet, Department of Biology

Project Description

Global climate change poses a significant threat to crop production and food security by increasing the frequency and intensity of environmental stresses. With the need to develop sustainable agricultural systems, which use fewer agrochemicals that affect both wildlife and human health, new approaches are needed to maintain yields under increasingly challenging conditions. One solution lies in utilising plant fungal symbionts, such as mycorrhizal fungi, which can enhance plant resilience to environmental stress.

This project will use molecular approaches to elucidate complex interactions between the most important cereal crop in Ireland, barley, and diverse lineages of mycorrhizal fungi. Mycorrhizal symbioses may offer a potential natural-based solution to mitigate crop stress in agricultural ecosystems. Plant tolerance to two stresses relevant to the Irish context, waterlogging and fungal pathogens will be investigated in mycorrhizal-inoculated barley. Both stresses threaten barley production and are set to increase as Ireland is projected to have more frequent flooding events, while higher temperatures will allow fungal pathogens to thrive. In conjunction with the ever-decreasing list of fungicides allowed in the EU, finding a natural-based solution, such as the use of mycorrhizal fungi, is key.

This project will allow the PhD student to develop strong skills in (i) fungal biology by working both with mycorrhizal fungi and fungal pathogens; (ii) plant responses to abiotic and biotic stresses; (iii) molecular approaches such as the monitoring of gene expression using RNA-seq. This research aims to promote sustainable agriculture, enhance biodiversity, and improve crop nutrition.

Value of Maynooth University Doctoral Scholarship Award

The award is fully funded for up to four years, commencing September 2026.

The following funding is available for the successful applicant:

- Student stipend: €25,000 per annum;
- Annual Tuition Fees.

Duration of Maynooth University Doctoral Scholarship Award

The scholarship is awarded for up to four years of full-time study, subject to satisfactory annual academic progression.

Role of the Student

The project topic is pre-specified with defined deliverables. The study is subject to the terms and conditions of MU Doctoral Scholarships and must be completed in accordance with the requirements set out in the Research Student Programme Stages as outlined in the [MU Regulations for Postgraduate Research Degrees](#).

Mode of Study

Awardees must be resident in Ireland and available to pursue their programme of research on a full-time basis at Maynooth University for four years.

The successful candidate's research programme will be under the general supervision of their nominated supervisor who will specify study times, research times, vacation periods and other operational requirements.

Awardees will normally be based at the Maynooth University campus and may only conduct research elsewhere with the permission of their supervisor and the Head of Department.

Eligibility Criteria

Qualifications

A first-class or high upper second-class honours degree (2.1 or above) or MSc degree in plant molecular biology, fungal biology, botany or a related environmental science field.

Knowledge & Experience

Essential

- Demonstratable experience in plant biology and/or fungal biology and/or microbiology;
- Demonstratable lab-based experience with molecular techniques using transcriptional and/or biochemical approaches;
- Meet the Maynooth University postgraduate entry requirements.

Desirable

- Demonstratable experience in statistical analyses;
- Demonstratable experience in analysing transcriptomics (RNA-seq) datasets using bioinformatics;

- Demonstratable experience in managing and delivering outputs for projects, or equivalent, within deadlines.

Skills & Competencies

- Demonstratable ability to work independently and as part of a team;
- Demonstratable creative and critical thinking;
- Highly self-motivated;
- Willing to engage with a diverse team and contribute to shared goals;
- Excellent written and oral communication skills in English.

English Language Requirements

- Applicants who are non-native speakers of the English language must provide written evidence of competency in the English language that satisfy the programme-specific requirements set out by the [Maynooth University International Office](#).

Application and Selection Process

Applicants should submit directly to **Dr. Grace Hoysted** (grace.hoysted@mu.ie):

- A full Curriculum Vitae;
- Contact details of 2 referees (including email addresses);
- Max 2-page personal statement detailing why you are interested in the project.

Closing Date: Please apply by **5pm on June 19th 2026**.

Informal queries can be sent to: grace.hoysted@mu.ie.



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