



## PhD Scholarship in Biostatistics / Health Data Science

Fully Funded PhD Scholarship in Health Data Science working on development of statistical methods in longitudinal monitoring of clinical data.

Applications are invited from suitably qualified candidates for a full-time funded PhD scholarship starting in September, 2023 affiliated to the School of Mathematical and Statistical Sciences, College of Science and Engineering at the University of Galway.

### University of Galway

Located in the vibrant cultural city of Galway in the west of Ireland, the University of Galway has a distinguished reputation for teaching and [research excellence](#).

For information on moving to Ireland please see [www.euraxess.ie](http://www.euraxess.ie).

The successful candidate will be based in the School of Mathematical and Statistical Sciences at the University of Galway where there is a strong international reputation in Biostatistics and [Health Data Science](#) research. During this programme, the candidate will join the team of high profile and recognised researchers in the School in all aspects of Statistical Science and will have opportunities to attend national and international conferences.

The School is dynamic and highly supportive with more than 40 PhD students, national and international, which facilitates a seamless transition for any new PhD students to their new environment through peer support and social interaction.

### Detailed Project Description

In clinical settings, conventional practice involves utilising reference ranges to evaluate the results of biomarker tests for individuals, categorising such values as normal or abnormal. However, to ensure effective monitoring and assessment of an individual's health over time, we proposed the implementation of personalised Adaptive Reference Ranges, wherein reference ranges dynamically adjust with each new measurement obtained for the individual.

The aim of the proposed project is to build upon existing research by incorporating covariates and individual-level characteristics to existing models and also developing new and novel approaches in simultaneous longitudinal monitoring of multiple correlated biomarkers. In particular, the successful candidate will develop statistical methods to produce **personalised multivariate adaptive reference regions** that use informative pathophysiologic dependencies between two or more biomarkers to enhance diagnostic sensitivity and specificity in clinical decisions. Development of such adaptive reference regions will involve extensions to Bayesian methods, multivariate mixed effect models and tolerance regions.

**Living allowance (Stipend):** €18,500 per annum, [tax-exempt scholarship award]

**University fees:** Included at EU rate.



**Start date:** September 2023

**Academic Entry Requirements:**

- At least a Bachelor's degree (first class honours, GPA 3.0 equivalent or higher) in statistics, biostatistics, mathematics or a related quantitative discipline.
- Applicants for whom English is a second language will be required to demonstrate their competence in the English language in line with University of Galway requirements.

The successful candidate will

- Be passionate about statistics and health data science.
- Be enthused by the opportunity to work closely in a multidisciplinary team with clinical collaborators.
- Have strong analytical or problem-solving skills.
- Have strong computational skills (e.g., R, Python, etc.)
- Have excellent communication and presentation skills.

The following attributes are desirable:

- Knowledge of Bayesian methods.
- Knowledge of mixed effect models.
- Knowledge of generalised linear models.
- Experience of working with clinical data.

**To Apply for the Scholarship:** Applications must be submitted via email to [Davood.roshan@universityofgalway.ie](mailto:Davood.roshan@universityofgalway.ie) and contain the following:

- Curriculum vitae
- A personal statement (800 words) on why you are applying for this PhD, your qualifications and vision for the post.

Please put reference number **HDS MAR PhD 2023** in subject line of e-mail application.

**Contact Name:** Dr. Davood Roshan

**Contact Email:** For further information contact: [Davood.roshan@universityofgalway.ie](mailto:Davood.roshan@universityofgalway.ie)

**Application Deadline:** 30th June 2023 at 17:00 (Irish time 24hr format)

**Primary Supervisor name** (if applicable): Dr. Davood Roshan