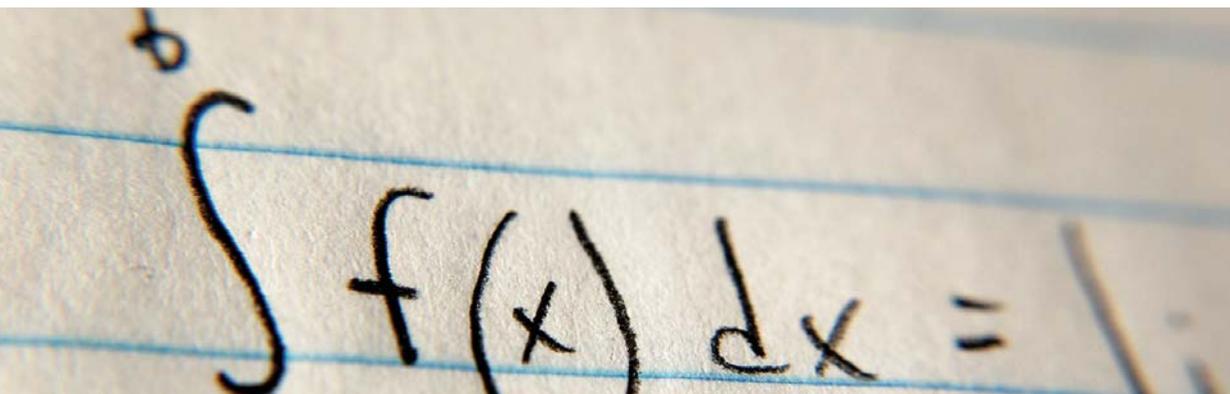*Enhancing postgraduate research in a thriving environment*

RESEARCH DEGREES

Mathematics

Mathematics research at the University of Chester is undertaken by an enthusiastic and successful group of academic staff and their students. Work focuses on numerical and analytical approaches to the solution of functional differential equations. We would be glad to hear from potential students who would like to study for a PhD or MPhil in this area of Mathematics.

The research work of the Mathematics Department has been widely recognised. In the UK-wide Research Assessment Exercise (RAE 2008), work of international excellence formed a significant part of the activity under review. Recent grant awards to members of the Department's staff include three grants from the Leverhulme Trust as well as grants from the British Council, the Royal Society and other leading funding agencies. The Department has strong and developing links with academic colleagues at Universities in Germany, Portugal, the Netherlands and Russia (at the Russian Academy of Sciences). We recently welcomed our second International Visiting Professor from Moscow to be a long-term visitor to our research group, as well as several visiting post-doctoral fellows.

Applications are welcomed from able mathematicians who are willing to work hard within their chosen research project. We are able to supervise projects that have either a theoretical or a practical focus that employ computational methods or analysis, and that may involve mathematical modelling, or interdisciplinary work in the biosciences. We have considerable experience in all these areas and would be happy to help you to develop a plan for your project. The main requirements are an enthusiasm to engage with the project, a willingness to learn and apply new techniques, and a careful approach to documenting progress and reporting on results.

Recent projects have included topics such as mathematical immunology, the application and numerical solution of fractional differential equations and distributed order equations, modelling biodiversity in the arctic, and studies of bifurcation behaviour and oscillations for stochastic and deterministic equations of delay or mixed type. Currently, one student is also working on the development of parallel algorithms for solution of fractional differential equations.

Recent developments include the integration of the Mathematics Department into the University's new Faculty of Science & Engineering, based at Thornton Science Park just outside Chester. This will lead to further multi-disciplinary research opportunities for Mathematicians at the University. This move has facilitated an expansion of Mathematics provision at Chester, with applications of Group Algebras now being amongst the expertise within the Department.

At the core of our work is the application of computational methods to the solution of differential or integral equations. We study deterministic and stochastic problems in delay or fractional differential equations, Volterra or Abel integral or integro-differential equations. Mathematical models may come from evolutionary problems or immunology, or from materials science or mathematical finance. The Chester group hosts an international network of academics studying equations involving both uncertainty and delays. Please contact Dr Jason Roberts at **j.roberts@chester.ac.uk** to discuss the availability of appropriate supervision before you start to construct a detailed application.

We are always happy to hear from potential visitors, collaborators and post-doctoral fellows who would like to work with us.