

## ***Fully funded PhD Studentship available***

Palaeoenvironmental Research Unit  
School of Geography, Archaeology & Irish Studies  
National University of Ireland Galway

### **‘Temporal assessment of Antimicrobial Resistance in the Environment (TARE)’**

Applications are invited from suitably qualified candidates for a full-time PhD (Structured PhD programme) in Geography to complete a PhD on ‘Temporal assessment of antimicrobial resistance in the environment’ (TARE). The TARE project is funded by iCRAG, the SFI Research Centre in Applied Geosciences. TARE is a joint project between National University of Ireland Galway and University College Cork.

#### **Project Description**

The overarching goal of the TARE project is to (i) Increase our scientific understanding of the historical and current levels of faecal pollution, and concurrently, antimicrobial resistance (AMR) in an anthropogenically impacted surface-water body, and (ii) Identify the trends, drivers and mediating factors which lead to AMR development. The project will employ and further hone novel approaches to the investigation of the environmental dimensions of AMR via a multi-disciplinary team (paleo-ecology, environmental microbiology, environmental geoscience and geospatial analyses). The data and knowledge produced will provide a critical evidence-base for informing current and future policy relating to environmental pollution and human health. Project outputs are expected to provide previously unknown insight into both the development and extent of AMR in the aquatic environment in response to human activities. Outputs are intended to aid in the implementation of impactful AMR mitigation strategies to reduce the public health burden of this global challenge.

The successful candidate will:

- Conduct a scoping review of relevant literature that will consider *E. coli* isolated from sediment in aquatic environments including detection methods and AMR profiling.
- Contribute to construction of catchment-based dataset development of historical trends (20<sup>th</sup> - 21<sup>st</sup> centuries) in agriculture, land-use, population and climate change within a GIS platform.
- Assist in lake sediment core extraction and lead in sediment core laboratory analysis, including chronological control and sampling for geochemical and microbial analysis.
- Conduct microbial analysis and AMR testing chronologically through multiple sediment records, including *E. coli* isolation and plate culturing.
- Use statistical analyses to identify risk factors and quantify associations between potential faecal pollution and AMR drivers and pathways.
- Actively disseminate research through written and oral communication.
- Occasional travel to partner laboratories at University College Cork will be required.

## **Requirements**

Applicants should have a good primary degree (First or Second Class Honours) in an appropriate discipline (e.g. Environmental Science, Geography, Biology/Microbiology, Ecology). The successful candidate should be highly self-motivated, display excellent written and oral communication skills and have some background and particular interest in microbiology or long-term ecology. The successful candidate will ideally have additional research experience (e.g. MSc) with substantial field and/or laboratory components. Knowledge in microbiological contamination of freshwater environments will be an advantage.

## **Award**

The successful candidate will be enrolled for a 48-month Structured PhD programme (<http://www.nuigalway.ie/graduatestudies/>) in Geography at NUI Galway. The Fellowship provides University fees and a stipend of €18,500 per annum over four years. Funds for project costs are also provided.

**Start date:** Ideally 01 September 2022

## **Further Information**

Dr Aaron Potito; Palaeoenvironmental Research Unit; School of Geography, Archaeology & Irish Studies; National University of Ireland Galway.

Email: [aaron.potito@nuigalway.ie](mailto:aaron.potito@nuigalway.ie)

## **Application Procedure**

Please submit an electronic copy of Curriculum Vitae with 2 referees' contact details and a letter stating your interest and suitability for the PhD position to:

Dr Aaron Potito ([aaron.potito@nuigalway.ie](mailto:aaron.potito@nuigalway.ie)).

**Closing date:** 29 July 2022 at 5pm (local) Irish time