



Postgraduate position: Evaluation of phosphorus losses from agricultural sources

An MSc scholarship is available in University College Dublin and Teagasc, Wexford, on an EPA-funded, multidisciplinary project (*DiffuseTools*) that will investigate the state-of-art phosphorus models for Irish conditions. The successful candidate can choose to be based in either Dublin or Wexford. The aims of the M.Sc. project are:

- a) to evaluate phosphorus losses to water from agricultural land cover across temporal and spatial scales, building on existing modelling studies, and
- b) to contribute to a national risk assessment tool for assessing risk of phosphorus losses impacting on water quality.

Supervisors: This M.Sc. project will be jointly supervised by UCD and Teagasc:

- P.-E. Mellander, Teagasc.
- E.M. Mockler and M. Bruen, UCD.

Start date: September 2017 (or as soon after that as possible)

Scholarship: €24,000 per annum for 18 months. Note: all University fees will be deducted from these figures - see <http://www.ucd.ie/students/fees/gradresearch2017.html>.

Applicants should have completed a good honours Bachelor degree in either Geography, Science or Engineering. The preferred candidate will have some knowledge of hydrology and river water quality and will have good computational skills, including the ability to programme in R, Python, or similar. This project may lead to opportunities for progression to PhD.

A letter of application and CV should be forwarded by email to eva.mockler@ucd.ie. Applications will be reviewed until the post is filled.

The *DiffuseTools* Project

The *DiffuseTools* Project will develop catchment models to improve understanding and enhance the evaluation of water quality, building on previous Irish and international research. The models will follow the Source-Pathway-Receptor (S-P-R) concepts to inform catchment managers about potential sources of pollution within a catchment, including identifying critical source areas (CSAs) relating to connectivity, sediment, nutrients and pesticides. The research will:

1. Address knowledge gaps: Where the initial review highlights a gap in the understanding of the pressures or processes relating to the S-P-R relationships, catchments will be further characterised to quantify the flows along hydrological flow paths and determine the fluxes of sediment, nutrients or other contaminants.
2. Learn from Models: The project will strive to identify the state-of-the-art methods and models that are most applicable to Irish conditions and management challenges. All styles of modelling considered useful for water resources management are relevant to this project and a balance of technical sophistication and operational practicalities will be the ultimate goal.