



Trinity College Dublin
Coláiste na Tríonóide, Baile Átha Cliath
The University of Dublin



Open PhD Position: Dynamic Patterns in Plant-Herbivore Interactions

The [Chemical Ecology Group](#) led by [Dr. Jamie Waterman](#) (Discipline of Botany, School of Natural Sciences) at Trinity College Dublin, The University of Dublin invites applications for a fully funded 4-year PhD project.

Project Background and Description

Plant-herbivore interactions shape ecosystems as we see them, pose a major threat to global food security and inform the development of new medicines. These interactions are underpinned by plant defence chemistry and herbivore behaviour. In the absence of stress, many plant defences are switched off to avoid unnecessary energy expenditure. A singular stress event induces transient defence responses. However, herbivore feeding is a complex array of multiple stress events across space and time. As such, herbivores convey detailed information—more like Morse code than a siren—to the plant and induce responses that are scalable to the amount, timing and location of feeding.

A major unresolved question in ecology is how the dynamic interplay between plant defences and herbivore behaviour unfolds. Plant defences can shape herbivore feeding patterns, just as herbivore behaviour can influence the dynamics and strength of plant defences.

This PhD project will use multidisciplinary techniques to monitor real-time herbivore feeding patterns and plant traits, aiming to disentangle innate herbivore behaviours from those shaped by plant chemistry across diverse genetic, phenotypic and environmental contexts. This project spearheads a paradigm shift in how we study plant-herbivore interactions, with the goal of enhancing the resilience of wild and agricultural systems.

Candidate Profile

The ideal candidate will:

- Hold a Bachelor or Master degree in biology, chemistry, entomology, mathematics, physics, plant science or another relevant discipline
- Have demonstrable analytical skills either in a laboratory, field or computational setting
- Have the capacity/willingness to think critically and creatively, and apply multidisciplinary techniques to address hypothesis-driven questions
- Meet the Trinity [postgraduate entry requirements](#)

Funding

This is a 4-year PhD project fully funded by the Trinity Research Doctorate Award and covers an annual, tax-free stipend of €25,000 and student fees. Project costs will also be covered.

Application

Please send a CV and a 1-2 page personal statement detailing your interest in the project by Friday, May 30th, 2025 via email to Dr. Jamie Waterman watermaj@tcd.ie. Your CV should include the names and contact details of two references. In your personal statement, please explain both why you are specifically interested in this PhD project and why you are a strong candidate to undertake it.

Project start date September 2025 or March 2026

Please send all inquiries to Dr. Jamie Waterman via email watermaj@tcd.ie

We are committed to fostering an inclusive environment and value a wide range of skills and experiences. We strongly encourage candidates from underrepresented groups in STEM to apply.