Graduate Research

UNIVERSITY *of* LIMERICK

OLLSCOIL LUIMNIGH

Front cover: The Living Bridge, University of Limerick

The 350 metre long pedestrian bridge is one of the most innovative and impressive pieces of architecture on campus. Designed by Wilkinson Eyre Architects, London and built by Eiffel Construction Metallique, the bridge connects the north and south banks of the university campus.

The bridge includes four platforms, which are designed to accommodate social gatherings, informal teaching sessions, music and dance performances as well as a wide array of educational, social and cultural activities.

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VICE PRESIDENT'S WELCOME

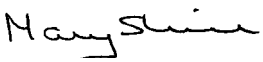
Research at UL spans a broad range of areas across our four Faculties: Science & Engineering; Education & Health Sciences; Arts, Humanities & Social Sciences; and the Kemmy Business School. In the past year, the University was awarded research projects valued at almost €50 million.

UL has established its research distinctiveness through promotion of a research ethos characterised by the convergence of discrete disciplines working together to achieve fundamental breakthroughs while operating in a translational approach – an innovative alternative mode of research to the traditional basic-applied research distinction – which translates research results more rapidly towards commercialisation.

UL offers a wide range of research opportunities at masters and PhD levels, thereby contributing to the advancement of our rapidly-evolving knowledge society in the twenty-first century. Graduate studies at UL comprises of 800 postgraduate students pursuing either research masters or doctoral programmes and over 1,600 postgraduate students pursuing taught postgraduate diplomas and degrees. The University's Graduate School offers a range of themed and generic Structured PhD programmes, which are supported by Generic and Transferable Skills programmes. Many of these structured programmes have links with other Universities, thus offering a wide range of options for the taught elements of the awards.

UL has strong links with industry from undergraduate to postdoctoral level. The university runs one of the largest Cooperative Education programmes in Europe (undergraduate internship). The employment rate of our graduates has always been exceptional. In fact, our figures show that over 83% of UL postgraduates were employed following graduation.

I hope this brochure will give you an overview of the exciting opportunities open to graduate students at UL and will encourage you to investigate further.



Dr Mary Shire
Vice President Research

UNIVERSITY
of
LIMERICK
OLLSCOIL LUIMNIGH

UNIVERSITY OF LIMERICK

The University of Limerick is an independent, internationally focused university with over 13,000 students and approximately 1,400 members of staff. UL offers over 70 undergraduate programmes and over 90 taught postgraduate programmes across four faculties. Our postgraduate research students benefit from the experience of international researchers and the availability of state-of-the-art equipment at our research institutes and centres.

Arts, Humanities & Social Sciences
Education & Health Sciences
Kemmy Business School
Science & Engineering

Research

Key research areas at UL include:

- Materials and Surface Science
- Information & Communication Technologies
- Health
- Culture, diversity and social Change
- Applied Mathematical Sciences
- Energy

We have four internationally recognised research institutes across the university.

The four institutes are:

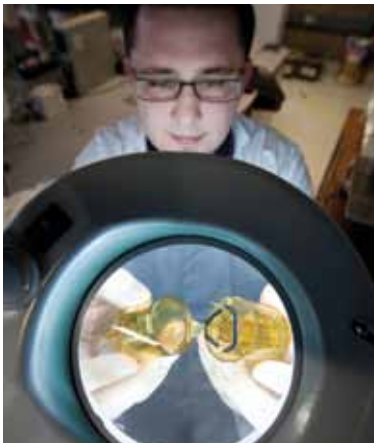
- Materials & Surface Science Institute (MSSI)
- Stokes Institute
- Lero – Irish Software Engineering Research Centre
- Institute for the Study of Knowledge in Society (ISKS)

Achievements

Recently, we have seen exciting new developments in our activities. Some notable highlights include:

- The Bernal Project at UL is a €52 million science and engineering research project that will significantly advance Ireland's national capability in the strategically important areas of Pharmaceutical, Biomedical and Energy research. The Bernal Project includes the recruitment of 10 world leading professors and the construction of an advanced research building on the UL campus.
- UL leads the Synthesis & Solid State Pharmaceutical Centre (SSPC) that was awarded research funding of €40 million by SFI and industry to conduct world leading research to make pharmaceutical manufacturing more efficient, cost effective, and environmentally sustainable. The centre is a unique collaboration between 17 companies 8 academic institutions and will position Ireland as a global hub for pharmaceutical process innovation and advanced manufacturing.
- UL is the lead partner in Lero, the Irish Software Engineering Research centre. Lero is funded by SFI under its Centre for Science, Engineering and Technology (CSET) Programme and includes researchers in six different institutions. Lero was awarded over €16 million from Science Foundation Ireland for its second 5-year period (2011-2015), with industry partners contributing an additional €7 million, reflecting the commitment of industry to this significant research programme.
- UL is part of the multi-partnered, multi-disciplinary Food for Health Ireland (FHI) centre that was awarded a €21m investment from Enterprise Ireland's Technology Centre Programme. The FHI partners provide world-class science and dairy industry know-how in one research centre aimed at developing, manufacturing marketing and selling nutritional ingredients and functional food products to improve people's health and wellness. The funding allocation under this award to UL is €2.4 million.
- SFI awarded UL €5 million in research funding under the re-launched Research Professor programme to attract a world-leading professor in crystal engineering to UL. This appointment will have a positive impact for Ireland's research profile internationally and will be a crucial support for the development of world-leading innovation in both the pharmaceutical and clean technology sectors.
- UL Researchers were awarded €5.4 million to develop a Nanoscope for Early Detection of Alzheimer Disease. The research team based at the MSSI, UL are leading a European consortium that is developing the nanoscope.

- UL researchers were awarded almost €5 million from the EU for a project to develop, demonstrate and licence a complete economically competitive technology for the direct production of bioethanol from microalgae with low-cost scalable photo bioreactors.
- UL has been awarded a prestigious European Research Council (ERC) starting grant of €1.5m to pursue cutting-edge fundamental research into developing innovative treatments for bone-loss diseases such as osteoporosis.
- UL was awarded €5 million under the Enterprise Ireland and the IDA Competence Centre initiative to host the Pharmaceutical Manufacturing Technology Centre (PMTC). PMTC's focus is to develop technologies to improve manufacturing competence.



Faculty //

Arts, Humanities & Social Sciences

ARTS, HUMANITIES & SOCIAL SCIENCES

With more than 150 research students the Faculty of Arts, Humanities & Social Sciences (AHSS) is enriched by a lively postgraduate community. Over the last few years, a number of structured PhDs have been developed which provide opportunities for students to develop research skills through a combination of coursework and thesis in a thematic area such as Criminal Justice, Politics, New Media and Film, Applied Language Studies, and Teaching English to Speakers of Other Languages. All research students acquire expertise and research skills through taking relevant modules, as well as acquiring valuable generic and transferrable skills in a range of areas through intensive courses. Research students are encouraged to participate in national and international conferences and funding is available on an annual basis to enable them to travel to conferences and also to carry out research.

The Faculty is home to a number of research centres, including the Centre for Applied Language Studies, Centre for Peace and Development, Centre for Criminal Justice, Centre for Irish-German Studies, and the Ralahine Centre for Utopian Studies, and also houses the cross-faculty Institute for the Study of Knowledge in Society (ISKS). ISKS is a cross-faculty institute providing a range of research support services for researchers in the humanities and social sciences across the university. The Institute hosts two research hubs, one concerned with civic engagement, and the other with usable knowledge.

Centre for Applied Language Studies (CALS):

The Centre for Applied Language Studies (CALS) is the largest research centre in the Faculty and one of the largest and most active in the University with about 60 members and 20 postgraduate students. CALS has three main research clusters: New Learning Environments; Discourse, Society and Identity; and Plurilingualism and Language Policy. CALS is a multilingual centre with members carrying out research in a variety of languages and contexts, including English (Irish-English and ESOL), Gaeilge, French, German, Spanish, and Japanese. Particular strengths in applied and sociolinguistics include: ICT and language learning, corpus linguistics, language policy, bi –and multilingualism, Gaeilge and minority language sociolinguistics, and media discourse.

Department of History:

The History Department's research strengths are located in Irish, European and US history which embrace the local, national and international dimensions, with a particular focus on Eighteenth Century Ireland and Europe and Twentieth Century Germany and Ireland. Research clusters cover the early modern to modern periods around the themes of diaspora, diplomacy, republicanism, medical history and cultural history.

School of Languages, Literature, Culture and Communication:

Several researchers in the School of Languages, Literature, Culture and Communication share Eighteenth Century interests with the Department of History and help constitute the Eighteenth-Century Studies Research Group. In the Centre for Irish-German Studies, a cluster of researchers is concerned with the experiences of German exiles in Ireland. Literary and cultural studies in the School of Languages, Literature, Culture and Communication has a particular emphasis on comparative and interdisciplinary approaches, with specialisms in fields such as post-colonialism and multiculturalism, memory studies, psychoanalysis, often combined with other fields, such as gender studies. Particular strengths include Anglo-Irish literature, with a focus on Yeats, American literature, Victorian literature and Utopian studies.

School of Law:

The School of Law is home to three interdisciplinary research units: the Centre for Criminal Justice (CCJ), the International Commercial and Economic Law Group (ICEL) and the Research Cluster for Understanding Emotions in Society (CUES). Faculty members have further research interests in a number of areas, including the evolution of Irish tort law, Irish constitutional law, property law, commercial law, competition law, comparative law, legal history, medical law, human rights, gender and the law, sports law, employment law, animal rights, criminal law, criminal justice and penology.

Department of Politics & Public Administration:

In the Department of Politics & Public Administration, researchers embrace a diverse range of fields both empirically and methodologically. With a strong combination of nationally and internationally renowned specialists in post-Soviet politics, Southern African politics, international political economy, contemporary European and EU politics, Irish politics and public policy, international relations theory, critical theory, public administration and local government, and security studies, the Department retains a strong national and international focus in political studies and accommodates the Centre for Peace and Development Studies, which has a focus on peacekeeping and peace-making, and foreign aid. In its postgraduate research, the department emphasises methodological training in comparative politics, qualitative research and quantitative analysis.

Department of Sociology:

The Department of Sociology has long been committed to a critical engagement around what broadly constitutes the basis of our social membership, whether gendered, classed or linked to core issues of health, the media, migration, education or globalisation. The department has a strong commitment to and expertise in quantitative and qualitative research methods. Gender ARC – the Advanced Research Consortium on Gender, a joint initiative with NUI Galway, is based in the Department of Sociology, but works closely with a range of disciplines.

SARAH MILNE / A Postgraduate's Experience

I am a PhD Research Student in the Department of Politics and Public Administration (PPA) in UL. Having obtained my undergraduate BA degree from UL in History, Politics, Sociology and Social Studies (HPSS) I decided to go abroad to the UK to study for my Masters and then return to UL for my PhD studies. Being abroad for the year made me further appreciate UL, as I can honestly say that both in terms of academic standards and support for students, it really is a great university to be in.

In terms of student support, I think a lot depends on the relationship you have with your chosen supervisor as they have a predominant role in supporting you during your PhD. One of the things I really like about the PPA department is that it has an informal, open door policy where students can approach not only their supervisors but any other member of staff if they need to. For me, personally, I found that although my taught Masters prepared me for the challenge of doing a PhD, the biggest adaptation is learning to work on your own and developing skills of self-motivation and focus. It can help to set regular deadlines with your supervisor and talk to other PhD students to learn from their experiences.

In the Department of Politics and Public Administration, another great opportunity to get to know other research students is through the Research Cluster Meetings (held once a week during the semester). Cluster meetings are led by the PhD students and give us the opportunity to meet and present our work in a supportive environment and air any issues that we might have. It's also a place to ask for help or advice from other students and staff.

I'm currently in receipt of the William J. Flynn Scholarship that offers me a monthly stipend, which in addition to tutoring is my main source of finance. The opportunity to tutor undergraduate modules is available to postgraduate research students as another means to help fund your research. Although it can be time consuming it is great to have on your C.V. especially if you are considering a future career in academia.

MARTIN WALSH / A Postgraduate's Experience

I am PhD Student attached to the Department of History, at the end of the second year of my studies and just about to go into my third year. I first came to UL in September of 2005. As an undergraduate student in Arts, I majored in Sociology, with a minor in History and Public Administration.

I found both the modules that were taught and the study resources available to undergraduates extremely beneficial to me as an undergraduate. It was because of this and my interest in History that I decided to do a taught Masters in History. The resources, advice and help from the History faculty proved extremely useful to me while undertaking my Masters in History and on completion, I was actively encouraged to do a PhD in History.

I started my PhD in January of 2012. The process of doing a PhD is daunting, to say the least and can often feel like you are travelling a lonely road. However, the research support you get from the Department of History as well as individual lecturers ensures that you do not get lost in the process. There is also fantastic support from other PhD students. Finally, the support I have received from the staff in the UL Library has been considerable in advancing my studies from an undergraduate to a PhD student. The books and the online materials that are available for undergraduates are excellent. As a postgraduate student the specialist research services that are available, have helped me.

LAURA COSTELLOE / A Postgraduate's Experience

I have just completed my PhD at the School of Languages, Literature, Culture and Communication (LLCC) and the Centre for Applied Language Studies (CALS). My academic career at UL started in 2003 when I enrolled on the LLB in Law and European Studies, graduating in 2007. I was then accepted onto a Masters course at the University of Oxford, where I studied Modern Languages & Literature.

I returned to UL in 2009 to start my doctoral studies, funded by the Irish Research Council, and I successfully defended my thesis four years later. My research critically examines a corpus of French newspaper discourse reporting on incidents of urban violence in France, and it allowed me to combine my love of French culture and society with my interest in the role of language in shaping our understanding of reality. While preparing my thesis I had the opportunity to share my findings at a number of national and international conferences and this experience allowed me to get feedback on my research from leading academics in the area.

My time at UL – both as an undergraduate and postgraduate – has been thoroughly enjoyable. Since returning to start my PhD I've benefitted hugely from the support and encouragement offered by my supervisors in the School of LLCC, and I have learned a lot from the broad range of training courses offered by the Graduate School. UL provides excellent facilities to research students, including comfortable and well-equipped study spaces, access to printing and photocopying and a very well-stocked library. Throughout my time here I've made great friends and really enjoyed the lively atmosphere around campus. I also had the opportunity to teach on a number of modules offered by the School of LLCC and this means that I leave UL with some really valuable teaching skills and experience. Completing my PhD has been really tough at times, but it was so rewarding to finally see the finished product and know that my hard work was worth it!

Structured PhD in TESOL (Teaching English to Speakers of Other Languages)

In September 2013 the Structured PhD in TESOL (Teaching English to Speakers of Other Languages) was launched in the School of Languages Literature Culture and Communication (LLCC) - the first programme of its kind in the Republic of Ireland. The programme is designed for experienced English language teachers, practitioners and researchers working in international contexts. We welcomed a total of seven students at the start of the academic year, six international students, from Brazil, Indonesia, Iran, Saudi Arabia, the USA and one student from Ireland, to this four-year programme, the first year of which is taught on campus at the University of Limerick.

In the first two semesters (Autumn and Spring), core modules are attended – these include Sociolinguistics & discourse studies, Language learning materials development and Research methodology, plus students choose electives from a suite of modules offered by LLCC and the Centre for Teaching and Learning (CTL). The core modules include a Winter School run between Autumn and Spring semesters, given by external experts (including adjunct professors and external examiners) associated with the School of Languages; the Winter School is also open to other PhD researchers affiliated to UL. At the end of Semester two, following completion of the structured part of the programme, PhD TESOL students can locate either in Ireland or in their home country, although attendance is expected at some research events, such as the summer school in Year two and the postgraduate conference in Year three.

THE IRISH WORLD ACADEMY OF MUSIC & DANCE

The Irish World Academy of Music & Dance was established in 1994 by Professor Mícheál Ó Súilleabháin, whose own research interests established the Academy as the international leader in Irish music research. Over the last two decades, it has attracted researchers from over thirty countries world-wide and has one of the highest proportions of international research students in the university. As well as Irish music and dance, research at the Irish World Academy has grown to encompass a wide range of areas including music and dance ethnography, arts practice research, music and health, and festive arts.

The Academy is a recognised world leader in Irish traditional music and dance scholarship. It has the highest success rate in Irish Research Council funding in Irish traditional music research in the country and six of its doctoral graduates head up traditional arts programmes in other Irish higher education institutes.

Music and Dance Ethnography is a research cluster at the Academy with specialist interests in world music and dance, urban soundscapes, the music and dance of migrant communities and European traditional music and dance. It has links with the European Seminar in Ethnomusicology and the International Council for Traditional Music. Dance Research Forum Ireland, established in 2003, is a non-profit, international, inclusive and interdisciplinary society for the promotion, support and development of dance research and practice in Ireland and further afield. In 2009, the Arts Council awarded seed funding of €140,000 towards the establishment of the national dance archive at the UL Glucksman Library.

The Music & Health Research Group is an international collaboration between researchers, academics, and clinicians with expertise in Music Therapy, Clinical Psychology, Community Music, Statistics, Music Performance, Improvisation, Child and Family Studies including music and infancy, Disability Studies, and Arts Based Research. It was officially launched in 2009 by Professor Even Ruud from the Norwegian Academy of Music, Oslo, Norway. However, its first developments can be traced to the Music & Health workshop held in Limerick in 2005 which was funded from the European Science Foundation. The Music & Health Research Group has a range of research actions and interests across three thematic areas: music and everyday life; music, health, and society; and the applications of music for health, and in healthcare.

A structured PhD in Arts Practice Research was established in 2009. This is the first structured PhD programme of its kind in Ireland, providing research opportunities for professional artists wishing to reflect on their own practice. The Academy has also become a national leader in advocating for the mainstreaming of arts practice research in higher education in Ireland and has established national and international platforms for promoting policy development, shared practices of evaluation and the development of repositories for arts practice research artefacts. The programme caters for a wider variety of performance specialisations and to date has attracted students in Irish traditional music and dance, contemporary dance, medieval song, Western art music performance, African music and dance, music education and community music.

The introduction of a specialisation in Festive Arts in 2013 further expands the remit of the Academy, including interdisciplinary practice-based research with an emphasis on audience development, participation and engagement within perfomance practice and a focus on effective and sustainable arts management practices.

Artists-in-residence emhance the rich creative environment within which both traditional and practice-based research occurs. The Academy hosts numerous performance events, as well as a weekly, interdisciplinary public seminar (the Tower seminar series) and a more specialist postgraduate seminar based around invitations to visiting scholars (the LOGOS seminar series).

Faculty //

Education & Health Sciences

EDUCATION & HEALTH SCIENCES

The Faculty of Education & Health Sciences (EHS) boasts a vibrant research community. Research, alongside teaching, is a core activity. The aim is to advance the wellbeing of people by graduating effective and critically reflective scientists, education and healthcare professionals and creating and disseminating knowledge, through research and scholarship that impacts on the social, educational and healthcare needs of people locally, nationally and globally.

The multidisciplinary structure and expertise of the faculty provide research agendas around active management of lifelong ageing, biomedical sciences, clinical therapies, education, food & health, health sciences, physical activity, sport and sport sciences, professional preparation and development, social issues and political identity – all areas of national challenge.

Departments include

- Clinical Therapies (CT)
- Education & Professional Studies (EPS)
- Graduate Entry Medical School (GEMS)
- Nursing & Midwifery (N&M)
- Physical Education & Sport Sciences (PESS)
- Psychology (Psych)

There are currently 207 research students in the Faculty of EHS. EHS provides a number of high-quality taught postgraduate programmes, including Structured PhD programmes, Professional Doctorates and Masters courses. Our postgraduate students are members of a wider research community – involving research-active academic staff and research specialists – within the faculty. Research interests and productivity are reflected in the increased number of EHS-housed research centres, units and groups that are national research leaders in their field. In addition, EHS has strong links with the new multi disciplinary Health Research Institute.

EHS has four prioritised research areas:

1) Physical activity, human performance and wellbeing
2) Influencers of societal participation
3) Professional practice and education
4) Optimising healthcare provision and interventions

Research clusters including research centres within EHS include:

- CPAHR – Centre for Physical Activity and Health Research
- PEPAYS – Physical Education, Physical Activity and Youth Sport Research Centre (PESS)
- Centre for Pre-Hospital Research (GEMS)
- CSI-R – Centre for Social Issues Research (Psych)
- Research Centre for Education and Professional Practice (EPS)
- Biomechanics Research Unit (PESS)
- Curriculum Evaluation and Policy Research Unit (EPS)
- 4i – UL's Centre for Interventions in Infection, Inflammation & Immunity
- Ubuntu; the Teacher Education for Sustainable Development Network; and the Irish Regional Centre of Expertise in Education for Sustainable Development (EPS)
- Limerick Hub of the National Physiotherapy Research Network (PT)
- The Human Science Research Unit (HRSU)
- Motor Cognition Research Network
- Rehabilitation in Acquired Brain Injury

Departmental Interests

Education & Professional Studies

The Department of Education & Professional Studies welcomes applications for research in a wide range of fields within education at both primary and second level. Current research interests include initial teacher education, action research in education, ICT in education, teacher education for sustainable development, school management and self-evaluation, curriculum and assessment in second-level education, gender issues in education, curriculum renewal and implementation, moral and emotional development, clinical and educational psychology, health promotion, and guidance and counselling in second-level education. The new Research Centre for Education and Professional Practice (RCEPP) will be a key infrastructure in the support of research interests across the university in teaching and learning.

Graduate Entry Medical School

The GEMS strongly supports the recent development of the Health Research Institute at UL, and many of its academic staff will contribute to cross-campus collaboration in healthcare research including other schools within the EHS faculty. Within the school itself, UL's Centre for Interventions in Infection, Inflammation & Immunity (4i) was formed to bring together like-minded researchers from across the University and distributed clinical campuses, in addition to the General Practice network affiliated with UL GEMS. The Centre provides the vision, sense of identity, support and guidance that will enable existing and new researchers as they continue to contribute to medical knowledge. The school has adopted an innovative approach to Medical Educational, and is actively involved in educational research.

Due to its strengths, namely a multidisciplinary approach, linking health science researchers with technology focussed researchers to create an effective platform for research collaboration and productivity, GEMS researchers have added substantially to the profile of UL research including publications in ISI and other journals, volume of citations, and participation at top-tier scientific & clinical conferences. Further, GEMS research links research and innovation activity of UL with clinical practice and improvements in patient care.

Nursing & Midwifery

The Department of Nursing & Midwifery offers a range of varied and exciting research opportunities to prospective postgraduate students. The department's research focus over the past five years mirrors various niche areas of research interest across the various disciplines of general, intellectual disability and mental health nursing and midwifery. Prospective postgraduate students at the Department of Nursing & Midwifery can register for level 9 specialist and advanced practice graduate diploma/MSc programmes and for a level 9 non-specialist graduate diploma/MSc programme in nursing and midwifery. Postgraduate masters programmes by research and PhD are also on offer. The annual Patricia Connor Gorman Graduate Scholarship is awarded by the department to encourage and support UL nursing graduates to engage in research activities.

Clinical Therapies

The Department of Clinical Therapies includes the Disciplines of Occupational Therapy, Physiotherapy and Speech and Language Therapy. The Department organises its research activities into three research clusters that reflect our current research activity and enable is to be strategic in our research initiatives. The three CTs clusters are: (i) Youth, Disadvantage and Disability; (ii) Professional Learning, Theory and Practice; and (iii) Enhancing Participation and Activity for people with Chronic Conditions. Each cluster provides a focus for capacity-building and training of ethical and rigorous researchers. The Department annually offers postgraduate scholarships to encourage and support clinicians and therapy graduates who wish to undertake a postgraduate qualification at UL. With over twenty-five currently registered postgraduate research students, the Department of CT has a strong track record in successful postgraduate student research completions.

Physical Education & Sport Sciences

The Department of Physical Education & Sport Sciences (PESS) has growing and diverse programmes of research with priorities in: Food and Health; Physical Activity and Health; Sport and Human Performance; Sport Pedagogy and an emerging research programme in Golf Performance. The department currently hosts the Physical Education, Physical Activity and Youth Sport Research Centre (PEPAYS); the Biomechanics Research Unit the Human Sciences Research Unit and the Motor Cognition Research Network. The recently refurbished Physical Education and Sport Sciences building provides many well-equipped laboratories for biomechanics, exercise physiology, psychology and pedagogical research and the department has rapidly developing research ethos.

Psychology

The Department of Psychology at University of Limerick is a vibrant department, with a research community, which has a focus on social psychology and social issues, making the department unique in Ireland. In fact, the Department led the development of a Centre for Social Issues Research to promote research on social issues across the university. The Department of Psychology has an excellent research profile underpinned by research in areas such as social identity, social development, minority/majority relations, prejudice, social exclusion and crowd behaviour. In addition, the Department has developed research strengths in Clinical and Health Psychology, and Neuropsychology. The development of new, custom designed psychological research laboratories has provided an excellent environment for research.

LAURA-ANNE FURLONG / A Postgraduate's Experience

I commenced my PhD studies in October 2009, immediately after completion of my undergraduate degree. This research is supervised by Dr. Drew Harrison in the Department of Physical Education and Sport Sciences and was supported by funding from the Irish Research Council. When this funding finished in 2012, I received further support from Plassey Campus Centre to continue my studies. Biomechanics and research modules were always my favourite part of my undergraduate degree, during which I had spent 8 months working with the Sports Biomechanics research group at Cardiff Metropolitan University. This experience on a number of different sports and engineering-related research projects confirmed to me that research postgraduate study in this area was something I was definitely interested in pursuing.

I work as part of the Biomechanics Research Unit on a method of assessing plantarflexor (calf muscle) function in a test condition which simulates hopping. My first year was primarily focused on review of the literature to identify suitable research questions, running pilot studies to determine the feasibility of the proposed methods and completion of ethics applications. I also spent a period of time at the University of Bath and Manchester Metropolitan University in the UK to acquire training in measurement methods not used in Ireland. That initial year laid the foundations for subsequent data collection and analysis.

Throughout my PhD, I have also been involved in teaching on a number of undergraduate and postgraduate programmes, which has greatly enhanced my CV and puts me in good stead for future employability. Since 2010 I have travelled to and presented my findings at conferences in the United States, United Kingdom, Portugal, Hong Kong and Taiwan, each of them invaluable experiences in terms of networking and dissemination of my research. Without a doubt, however, one of the highlights of my PhD to date was the publication of the first journal article from the thesis in early 2013.

DR. RAYMOND LYNCH

Dr. Raymond Lynch joined the Department of Education and Professional Studies at the University of Limerick (UL) as a lecturer in Education in January 2012.

His research interests are directed towards the enhancement of initial teacher education and include: student interests, student-course alignment, and problem- and project- based learning. Recent research has focused on examining the impact of varying task difficulty on student engagement and consequently student learning outcomes. The initial findings of this research, which incorporate the use of a computerised navigation task, are published in the journal 'Educational Research'. This ongoing research study is already providing strong evidence to support the prerequisite of perceived opportunities for success in tasks in order to secure and promote student interest and engagement with a topic of study.

Raymond graduated with a Bachelor of Technology Education degree (2006) and a Ph.D. in Student Interests (2010) from the University of Limerick. During the start of his Ph.D. studies he worked as a Teaching Assistant for two years in the Department of Design and Manufacturing Technology, UL. Through the Irish Research Council, Raymond received a Government of Ireland Postgraduate Scholarship to complete the final two years of his Ph.D. studies. Upon completion of his Ph.D. Raymond accepted a lecturing position within the Department of Design and Manufacturing Technology where he taught subject content and subject pedagogy modules on initial technology teacher programmes. ➤

In his current position with the Department of Education and Professional Studies Raymond currently teaches on level 8, 9, and 10 programmes of study on the National Framework of Qualifications. These include undergraduate and postgraduate initial teacher education programmes and two structured Ph.D. programmes. He is Co-Director of the Professional Master of Education (Technology) programme, which is a postgraduate initial teacher education programme designed to meet the needs of graduates who wish to become post-primary teachers of technology subjects.

Raymond is currently working on a collaborative research project which aims to investigate the impact of assessment on student motivation, in particular goal orientation.

KBS //

Kemmy Business School

KEMMY BUSINESS SCHOOL

The Kemmy Business School (KBS) is a dynamic and innovative business school with the mission to be a business school that delivers an outstanding educational experience, is research active, internationalised and socially engaged, with an international reputation for specialist areas of expertise. Excellence in research is vital to the delivery of this mission, in order to ensure that the positive impact of KBS on our stakeholders and the economy is maximised.

KBS hosts over one hundred faculty and staff and almost 3,000 students, of whom more than 500 are postgraduates. Most of these are studying on our range of taught postgraduate programmes. The KBS Graduate Research Centre was established in 1993 to provide a dedicated home to our postgraduate research students, and to ensure they were able to access all the services and supports needed for their work. The Graduate Research Centre currently hosts more than 80 postgraduate students pursuing MBS and PhD degrees across a range of business disciplines.

KBS research has been funded through competitive funding sources, both domestic and international, as well as industry-funded programmes. The Irish Research Council for Humanities and Social Sciences (IRCHSS), EU Framework Programme 7 and the European Foundation for Entrepreneurship Research (EFER) have all been significant in recent years, and we anticipate that Horizon 2020 will be an important resource. KBS faculty collaborate internationally in a range of successful research networks, and are also increasingly involved in inter-disciplinary work. We have a focus where possible on translating our research to make it accessible to as wide a range of non-academic stakeholders as possible.

To this end we have established the Kemmy Business School Research Bulletin series, each issue of which features the findings of a top quality academic article and translates its findings in a way that is relevant and useful to a wider range of policy-makers, businesses, NPOs or other groups. The KBS Research Bulletin series is available online at **www.ul.ie/business/kbs-research-bulletin**

What we research

The research interests of KBS faculty are diverse, and can best be understood by looking under both themes and more discipline-specific areas. The four main themes of our work are:

- Work, knowledge and employment
  (theme leaders: Professor Patrick Gunnigle and Dr Siobhan Tiernan)
- The services economy and tourism
  (theme leaders: Professor Jim Deegan and Dr Eoin Reeves)
- Entrepreneurship, innovation and marketing
  (theme leaders: Dr Naomi Birdthistle and Dr Regina McNally)
- Public policy, enterprise, governance and sustainability
  (theme leaders: Dr Helena Lenihan and Dr Philip O'Regan)

Work, Knowledge and Employment

The core research challenge under this theme is to investigate how economies can strike a balance between economic and social performance in promoting 'best practice' that enhances competitiveness and productivity while concurrently embracing good employment standards and enhancing human capital and partnership at work. Building on a long-established record of achievement in workforce management research and teaching at UL, this research theme focuses on workplace learning, human resource development and intellectual capital; work design, workplace relations and employee wellbeing; embedding foreign direct investment; strategic human resource management and business performance; and the political economy of workplace relations and labour markets.

The Services Economy and Tourism

This research theme emerges from the changing nature of consumption and production in modern societies. At present, over two-thirds of those employed in Europe work in services (both private and public) and between 60 and 70 per cent of Gross Value Added in most European states can be attributed to services. The broad areas for research include transport, tourism and travel, insurance, financial services, educational services, legal services, business and public services.

Entrepreneurship, Innovation and Marketing

In order to develop an indigenous innovation-driven economy, innovative, entrepreneurial and marketing-related skills and attitudes need to be nurtured. The KBS contributes to this agenda through its research on small-and medium-sized enterprises. Specific research foci include internationalisation, family businesses, marketing strategy, advertising and consumer research, new product development, branding and relationship marketing. The interface between entrepreneurship and pedagogy and between marketing and innovation has also attracted significant research attention. Scholars are open to new research agendas, and emerging research is currently ongoing in social, female and ethnic entrepreneurship, crisis management, high-growth firms, metrics for innovation and marketing.

Public Policy, Enterprise, Governance and Sustainability

The public policy component of this theme covers industrial, economic and social development issues and policy, the survival and growth of firms and the role that public policy (amongst other factors) plays in this regard. There is a concern with public policy evaluation, including ongoing research on taxation and privatisation policies. The focus on governance reflects the emerging importance of matters relating to regulation (including professional self-regulation), corporate governance and ethics, sustainability and responsibility (ERS). This accords with the active participation of KBS in the UN PRME Network. Ongoing research activity in these areas embrace risk (including political risk) and governance, behaviour and dynamics of boards of directors, regulatory and legislative compliance, control mechanisms in large and small firms and corporate social responsibility. Emphasis on sustainability reflects the emergence of this topic both as an area of discrete interest and one that offers interdisciplinary possibilities.

In addition to these four themes, each of the four constituent departments of KBS has an active research culture. The four departments are Accounting & Finance, Economics, Management & Marketing, and Personnel & Employment Relations.

Department of Accounting & Finance

The Department of Accounting & Finance comprises faculty working in the disciplines of accounting, risk management, finance and taxation. The research activity in the department is therefore varied, and includes work on risk management with a focus on weather risk and nanotechnology, capital markets exploiting the world-class trading floor facility of the KBS , ethics and the tax profession, international and multinational taxation policy, corporate social responsibility, professional self-regulation, critical accounting research, corporate governance, remuneration policies, sustainability, aviation finance, behavioural finance and finance in the medical field.

Department of Economics

The research activity of the Department of Economics is primarily in the field of applied economics. Two research centres, the Euro-Asia Research Centre and the National Centre for Tourism Policy Studies are located in the department. There is also an active research group on privatisation and public partnerships, and a critical mass of projects modelling debt and demographic changes across European economies. Faculty in the department also engage in research on tourism, industrial/enterprise development and policy, the evaluation of policy interventions, firm survival and growth and macroeconomic issues.

Department of Management and Marketing

Faculty in the Department of Management and Marketing are engaged in a variety of research projects involving diverse disciplinary frameworks. Work has appeared in journals such as the Journal of Product Innovation Management, Journal of the Academy of Marketing Science, Industrial Marketing Management, Journal of Marketing Management, Marketing Theory, Journal of World Business, Consumption, Markets and Culture, Journal of Brand Management, and Journal of Consumer Behaviour. Editorial Board Memberships include Marketing Theory, European Journal of Marketing, Journal of Marketing Management, Journal of Consumer Behaviour and the Journal of Product Innovation Management.

Department of Personnel and Employment Relations

Faculty in the Department of Personnel and Employment Relations have published in major international journals such as Human Relations, British Journal of Industrial Relations, International Journal of Human Resource Management, Industrial and Labour Relations Review, Journal of Managerial Psychology and the Journal of World Business. Editorial Board memberships include Human Resource Management Journal, Industrial Relations Journal, Journal of Managerial Psychology and Journal of European Industrial Training. Key on-going projects include Employment Relations in Multinationals; International Human Resource Management; Employer and Employee Perspectives on Training & Development; Older workers and their experiences; Bullying in the workplace; Precarious work and immigrant experiences in the workplace. The Employment Relations Research Unit is located within the department.

More information on research within KBS is available at **www.ul.ie/business.**

Structured PhD in Business

KBS offers a structured PhD programme which is the default option for all students registering with us from January 2014. The programme comprises a research thesis and a range of specialist taught modules which present students with the opportunity to develop personal effectiveness, team working, leadership and innovation. The thesis carries 270 credits of the programme total of 360, with core, specialist and research methods modules accounting for up to 90. Specialist modules are chosen on a case by case basis by the supervisor and the student, once any relevant knowledge gaps have been identified. The core modules are Introduction to Doctoral Studies, Research Integrity, Philosophy of Science and a Generic and Transferable Skills Portfolio. further detail available at Structured PhD Business

FRANCES SHAW / A Postgraduate's Experience

I'm a PhD student in Finance in the Kemmy Business School. In 2009 I graduated with a degree in Business Studies, majoring in Accounting and Finance and an MSc in Financial Services in 2010 both from UL. Nearing completion of my masters I began to think about doing a PhD. The MSc had introduced me to areas of finance that I knew I wanted to develop a deeper understanding and the PhD meant that I could continue to do so. My research focuses on empirical analysis of European fixed income derivatives. The research process can be extremely challenging, it is a lot of hard work but since beginning my PhD I have had the opportunity to publish my research and present it at a number of conferences which have been really rewarding experiences. I have also acted as teaching assistant on a number of modules which has given me great teaching experience. Choosing to do a PhD ensures that every day is varied and you can work at your own pace which gives great autonomy over your work.

I chose to do my PhD in the Kemmy Business School because of a combination of factors, the positive experience that I had during my degree and masters, the excellent level of supervision available and the facilities that the university offers. My supervisors are extremely approachable, are experts in their fields and are always available to offer advice when needed. As a finance student in the KBS I have access to the trading floor which is a fantastic resource for research. Doing a PhD was undoubtedly the best decision for me, if you enjoy the research process and are willing to put in the hard work it is unlikely that you will find a more fulfilling experience.

PROFESSOR PATRICK GUNNIGLE

Dr Patrick Gunnigle is Professor of Business Studies and Director of the Employment Relations Research Unit at KBS.

A graduate of University College Dublin (B.Comm, 1977; MBS, 1978) and Cranfield School of Management (PhD, 1995), he has authored, co-authored or edited 18 books and over 100 refereed journal papers and book chapters. His research has been published in the leading journals in his field such as the Journal of International Business Studies, the British Journal of Industrial Relations, Industrial and Labor Relations Review, Industrial Relations and the Journal of World Business.

A former Fulbright Scholar and Marie Curie Exchange Scholar, Paddy is member of the editorial boards of the Human Resource Management Journal, Asia Pacific Journal of Human Resources, South African Journal of Human Resource Management, Industrial Relations Journal and Employee Relations: The International Journal. He is also former co-editor of the Irish Journal of Management.

He holds Visiting Professor Appointments at Sorbonne Université Paris II (Pantheon-Assas) and Rhodes University and has delivered distinguished lectures and invited presentations at several leading universities and business schools in Australia, Canada, China, South Africa and the US. He is currently external examiner at Dublin City University and University College Cork and has examined doctoral theses at several Irish and international universities, most recently at Macquarie University (Australia), Trinity College (Dublin), Queens University (Belfast) and the University of Warwick (UK). ➤

PROFESSOR PATRICK GUNNIGLE (Contd.)

He was the 2013 recipient of the University of Limerick Excellence in Research Award and was thereby bestowed with the title University Research Fellow 2013-16. In 2009 he received the award of inaugural Fellow of the Irish Academy of Management in acknowledgement of his distinguished contribution to academia and the study of business and management in Ireland. He is a previous recipient of the University of Limerick's Special Achievement in Research Award (2000). Paddy is also a Fellow of the Chartered Institute of Personnel and Development (FCIPD).

His research interests include international business/multinational companies, human resource management (HRM), trade union membership and recognition, management strategies in industrial relations, and the role of HRM specialists. His research has attracted financial support from the European Union's Framework 7 programme, the Irish Research Council for the Humanities and Social Sciences, the Irish Research Council and the Economic and Social Research Council (UK).

He previously worked as a senior executive in the Semi-State sector in Ireland and lectured for some years in Zambia.

Faculty //

Science & Engineering

SCIENCE & ENGINEERING

The Faculty of Science & Engineering is the largest faculty in UL, comprised of the following ten departments:

- Architecture
- Chemical & Environmental Sciences
- Civil Engineering & Materials Science
- Computer Science & Information Systems
- Electronic & Computer Engineering
- Life Sciences
- Design & Manufacturing Technology
- Mathematics & Statistics
- Mechanical, Aeronautical & Biomedical Engineering
- Physics & Energy

The faculty's departments currently deliver taught and research postgraduate programmes to over 780 registered postgraduates, of which over 330 are pursuing doctorate programmes. The primary focus is on increasing the quality and quantity of postgraduate students and research outputs, including PhDs and publications.

The main research objective of the faculty is to provide a research-driven environment that will undertake both fundamental and applied research. Promoting the publication of results, attracting national and international researchers, and developing further collaborative links with industry are also key priorities.

The research interests of the faculty cover a wide spectrum of disciplines under the umbrella of three strategic research institutes – Materials & Surface Science (MSSI), Stokes Institute and the Irish Software Engineering Research Institute (Lero) – and a large number of research centres, including recently opened Irish Centre for Composites Research (IComp). A major emphasis has been placed on Pharmaceuticals Research with the recent launch of the €40 million National Pharmaceutical Research Centre (SSPC-Synthesis & Solid State Pharmaceutical Centre) at the University of Limerick, which will position Ireland as a global hub for the pharmaceutical industry.

IComp: The Irish Centre for Composites Research

IComp was established in 2009 under the EI/IDA Technology Centre initiative. It is hosted by the University of Limerick which is the leading composites research establishment in the Republic of Ireland, working in partnership with University College Dublin. Academia and industry are being brought together within IComp to focus on the critical requirements of various industrial sectors ranging from aerospace to construction and the supply chain. IComp is focusing on joining, bonding, surface engineering and processing technologies to improve performance, reduce final part costs and increase manufacturing throughput, and on maintenance including damage detection and repair.

The IComp Technology Leader is an ex-industrialist who has wide R&D experience in polymers and composites. He is supported by world class academics and a dedicated team of highly qualified and experienced researchers together with other staff in the university. IComp provides a focal point for composites-related R&D, innovation and technology transfer within an agenda set by its industrial members, which they believe will give them a material, technical and commercial edge in the global composites Market in both the immediate and longer terms.

IComp's mission is to carry out world class research in order to provide innovative solutions to industrial problems which will accelerate economic growth in Ireland. Our vision is to be a centre-of-excellence providing the most technologically advanced solutions to industrial problems. This is an aspirational and motivational research centre which encourages the personal and professional development of talented and passionate people in the best interests of the Irish economy.

SSPC – Synthesis and Solid State Pharmaceutical Centre

The Synthesis and Solid State Pharmaceutical Centre (SSPC), a Global Hub of Pharmaceutical Process Innovation and Advanced Manufacturing, funded by the Science Foundation Ireland (€30m) and industry (€10m), is a unique inclusive collaboration between 17 companies, 8 academic institutions and 12 international academic collaborators. The SSPC is hosted at the University of Limerick and Professor Kieran Hodnett is the SSPC Director. The SSPC supports 27 Principle Investigators, 28 PDRAs and 60 PhD students. The SSPC management support team, comprising six members, is also hosted at the University of Limerick.

Established to support the pharmaceutical industry, which is responsible for 56% of all Ireland's exports and 60,000 jobs, the SSPC transcends company and academic boundaries and is the largest research collaboration in Ireland within the pharmaceutical area. The SSPC's role is to link scientists and engineers in academia; in partnerships with the pharmaceutical industry to address and resolve crucial research questions. The SSPC carries out research ranging from molecule to medicine with the objective of gaining a better understanding of mechanisms, control processes and predicting outcomes for the efficient and environmentally sustainable production of safe medicines. The aim of SSPC is to deliver relevant solutions that address the manufacturing needs of the pharmaceutical companies and, through this, to build a strong pharmaceutical community and a pharma friendly environment in Ireland.

EDWARD CHADWICK / A Postgraduate's Experience

I initially graduated from the University of Limerick in 2006 with a BSc in Manufacturing Systems. Throughout my degree I wanted to combine what I was learning in the course modules with industrial experience so I completed my Co-operative education program and two internship programs for Engineering and Science students with Vistakon Ireland in limerick (Johnson & Johnsons Vision Care Sector). My BSc Thesis was focused on Optimising the Preventative Maintenance System carried out on High Speed Manufacturing Lines producing Class III Medical devices in Vistakon. This was valuable experience, which provided me with a good insight for the Medical Device Manufacturing industry and lead me to complete an MSc in Biomedical Engineering at UL in 2008.

The MSc course involved travelling to different Universities around Ireland (Queens Belfast, UCD, Trinity College and the RCSI completing modules in Medical Sciences, Bio-Instrumentation, Rehabilitation Engineering & Biomaterials Engineering). My MSc Thesis was focused on Designing a Prosthetic Terminal Device for a Paralympic Cyclist – Cathal Miller who competed and was the Irish Flag Bearer in the 2012 London Paralympic Games. At this point I was approached by Dr. David Tanner of the MSSI & D&MT Departments in UL who had secured funding for an Innovation Partnership Programme with Vesta Sciences (US based Research Company) and UL. I got involved in an Innovation Partnership Aerospace research project under Dr. David Tanner's (DMT Dept.) supervision between Lufthansa Technik Turbine Shannon (LTTS) and UL.

I specialised in process repair systems analysis for High Pressure Turbine (HPT) shroud materials using OM, SEM-EDS, XRD, DSC analytical techniques available at the MSSI. In 2011, I then secured a position with DePuy Orthopedics Ireland in Cork as a Materials Development Engineer working on Metallurgical analysis of Porous Coated Medical Devices and transfer and installation of Porous Coated Devices to the DePuy Ireland facility from other WW DePuy sites. In 2012, I was placed on an International Assignment through DePuy Ireland to their Johnson & Johnson Medical Suzhou China facility, where I now manage a team of Engineers responsible for transferring & validating Titanium Porous Coating Processes and Medical Devices to the China facility from other international sites.

SHALINI SINGH / A Postgraduate's Experience

I am a third year PhD student working in the field of nanomaterials-synthesis and applications under the supervision of Dr. Kevin M. Ryan in MSSI. I completed my Masters degree in Organic Chemistry from Gorakhpur University, India. I was awarded INSPIRE structured PhD fellowship to pursue my PhD degree at UL. My research project involves synthesis of binary, ternary and quaternary nanocrystals (metal chacogenides and chalcopyrites) via colloidal route and their directed self assembly into organised arrays for solar cell applications.

In MSSI, I received training on sophisticated instruments such as Transmission electron microscope (TEM), scanning electron microscope (SEM), X-ray photoelectron spectroscope (XPS), XRD etc. As a postgraduate student, I have had the opportunity to publish my work in peer-reviewed journals and to present my work at national and international conferences. These conferences have not only helped me to develop my presentation skills but also gave me the chance to meet and discuss my project with the leading experts in the field. These experiences, being a part of nanotechnology group in UL is very pleasing and makes all my efforts towards research valuable.

PROFESSOR TEWFIK SOULIMANE

Prof. Tewfik Soulimane is a member of the Department of Chemical and Environmental Sciences and Materials and Surface Science Institute, University of Limerick.

He studied Chemical Engineering at the University of Applied Sciences in Aachen and Chemistry at the University of Osnabrück, Germany. He was awarded with a PhD in Biochemistry in 1993 and Habilitation in 2001 from Technical University RWTH-Aachen, Germany. He trained and contributed to the expertise of world-leading laboratories such as the Max-Planck Institute of Biochemistry, with the Noble Laureate Prof. Robert Huber, in Martinsried, Germany and Paul Scherrer Institute, Swiss Light Source in Villigen, Switzerland.

Prof. Soulimane's expertise is concerned with the membrane protein functional and structural biology. He has published over 100 papers in high-impact journals with an excess of 2000 citations with funding secured from the German Science Foundation, Swiss Light Source, Science Foundation Ireland, Irish Research Council and European Union. Furthermore, he established strong collaborative links internally and most importantly, externally with leading research groups. ➤

PROFESSOR TEWFIK SOULIMANE (Contd.)

Prof. Soulimane's recent research achievement is the elucidation of the crystal structure of an enzyme-substrate complex (cytochrome c oxidase/cytochrome c complex) which has been published in Nature in 2012 - a breakthrough in the field of bioenergetics. This research has been initiated and conducted at the University of Limerick when he joined the CES/MSSI in 2005.

He is also a peer reviewer for several scientific journals such as BBA Bioenergetics, FEBS Letters, Journal of Molecular Biology, Proceedings of the National Academy of Sciences USA and Nature. He is also reviewer of grant applications from the Biotechnology and Biological Sciences Research Council (BBSRC, UK) and Medical Research Council (MRC, UK).

Research Institutes

ISKS - THE INSTITUTE FOR THE STUDY OF KNOWLEDGE IN SOCIETY

The Institute for the Study of Knowledge in Society (ISKS) was established in 2006 with the objective of building on UL's unique reputation in Ireland for integrated, interdisciplinary arts, humanities and social sciences research.

ISKS has worked with research associates, PhD students, postdoctoral fellows and research scholars from across all of UL's faculties. Its main areas of research activity and support are, however, in the humanities and social sciences. Associates are drawn in the main from the School of Languages, Literature, Culture and Communication; the Graduate Entry Medical School; the departments of Sociology, Politics & Public Administration, History, Law, Computer Science & Information Systems, Physical Education & Sport Sciences, Occupational Therapy, Psychology, Economics and Management & Marketing; and the Irish World Academy of Music and Dance.

ISKS's research priorities over the coming years are in the areas of Usable Knowledge and Civic Engagement. Most of the knowledge that we have is defined by academic disciplines; it is generated by research questions that are defined as appropriate avenues of enquiry to generate knowledge by approaches and concerns current within academic disciplines. Generally academic knowledge is not seen from perspectives other than those of the disciplines that produce it, and is judged against standards of authoritativeness that are produced within disciplines. When we think about the knowledge that we have we are generally not very reflexive since we are being knowledgeable by thinking within the same frames that generated the knowledge we have. Knowledge from this perspective is frequently a private good, hard and costly to access from without the academy. Moreover it is not necessarily 'authoritative' despite – and perhaps because – of the fact of its academic credentials. The private nature of much academic knowledge limits the ability of researchers to develop cross-disciplinary projects and blunts the social utility of research work.

One of ISKS's roles is to help researchers to develop the social utility of the research by developing a greater sense of the social place of their research: how their knowledge is seen as knowledge (or not) in society. This is an issue that is common to all researchers in the humanities and social sciences in the University and is not an issue that is traditionally addressed by humanities and social sciences scholars: it is not a part of graduate curricula and is a measure missing from conventional means of assessing faculty output in the social sciences and humanities. It is not an area that is well studied either even though it has long been recognised that practical problem solvers are disappointed with what they are offered by academics, whilst academics believe that they and their knowledge should be more influential. ISKS is particularly keen to encourage research on civic engagement and engaged scholarship.

ISKS is a partner in the Irish Social Sciences Platform (ISSP), which was originally funded under PRTLI 4. ISSP is the only all-island platform of integrated social science research and graduate training; it focuses on the social, cultural and economic transformations shaping Ireland in the twenty-first century. Other partners include NUIM (lead partner), NUIG, DCU, UCC, MIC, QUB, TCD, ITS and WIT. For more information on ISSP, see www.issplatform.ie.

ISKS supports graduate education programmes (GREPS) – or structured doctoral programmes – in the humanities and the social sciences, as well as the PhD programme for international students. These four-year integrated programmes lead to the award of PhD and consist of specialised academic modules, generic modules and research. Specialist modules are undertaken in years 1 and 2, mostly in UL, but may also be taken at one of our ISSP partner institutions in Ireland or abroad, as appropriate. These modules provide postgraduate students with specialist content and methodological training relevant to their research programme. Generic modules provide postgraduate students with the skills necessary to complete their research as well as transferable skills to prepare them for their working lives.

For more information on ISKS, see **www.ul.ie/ISKS**.

Lero - THE IRISH SOFTWARE ENGINEERING RESEARCH CENTRE

Lero was established in 2005 as a Science Foundation Ireland Centre for Science Engineering and Technology. Lero brings together software engineering researchers from the University of Limerick (UL – lead partner), Dublin City University (DCU), Trinity College Dublin (TCD), University College Dublin (UCD), the National University of Ireland Galway(NUIG) and Dundalk Institute of Technology (DkIT).

Lero's mission is to deliver world-leading research in those areas of software engineering that support evolving critical systems. Lero's research agenda addresses several core research topics in the evolving critical systems field. The central research topic is building software that is highly reliable and that retains its reliability as it evolves. Lero enhances the quality and competitiveness of the Irish software industry through shared projects, knowledge transfer and education. Lero's researchers deliver internationally recognised scientific outputs, publish in leading journals and present at international conferences

Lero Outreach and Education

The goal of the Lero Education and Outreach Programme is to challenge, inform and effectively engage the public and stake holders in the discipline of software engineering. Our goals are motivation and aligned with Science Foundation Ireland's 2020 vision and strategic goals.

Excerpt from SFI Agenda 2020 Strategic Goals:

- To be exemplar in building partnerships that fund excellent science and drive it out into the market and society
- To have the most engaged and scientifically informed public

Excerpt from SFI Agenda 2020 Vision Statement:

have high take-up of science, technology, engineering and mathematics (Stem) in schools and in third- and fourth-level institutions, and be recognised internationally as a country whose population is comfortable and confident with technology, both as users and as producers;

We achieve these goals by engaging with the following stakeholders through the Lero Education and Outreach programme:

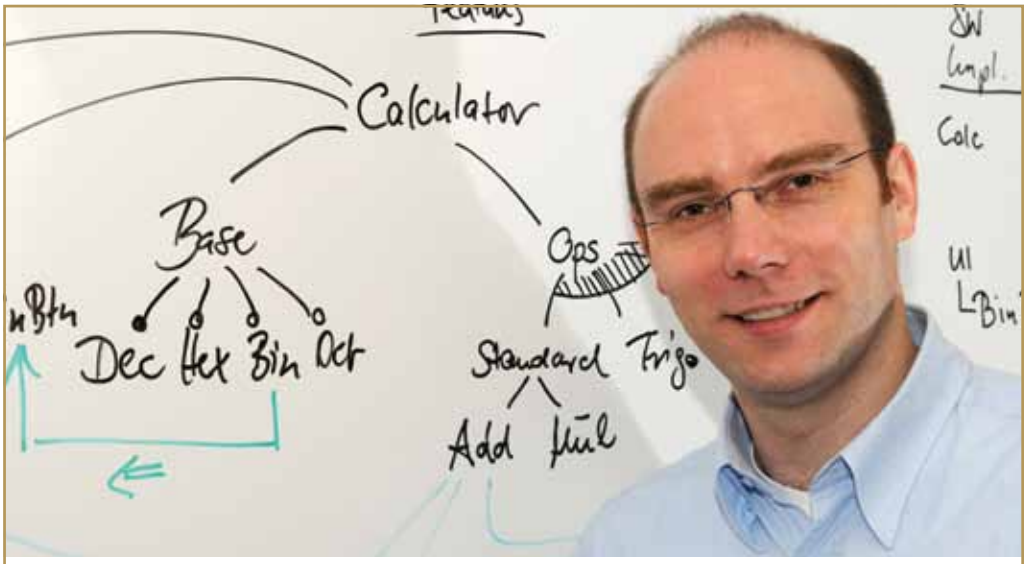
- Schools
- Universities
- General Public
- Industry

For more details on the Education and Outreach Programme please visit www.lero.ie/educationoutreach

Lero and Industry

Software engineering is an applied discipline and, as such, research in the area must be grounded in practice. By using research to make better products in a more effective manner, companies can gain competitive advantage. However, research is costly and time-consuming and may not yield useful results. This is where Lero comes in. Lero's researchers work closely with Irish industry to identify key topics and validate proposed solutions. Lero will assist partner companies in finding financial support for joint research initiatives.

DR GOETZ BOTTERWECK / Senior Research Fellow



Dr Goetz Botterweck is a senior research fellow at Lero.

He received his MSc in Computer Science and Information Systems ("Diplom-Informatiker") and his PhD in Computer Science at the University of Koblenz-Landau, Germany. In March 2007 Dr Botterweck joined Lero, where he now heads the project on model-driven product derivation. His research interests include model-driven software engineering, user interface engineering and information systems engineering.

DR KLAAS-JAN STOL / Postdoctoral Researcher

Klaas-Jan Stol is a postdoctoral researcher at Lero, where he has worked since 2008.

He received a master's degree in software engineering from the University of Groningen, the Netherlands, and a PhD from the University of Limerick in Ireland. His main research interests are Inner Source, open source, agile and lean software development, as well as research methodology and theory building.

ANNE MEADE / A Postgraduate's Experience

Anne Meade is a PhD student at Lero. She received a BSc in Computer Science from the University of Limerick in Ireland. Anne's research focuses on abstracting the task of data decomposition and communication in message passing applications running on high performance environments. Her research is in collaboration with IBM's HPC group in Dublin, Ireland and JBA, a flood risk management consultancy based in Skipton, UK.

Before joining Lero, Anne got a taste for academia when she worked for two years as an ICT coordinator in a commercial college in Tanzania. Her other work experiences include four years as a software engineer with Fidelity Investments in Boston, USA and a year developing java applications for Scannell Solutions in Cork, Ireland.

MSSI - MATERIALS & SURFACE SCIENCE INSTITUTE

The Materials & Surface Science Institute (MSSI) is a leading Irish institute in materials research and is internationally recognised for its work. MSSI has gathered together faculty members from a range of academic disciplines (physics; chemistry; materials science; biochemistry; and electronic, mechanical, biomedical and aeronautical engineering). MSSI utilises this interdisciplinary approach to develop and characterise materials from the atomic to the macroscopic scale, providing new materials, processes and applications.

MSSI is the largest research institute in the university and currently houses over 235 researchers. The Institute resides in a purpose-built building that houses a comprehensive range of state-of-the-art nationally unique equipment and facilities for the synthesis and characterisation of materials. An extension to the MSSI building, funded under Cycle 5 of the Programme for Research in Third Level Institutions (PRTLI), is under construction which will comprise 2,400m2 of additional laboratory and research space when completed in 2015. MSSI houses the Irish Centre for Composite Materials (IComp) and the Synthesis and Solid State Pharmaceutical Centre (SSPC).

MSSI has a significant track record in solving fundamental research problems with direct application in industry and has collaborative research programmes with a wide range of companies such as Cook Medical, Pfizer, Intel, RUSAL Aughinish, DiaNia Technologies and NanoDiamond. MSSI has active collaborations with research institutions nationally, across Europe and in the US, Brazil, China, India and Australia.

The research activities of MSSI are focused on four research themes: Biomedical Engineering and Biomaterials; Composite Materials; Pharmaceutical Materials and Materials for Energy and Environment. The key competencies within these research themes include: synthesis, characterisation, modelling, catalysis/biocatalysis, nano-materials, crystallization, electrochemistry and cell/structural biology.

Biomedical Engineering and Biomaterials

Research in the Biomedical Engineering and Biomaterials theme concentrates on activities from medical device design for cardiovascular and urological application to development of new alloys for biomedical devices, to the study of the role of enzymes in cellular respiration. UL has strong relationships with Irish medical device companies including Cook Medical and Stryker and much of MSSI research in this space is carried out in collaboration with industry partners.

Composite Materials

Research in the Composite Materials theme focuses on carbon and glass fibre reinforced polymeric composites. The theme concentrates on all aspects of research relevant to composite materials from processing to structural property characterisation. MSSI hosts the Irish Centre for Composite Materials (IComp) funded by Enterprise Ireland and the IDA. MSSI has capabilities un-paralleled by any other Irish University in composite manufacture, including a high pressure autoclave and hot drape former. Composite materials are used widely in lightweight, safety-critical applications, such as those found in modern aircraft structures. Their use has broadened into a range of applications used in automotive, biomedical devices and the construction sector.

Pharmaceutical Materials

Research in the Pharmaceutical Materials theme covers a number of topics including multi-component crystals polymorphism, nucleation and process engineering and modelling of crystallisation. The theme is closely associated with the MSSI-based Synthesis and Solid State Pharmaceutical Centre (SSPC), a global hub for pharmaceutical process innovation and advanced manufacturing, funded by Science Foundation Ireland and industry, which is a unique collaboration between seventeen companies, eight academic institutions and twelve international academic collaborators. SSPC carries out research ranging from molecule to medicine with the objective of gaining a better understanding of mechanisms, control processes and predicting outcomes for the efficient and environmentally sustainable production of safe medicines.

Materials for Energy and Environment

Research in the Energy theme primarily focuses on renewable energies (solar energy and bio-energy) and energy storage (electrochemistry and battery technologies). Fundamental to the successful development of these technologies is the need for suitable materials and material characterisation techniques. Research in the Environment theme focuses on examining new catalysts and bio-catalysts to improve the efficiency of industrial processes and the development of clean technologies.

MAEVE KIELY / A Postgraduate Experience

Maeve Kiely is a current PhD student at the MSSI. She received a BSc in Biomedical Science from UCC in 2010. After her degree, she completed a nine month clinical placement in the Mercy University Hospital, Cork and Cork University Hospital. This placement facilitated her transition to a fully qualified hospital biomedical scientist. She moved to UL in 2011 to begin a PhD with Dr Patrick Kiely's cancer research group in the Department of Life Sciences. Maeve says: "I am really enjoying my time here - UL is a great place to work as a graduate student. The facilities available in UL are state-of-the-art and the level of interaction and interdisciplinary work between researchers creates a very stimulating environment which has proven very beneficial to my work".

Maeve's work at MSSI is funded by the Irish Cancer Society. She is focussing on understanding the mechanisms underlying breast cancer and identifying biomarkers to diagnose and treat the disease. Currently, she is developing breast cancer cell models to mimic as closely as possible what is happening in vivo. The strong links that have been forged with cancer teams at the University Hospital has provided the opportunity to maximise the potential of her research and disseminate the findings of her research.

"Being a graduate student in UL has allowed me to avail of a number of wonderful travel opportunities. I received a scholarship to attend a cancer workshop in Sao Paulo, Brazil which allowed me to meet and learn from experts in the field of cancer research about the cutting edge technology and approaches that are going on worldwide in the battle against this disease. In 2013, I travelled to Washington D.C to attend the AACR Annual meeting, the world's biggest cancer conference with over 17,000 attendees. I presented my work to leading scientists in the field and received very valuable feedback. These visits also created new collaborations between the group's lab in UL and other labs abroad as well as strengthening existing collaborative relationships."

As a cancer researcher, Maeve believes that it is important to let people know about the work she is doing in UL. As part of this, she engages in several out-reach activities including school visits, school talks during science week and addressing Irish Cancer Society volunteers.

DR PATRICK CRONIN / Postdoctoral Researcher

Patrick Cronin currently works as a postdoctoral researcher at the MSSI.

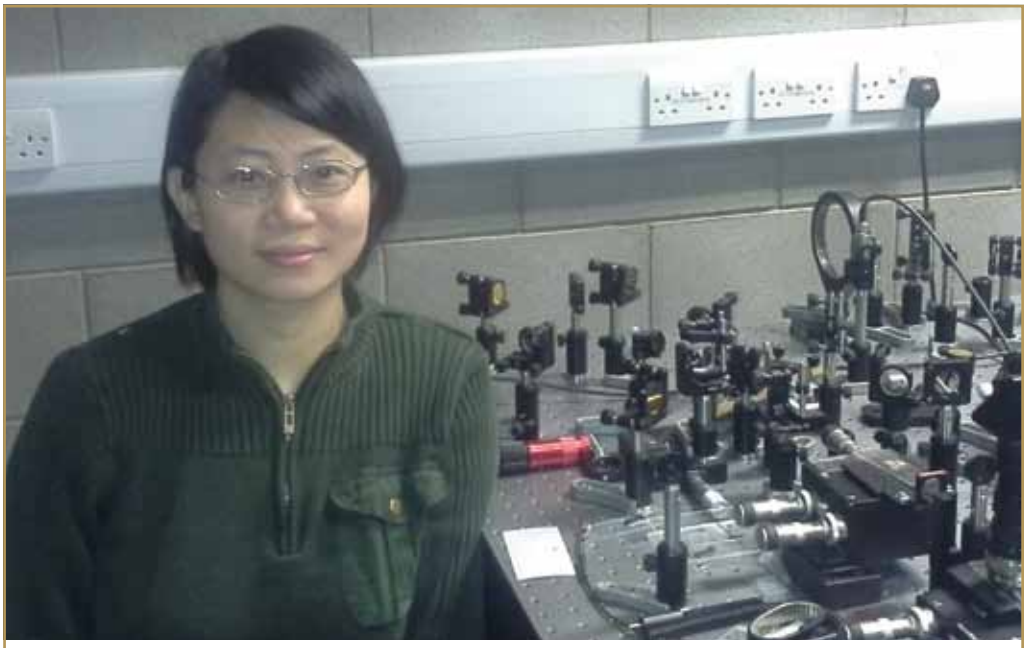
Patrick is a former pupil of St. Munchin's College, Limerick. After completing an apprenticeship in automobile mechanics, he returned to full-time education as a mature student in 2005. He undertook a BEng in Mechanical Engineering at the University of Limerick (UL), graduating in 2009. Patrick had a strong interest in the research of materials, and after graduating was offered a PhD research position in the BioElectricSurface project, which was an EU FP7 funded project co-ordinated by MSSI. During his PhD research Patrick was based in the MSSI, and was a student of the Department of Physics and Energy.

The BioElectricSurface project consisted of eleven partners from countries throughout the European community, which was a rewarding opportunity for Patrick to work with academics and industries across borders including Copenhagen, Dresden and Wroclaw. Patrick's research focused on the design of a coating process for antimicrobial textiles. ➤

Test rigs were designed and built and samples were analysed using state-of-the-art analytical equipment in the MSSI, along with microbiology collaboration from colleagues in Poland. Such networks and collaborations are of great benefit to a scientific researcher's knowledge base and research profile.

The coating technology that Patrick was involved in was successfully developed and a patent application resulted from this project. On completion of the BioElectricSurface project, an Enterprise Ireland (EI) Commercialisation Fund was awarded on the foundation of the coating technology, allowing for the continuation of this vital and innovative research. On completion of his PhD studies, Patrick continued to work as a postdoctoral researcher at the MSSI funded through the EI Commercialisation Fund. This has allowed him to work with the Nexus Innovation Centre in UL, where he was a participant in the Studio to Street Business Programme. The programme challenged and guided Patrick in the technology development for successful commercialisation of the technology.

DR NING LIU / Lecturer in Nanophysics



Dr Ning Liu joined MSSI as a postdoctoral research fellow in 2012 and is currently a Lecturer in Nanophysics in the Department of Physics and Energy.

Dr Liu received her B.S. degree in Physics from Peking University, Beijing, China in 1999. From 1999 to 2005, she pursued her PhD in Condensed Matter Physics in the Department of Physics and Astronomy at the University of California, Irvine in the United States, where she acquired expertise in imaging and characterization of nanostructures using scanning probe microscopy. Since the completion of her PhD, Dr Liu continued working on the development of advanced characterization techniques for studying the electronic, mechanical, and optical properties of novel nanomaterials and nanodevices.

Dr Liu came to UL to join a team in the MSSI and the Department of Physics and Energy to build the world's first infrared absorption nanoscope, funded under the EU FP7 LANIR project. In addition to the development of the patent pending nanoscope, her current research interests also include the fabrication of novel plasmonic nanomaterials, understanding their unique properties, and developing their applications in future information and communication technologies, energy conversion, and optical sensing.

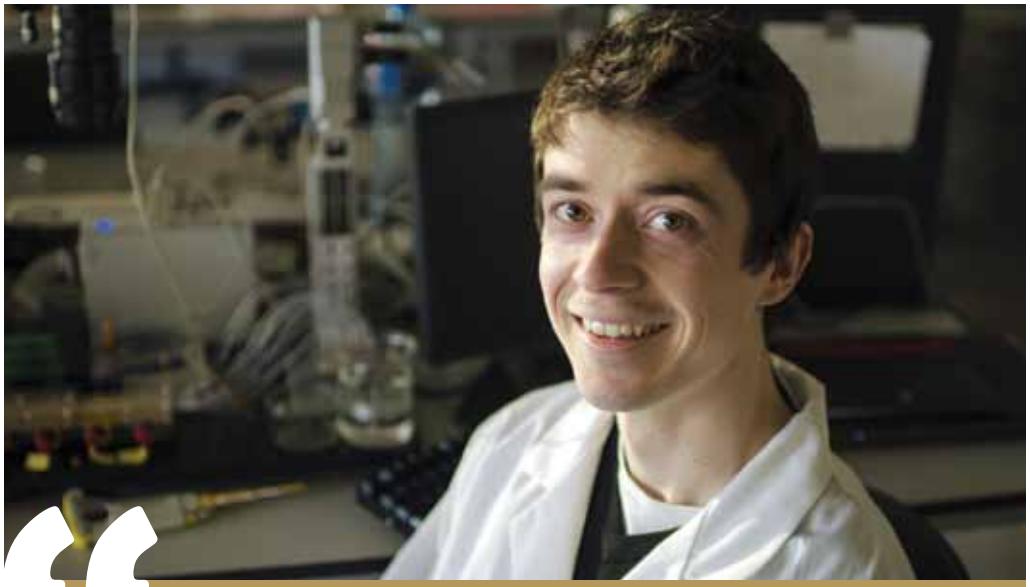
STOKES INSTITUTE

The Stokes Institute is a research organisation dedicated to education and innovation in fluid mechanics and its applications. The faculty and researchers at Stokes claim expertise which spans the spectrum of fluid mechanics – microfluidics, multiphase flows, aerodynamics, thermofluids, heat and mass transfer, fluid-surface interactions, and related experimental and computational techniques. Stokes' current research portfolio focuses on exciting contemporary fluidic applications in biotechnology, energy generation & storage, pharmaceutical processing, aeronautics, and electronics / photonics packaging.

Stokes is based in a suite of offices and laboratories at UL's Engineering Research Building totalling over 1000m2. The laboratories house a range of state-of-the-art equipment for fluidics research: Particle-Image Velocimetry (PIV), infra-red (IR) imaging, optical metrology, microscopy (optical and SEM), high-speed imaging, wind tunnels, environmental chambers and materials characterisation facilities. The Institute also features precision prototyping facilities to enable its experimental research.

Stokes has been in operation for over two decades, active in National and European Union research programmes, with an extensive portfolio of global collaborators in academia and in industry – for example, Bell Laboratories, the Joint Research Centre (JRC), Airbus, Nokia Corporation, Mitsubishi Materials, Hewlett-Packard and GenCell Biosystems. It has deep foundations in scholarship and education, and a strong track record in the commercialisation of research through licensing of IP and through the creation of spin-out enterprise. Stokes' alumni have progressed to high-level careers in industry and academia.

MARC MAC GIOLLA EAIN /
A Postgraduate's Experience



My research is focused on the study of multiphase microfluidics, which is the flow of multiple phases of matter; solid, liquid or gas, together in sub-millimetre sized channels. This is a very active research area that is constantly growing because of its potential use in a number of different application areas. Microfluidics can be used in chemical and biological diagnostics for DNA analysis, in the thermal control of telecommunications devices or in the cooling of microelectronics. Although numerous applications use multiphase flows, little is known about why the work so well and this is where my research comes in. The goal of my work is to find out why these types of flows work so well, to find their optimum working conditions for the different application areas and, of course, to win a Nobel Prize!

A research postgraduate can be very challenging, but the work is interesting, it varies day-to-day and, ultimately, allows you to be your own boss, which is an aspect that I really like about it. It has opened many doors for me, allowing me to travel and present my work at conferences both here in Ireland and abroad in the United States and Japan. This has allowed me to network with colleagues in other Universities and in industry and has resulted in collaborations with Oxford University, MIT, Memorial University of Newfoundland and a four month placement at the City University of New York. The skills that I have developed in Stokes and the connections I have made, both here in Ireland and abroad, have opened doors for me to pursue employment opportunities in both industry and academia.

DR RYAN ENRIGHT /
From Post-Graduate to Collaborator

On completion of his B. Eng. (Hons.) degree in Mechanical Engineering at UL in 2004, Ryan enrolled as a Ph.D. scholar at the Stokes Institute.

His research, supported by the SFI-funded CTVR Telecommunications programme, investigated superhydrophobic surfaces for thermal management applications. A considerable portion of his dissertation work was performed at Bell Laboratories, Murray Hill in the USA. On completion of his PhD in 2008, he took up a postdoctoral position with the CTVR at UL to continue his research. In mid 2009, Ryan was awarded an INSPIRE: IRCSET-Marie Curie International Mobility Fellowship to work at MIT's Device Research Laboratory, a position that featured continued collaboration with Stokes.

Upon completion of his INSPIRE fellowship in 2012, Ryan joined Bell Labs Ireland as a Member of Technical Staff and currently holds a joint appointment with the Centre for Adaptive Nanostructures and Nanodevices (CRANN) based in Trinity College Dublin as a Researcher-in-Residence. In Ryan's current role, he has continued his collaboration with the Stokes Institute through the CTVR programme and PhD student co-supervision. Ryan's current research interests are in the areas of surface wettability, phase-change heat transfer, micro-scale transport, thermoelectric materials, and thermal management for next-generation telecommunications equipment.

Graduates

GRADUATES

Life after Your PhD

Traditionally, the majority of postgraduate students moved from PhD study into academia and teaching. Today, however, as the number of students continuing to fourth level has increased, so too has the diversity of graduate employment.

Realising that the future of many postgraduate students will fall outside the traditional route, the Graduate School at UL offers a variety of free courses in transferable skills to research students. These courses offer students the opportunity to increase their knowledge in a variety of areas, such as project management, communication and presentation techniques, IT skills, team building and career management.

UL also offers a dedicated careers support service to research students. A full-time careers advisor is available to meet with postgraduates on a one-to-one basis to cover topics such as career options, employment opportunities, job search strategies, applications and interviews. In conjunction with the Graduate School, the postgraduate careers advisor delivers a suite of training workshops to help postgraduates identify and provide evidence of their transferable skills. Careers fairs and employer briefings are organised throughout the academic year and offer students the opportunity to discuss their career opportunities and interests directly with potential future employers. In addition, the Careers Service liaises with both the Graduate School and the International Education Division to deliver an information seminar on 'Working in Ireland for International Students'.

Research Careers

The career opportunities pursued by UL research graduates is evidence of the diversity in both the range of subject area expertise and transferable skills of our research postgraduates. The 2012 graduate survey demonstrates an excellent employment record for PhD graduates – the survey showed that over 81% of graduates moved directly into employment across all sectors, including higher education research, academia, public sector, consultancy and industry. Salary levels vary among research students – average salaries range from €33,000 to €41,000 per annum, depending on the sector of employment and nature of the job.

UL offers research students the opportunity to develop excellent academic research skills and expertise as well as expanding on their personal and professional training to best position themselves for a wide variety of career opportunities upon graduation".

UL RESEARCH GRADUATES

DR NICOLA LYNCH / Senior Lecturer

Nicola Lynch is a senior lecturer in business economics at the University of Derby in the UK.

She is a graduate of the PhD programme at UL (2011). Immediately after completing her PhD Dr Lynch joined the Derby Business School (DBS). Nicola is now head of the DBS' Enterprise Development research cluster and is working on a number of collaborative research projects in the East Midlands. She has published a number of papers, is currently editing a book, and has presented at various peer-reviewed international conferences.

"The Kemmy Business School has a very strong research profile and I cannot recommend the PhD programme at the KBS highly enough. My supervisor, Prof Helena Lenihan, is one of the leading scholars in the public policy field. As well as providing me with expert supervision, having such a supervisor provided me with an instant link to a network of top international researchers. The KBS has a strong research culture, with good facilities, and excellent support for research students. I enjoyed my time working within the KBS. Whilst it was obviously a challenging experience, it was a very rewarding one. The PhD programme provided me with a solid foundation for a career in academia, and I would therefore highly recommend it to anyone considering a similar career."

DR. KIERAN CURRAN /
Founder & CEO, GenCell Biosystems

A proud graduate of the University of Limerick's Stokes Institute, Kieran received his Ph.D. in 2005.

Having spent a number of years with a successful UL spin-out, Stokes Bio, Kieran founded GenCell Biosystems in 2011. GenCell develops advanced genetic analysis technologies for the improvement of human, animal and plant health. Based in Limerick and Madison, Wisconsin, the company currently employs over 45 people, many of whom are highly skilled engineers and scientists from UL.

GenCell has successfully partnered with a number of leading biotech companies to commercialise its technology across multiple biotech sectors. The company is 100% export focused and provides disruptive technology to medical diagnostics as well as scientific research. Collaborating with academic and public institutions worldwide, the quality of GenCell's team helps to differentiate the company from its competition.

"University of Limerick's Graduate School delivers high performance graduates with a work ethic that can keep pace with a rapidly expanding company like GenCell. 75% of GenCell's senior management team hold Ph.D.'s from University of Limerick. We are very proud of our close association with such a great university."

MICHELLE CAREY / A Postgraduate's Experience

I am currently a Postdoctoral researcher in the medical centre at University of Rochester, New York. I graduated from UL with a BSc in Financial Mathematics in 2008 and a PhD in Statistics in 2012. I was a lecturer in Finance at UL from 2011 until the summer of 2013.

The inspirational expertise and friendly demeanour of the Lecturers in the Mathematics Department were among the main contributors in my decision to pursue a PhD in UL. In our weekly meetings my two PhD supervisor's were always enthusiastic and energetic, creating an enjoyable working environment, while also ensuring that I worked to my full potential. My PhD supervisor's exceptional guidance and academic rigor has allowed me to prepare co-authored papers to be submitted in top ranking academic journals.

My PhD was funded by Mathematics Applications Consortium for Science and Industry (MACSI), a group within UL, which fosters new collaborative research on problems that arise in industry. My involvement within this group vastly enhanced my learning experience throughout the duration of my PhD studies. I worked with many well-known companies, e.g. Bord Gais, Bank of Ireland, Occam Asset Management and others. This experience provided me with a unique chance to develop my interpersonal skills and to challenge my creativity. The mathematicians within MACSI taught me to view mathematics as a language that can be applied to numerous real world problems and provided me with the skills to be able to diversify my career options and apply my expertise to many different fields, i.e. finance and medicine.

How to Apply

Applying for Postgraduate Research

The minimum entry requirement to a postgraduate research degree is an honours primary degree (level 8 – as defined by the National Qualifications Authority of Ireland) with a minimum classification of a 2:1 or 2:2. Individual faculties or research centres may have specific entry requirements.

The first step in applying for a graduate research position is to identify a potential supervisor and project. If you have difficulty in identifying a potential supervisor you should complete an expression of interest form available from www.graduateschool.ul.ie. Once you have identified a supervisor and project, you should complete a research application form and submit it to the Postgraduate Admissions Office. Application forms are available from www.graduateschool.ul.ie. UL accepts research applications throughout the year.

Up-to-date information on research activities in faculties, departments and research centres is available on the UL website: www.ul.ie. At this stage you should also try to identify possible sources of funding.

International Applicants

In addition to the minimum entry requirements specified above, international applicants are advised to meet the following standard English language requirements:

IELTS	Overall score of 6.5 or above, with no less than 6.0 in any one component
TOEFL	A minimum score of 580 *(paper-based)* 90 *(internet-based)*
Uni of Cambridge ESOL Examination	Grade C or higher on a Certificate of proficiency in English (CPE) Grade A on a Certificate of Advanced English (CAE)

Information on visas, immigration, accommodation and insurance is available on the Graduate School website: **www.graduateschool.ul.ie**

Fees

An up-to-date schedule of fees is available to download from **www.graduateschool.ul.ie**

Funding

Funding for postgraduate research is available from a variety of sources. Individual faculties at UL may offer scholarships or funded positions while external funding is available from Irish and international research councils, other public bodies and the private sector. The main research council in Ireland is the Irish Research Council, which funds postgraduate scholarships for Science, Engineering and Technology and Humanities and Social Sciences. Student Universal Support Ireland (SUSI) funding may also be available to research students.

For further information contact:

Postgraduate Admissions Office
Graduate School
University of Limerick

E: postgradadmissions@ul.ie
T: +353 61 23 43 77

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