

Research Masters (MSc) in Engineering Geology / Hydrogeology at UCC

Project title: Evaluate the effectiveness of historically applied engineering mitigation measures designed and implemented to protect sensitive habitats and watercourses on upland peatland sites.

Supervision team: Dr. Ed Jarvis (UCC) and Eileen McCarthy (QMEC Environmental)

Project advisors: Dr. Mike Long (UCD), Dr. Carmel Brennan (SSE) and David McHugh (Fehily Timoney & Co)

Project description: This project will involve the acquisition, modelling and interpretation of data to confirm whether the design objectives of mitigation measures that were historically implemented to protect sensitive and peatland sites worked according to design brief and expectation. A range of mitigation solutions have been implemented on several upland sites in Ireland over the last c.15 years. Now is a suitable time to evaluate how successful these measures were in protecting sensitive habitats and ecology.

The student will complete a literature review of published and unpublished data concerning engineering solutions that have been used to protect upland peatland habitats in Ireland and outside of Ireland. A key study site in Southwestern Ireland will be used to evaluate specific mitigation measures that were applied >10 years ago. Ground investigation, surveys and instrumentation installation will be undertaken to acquire hydraulic and hydrochemistry data to evaluate the impacts of construction activities on the site. This will be combined with ecological survey data as well as site specific meteorological data, to evaluate changes over this period of time. Good quality baseline data is available for this study to compare and model results against.

This MSc will be undertaken in conjunction with a PhD on peat stability risk assessment methodology; therefore the student will be working in an experienced team with applied experience in this field (i.e. peatland hydrogeology / peatland geotechnical assessment).

Position Description: This two-year full-time Master's by research (MSc) position is funded through the new Geohazard and Geotechnical Engineering spoke of Irish Centre for Research in Applied Geosciences (iCRAG). The successful candidate will be registered at University College Cork. The Master's stipend is €18,000 per annum plus fees.

Candidate Experience: The candidate should have a minimum 2.1 in an honours Bachelor's degree in Geoscience, Environmental Science or Civil Engineering, or an equivalent standard from an overseas university. Good numerical skills and understanding of inorganic chemistry is required. Experience in hydrogeological investigation, instrumentation and modelling is an advantage. Fieldwork will make up a significant part of this work, therefore a full driving licence and use of a vehicle will be necessary for this position.

Application: Please e-mail a CV (max. 2 pages) and a cover letter outlining your experience and motivation for this position to Dr. Ed Jarvis (D.Jarvis@ucc.ie). Intended start date is May / June 2019. **Application Deadline:** Wednesday 10th April 2019 (17:00hr).

