

**3 MSc Research Studentships (1 year)**  
**Stipend: £14,057**

**Tayside Centre for Geotechnical Engineering in Natural Environments (Tay-GENE)** is an exciting joint initiative between Abertay University (AU) and University of Dundee (UoD), funded by the Norman Fraser Design Trust. The Centre aims to link researchers and facilities at the Universities on Tayside to study the negative impacts caused by climate change on managed non-urban land, particularly for sloping ground, and develop novel adaptation strategies.

Tay-GENE is fully-funding a total of three funded MSc studentships (12 months) providing a stipend of £14,057, with tuition fees paid up to £4036 to fully cover the tuition fees for students for Home/EU applicants. Two studentships will be based at Abertay University and one studentship will be based at the University of Dundee.

This advert relates to Project 1, hosted by Abertay University with co-supervision from the University of Dundee.

**Project 1 description: Utilising crushed dolerite columns to stabilise unstable substrates using microbial induced calcite precipitation (MICP): coupling ground improvement and climate mitigation – laboratory approach**

This project will merge the discipline of geotechnical engineering and microbiology in order to address one of the oldest and most important concerns for geotechnical engineers, which is unstable substrate stabilisation. Crushed dolerite columns will be constructed in unstable substrates in laboratory to provide a source of calcium required for microbially induced calcite precipitation and also act as reinforcement. Specific aims include (i) introducing an innovative technique to stabilise unstable substrates providing carbon sequestration; (ii) monitoring the spatial distribution and time-dependent geotechnical properties of the substrate between the columns in laboratory after stabilisation using MICP; and (iii) proposing the best distribution of crushed dolerite columns across the unstable substrates giving highest geotechnical improvement and CO<sub>2</sub> sequestration. Improvement resulting from calcite precipitation and high internal friction angle of crushed dolerite represents an environmentally-friendly, time-efficient and cost-effective stabilisation technique.

**Supervisory team:**

Dr Cornelia Doerich-Stavridis (AU); Dr Ehsan Jorat (AU); Dr Jonathan Knappett (UoD), Dr Anthony Leung (UoD); Dr Glyn Bengough (UoD);.

**Entry requirements:**

Candidates must have, or expect to obtain, a first class or upper second-class honours degree in a relevant discipline (Civil Engineering/ Geotechnical Engineering/ Mathematics). Experience of modelling would be advantageous.

For applicants who are non-native speakers of English, the University requires IELTS of 6.5 (with no band less than 6.0 in the written component and no less than 5.5 in any other component) or an equivalent qualification accepted by the UKVI.

The Studentships is available to start in September 2016 at the earliest or any time up to a January 2017 start for a period up to 1 year.

**How to apply:**

To apply on-line please visit: [https://www.hirewire.co.uk/HE/1061263/THW\\_JobBoard.aspx](https://www.hirewire.co.uk/HE/1061263/THW_JobBoard.aspx)

*The Abertay University is committed to equal opportunities and welcomes applications from all sections of the community.*

**The closing date for submissions is 25<sup>th</sup> August 2016. Submissions after this date will not be considered.**