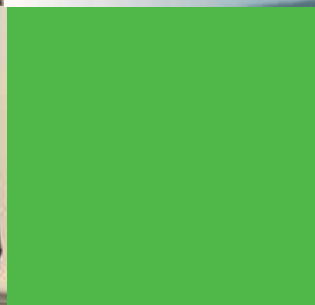
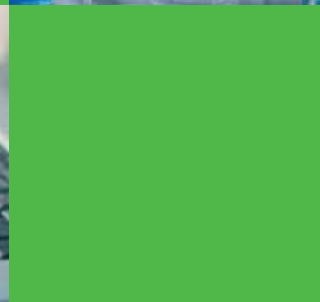




ANNUAL REPORT | 2014 2015



INTRODUCTION

3U Partnership was established as a force for change and development in education and research in Ireland. This year, **3U Partnership** is 3 years old. It has been a busy year with many of the collaborative activities supported by the Partnership coming to fruition.

This year's annual report focuses on **3U Partnership** activities and achievements for the financial year October 2014 to September 2015.

TABLE OF CONTENTS



3U
ACADEMIC PROGRAMMES

PAGE 4-9



3U
RESEARCH

PAGE 10-17



3U
EDUCATION

PAGE 18-21



3U
INTERNATIONAL

PAGE 22-27



3U
GOVERNANCE

PAGE 28-31



3U
APPENDIX

PAGE 32-38





3U ACADEMIC PROGRAMMES



3U ACADEMIC PROGRAMMES

Underpinning its ethos of strategic co-development, the 3U Partnership cooperates actively in the delivery of a number of taught postgraduate programmes.

These are:

- 3U MEng in Healthcare Technologies,
- 3U MSc in Humanitarian Logistics and Emergency Management,
- 3U MSc in Organisational Change and Leadership Development.

Key milestones for 3U Academic Programmes during the academic year 2014/2015 included the commencement of the 3U MEng in Healthcare Technologies with its first student intake and the graduation of students from the other two 3U Masters programmes.

COMMENCEMENT OF 3U MENG IN HEALTHCARE TECHNOLOGIES

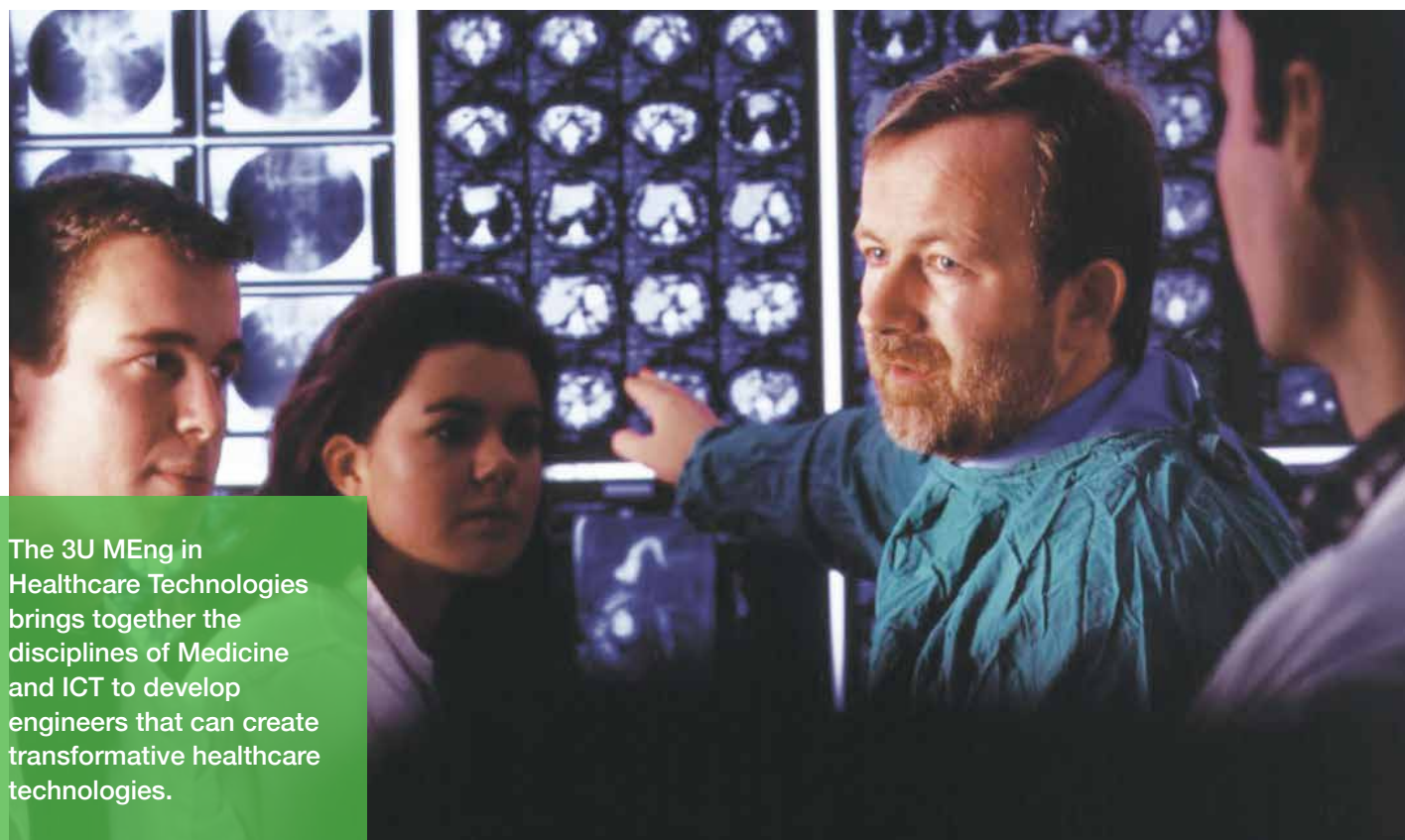
The **3U Master of Engineering in Healthcare Technologies** is delivered jointly by the School of Electronic Engineering in DCU and the Department of Electronic Engineering in Maynooth University in collaboration with medical science expertise in RCSI. Unique in Ireland, this innovative programme enables electronic engineers to work in partnership with clinicians in areas such as wearable sensors, MRI scanner technology and stroke and injury rehabilitation.

This three-semester taught masters commenced with its first intake of students in September 2014.

Feedback from the students has been very positive indicating that the programme modules have been challenging particularly in the unfamiliar biomedical sciences to which they were introduced for the first time.

As part of their study, the students visited five clinical sites, attended surgeries and viewed clinicians at work with electronic equipment. To date, the students have successfully completed all of the taught modules on the programme and they are currently in the planning stages of the integral capstone project which will be undertaken in the third semester commencing in September 2015. Additional site visits will be organised for the students during this third semester also which will be focused on the medtech industry.

The public interest that this unique collaborative taught masters has already attracted was emphasised by the fact that one of its students, Ms Méabh Loughman, was interviewed by The Irish Times to profile the programme for its 2015 annual postgraduate supplement.



The 3U MEng in Healthcare Technologies brings together the disciplines of Medicine and ICT to develop engineers that can create transformative healthcare technologies.

3U GRADUATIONS

Graduations are the highlight of any academic calendar and this is also the case for the 3U Partnership joint academic programmes. 3U Partnership had two cohorts of students graduating during the academic year 2014/15.

The first graduates of the **3U MSc in Humanitarian Logistics and Emergency Management**, which was launched in November 2013 by the previous Minister of State for Foreign Affairs, Mr Joe Costello TD, were conferred at Maynooth University on Thursday, October 30, 2014. Two of the graduates of the programme have been accepted on to Ireland's Rapid Response Corps, while another one of the graduates is the recipient of an Irish Research Council postgraduate scholarship which will support her further PhD studies at Maynooth University.

The 3U MSc in Humanitarian Logistics and Emergency Management is delivered jointly by the DCU Business School and Maynooth University's School of Business. The programme has been endorsed by two government departments – the Department of Foreign Affairs and Trade and the Department of the Environment and Local Government. It has also secured professional accreditation in 2014/15 from the Chartered Institute of Logistics and Transport (CILT) and the Emergency Planning Society (EPS).

A further fifteen students commenced the 3U MSc in Humanitarian Logistics and Emergency Management in September 2014 and will be graduating from the programme in October 2015.

The second cohort of students from the **3U MSc in Organisational Change and Leadership Development** also graduated on 7th November 2014 at DCU's graduating ceremony.

The 3U MSc in Organisational Change and Leadership Development formed part of Beaumont's leadership development strategy and emphasised a collaborative cross disciplinary approach to change within the health sector. The programme was co-delivered by DCU Business School and RCSI's Institute of Leadership and the delivery of each module was shared between DCUBS and RCSI colleagues resulting in a unique experience for the manager participants and significant learning for the academics from both institutions.



Graduates of the 3U Master in Humanitarian Logistics and Emergency Management pictured at their graduation in Maynooth University on Thursday 30th October 2014 with the President professor Philip Nolan and the Director of 3U Partnership Dr Ruth Davis.



3U Partnership's MSc in Organizational Change and Leadership class of 2014 were conferred in DCU on 7th November 2014.

07.11.2014





3U
RESEARCH



3U RESEARCH

HORIZON 2020 SUCCESS

3U Diabetes researchers are part of the RCSI- and AMBER-led consortium that has been awarded €8.9 Million of EU Horizon 2020 funding to develop materials and cell based treatments for diabetes.

The DRIVE (Diabetes Reversing Implants with enhanced Viability and long-term Efficacy) consortium is co-ordinated by Dr Garry Duffy, Department of Anatomy and Tissue Engineering Research Group, RCSI and AMBER Investigator and also involves RCSI's Professor Seamus Sreenan and Dr Diarmuid Smith, Consultants in Diabetes and Endocrinology and members of 3U Diabetes, along with DCU's Professor Martin Clynes, Dr Finbarr O'Sullivan and Dr Laura Breen who are members of 3U Tissue Engineering and Stem Cell Research group.

The DRIVE consortium of fourteen partners from seven European countries brings together internationally recognised academics, large medical devices industries and clinical experts in islet transplantation including Oxford University and represents a major interdisciplinary effort between stem cell biologists, experts in advanced drug delivery, research scientists, clinicians and research active companies working together to develop novel therapeutics to address the challenges of treating diabetes. The researchers will optimise adult stem cell therapy using smart biomaterials and advanced drug delivery, and couple these therapeutics with minimally-invasive surgical devices.

3U RESEARCH EVENTS

2015 Third Annual 3U Partnership International Diabetes Conference

Researchers from the United States, Canada, Finland, Belgium, the United Kingdom and Ireland gathered to address the **Third Annual 3U Partnership International Diabetes Conference** entitled '**Current Challenges in Diabetes Research**' which took place at RCSI on the 23rd February 2015.

This 3U conference, which has become an important annual meeting in the calendar of the 3U partner institutions, fosters collaborative links between the 3U Diabetes researchers and leading institutions in the world of diabetes research.

Renowned diabetes expert, Professor Mikael Knip from the University of Helsinki in Finland, the country with the highest prevalence of type 1 diabetes in the world, presented his current research into the prevention of type 1 diabetes at the conference which focused identifying those at risk of developing the disease and providing effective intervention to either delay or prevent its onset. Other talks at the meeting examined how the immune system damages the pancreas in type-1 diabetes; the importance of genetics in the development of diabetes and other metabolic diseases; and the complications in other organs that can result from the condition.

3U Diabetes aligns a number of interlinked areas of research into this chronic and costly condition from across the 3U Partner Institutions. Researchers in Maynooth University are teasing out the molecular mechanisms by which cells become insensitive to insulin, while experts at DCU view the issue from a more whole-body level, and RCSI offers the clinical perspective and samples from patients with diabetes.



World-leading expert Professor Mikael Knip, University of Helsinki speaking at the 2015 Third Annual 3U Partnership International Diabetes Conference.

Two-day workshop on HPLC/UHPLC & LC-MS use and best practice

The Department of Chemistry at Maynooth University, in association with 3U Partnership, hosted a two-day instrumentation workshop during October 2014. The first day of the workshop focused on HPLC & UHPLC Troubleshooting and the second day on LC-MS for Chromatographers.

The course was delivered by the world-renowned chromatographer Dr John Dolan in association with Apex Scientific. Dr Dolan is the editor/author of the monthly column “LC Troubleshooting” in LCGC, and has written more than 100 papers on HPLC and related topics. Attendees at the course included scientists from the 3U Partner Institutions of DCU, Maynooth University and the RCSI.



Attendees on the two-day workshop on HPLC/UHPLC/& LC-MS use and best practice with world renowned expert Dr John Dolan.

Official Launch of the 3U Partnership's Online Exhibition – Outsider Women

3U Partnership officially launched its first online archival exhibition Outsider Women in the National Library of Ireland at the Digital Research in Humanities and Arts (DHRA) Conference delegates reception on 1st September 2015.

The exhibition Outsider Women focuses on the lives of three important, yet largely overlooked, women in Irish history.



- **Emily Winifred Dickson** 1866-1944
Doctor of Medicine and Master of Obstetrics, first woman fellow of RCSI
- **Agnes O'Farrelly (or Úna Ní Fhaircheallaigh)** 1874-1951
Academic and Professor of Irish at University College Dublin (UCD), Irish language author and founding member of Cumann na mBan, and
- **Teresa Deevy** 1894-1963
Irish dramatist, short story writer, and writer for radio.

The exhibition provides vital reflections on women's contribution to Irish society in the past and introduces the public to the significant achievements of these women, ranging from awards gained by Dickson during her studies at RCSI, to a digital copy of *Grádhagus Crádh* (1901), the first Irish language novel by a female author (O'Farrelly), to the hugely successful plays by Deevy, most notably her popular production, *Katie Roche*. In each case, they contributed richly to the lives of their community and paved the way for other women to achieve success in their chosen field.



Prof Cathal Kelly CEO of RCSI launches the 3U Digital Humanities Online Exhibition, Outsider Women at the National Library of Ireland.

Outsider Women is a collaborative venture by the 3U Partnership Libraries of Maynooth University, RCSI, and St. Patrick's College, Drumcondra, a constituent college of DCU along with the Department of History in Maynooth University. Its key objectives are:

- the creation of an Irish online, open access, digital humanities research resource that supports professional training in archives management,
- to encourage collaborations between academic historians, librarians and archivists across the 3U Partner Institutions, and
- the development of a template to guide the presentation of thematic digital collections to the public which combine academic scholarship with curated online archival collections from the libraries of Maynooth University, RCSI, and St Patrick's College, DCU.

The individual collections in the exhibition can be accessed through 3U Partnership's webportal at: <http://3u.ie/3u-research/3u-digital-humanities/>.



Dr Jennifer Redmond, keynote speaker at the launch of the 3U Digital Humanities Online Exhibition: Outsider Women at the National Library of Ireland.

3U Research Publications

Fifty four research papers (24 of which are joint papers) have been published by scientists across the 3U Biomedical Research groups arising from the seed funding of collaborative research projects in the areas of 3U Diabetes, 3U Tissue Engineering and Stem Cell Research, 3U Translational Cancer Research and 3U Human Disease Proteomics.

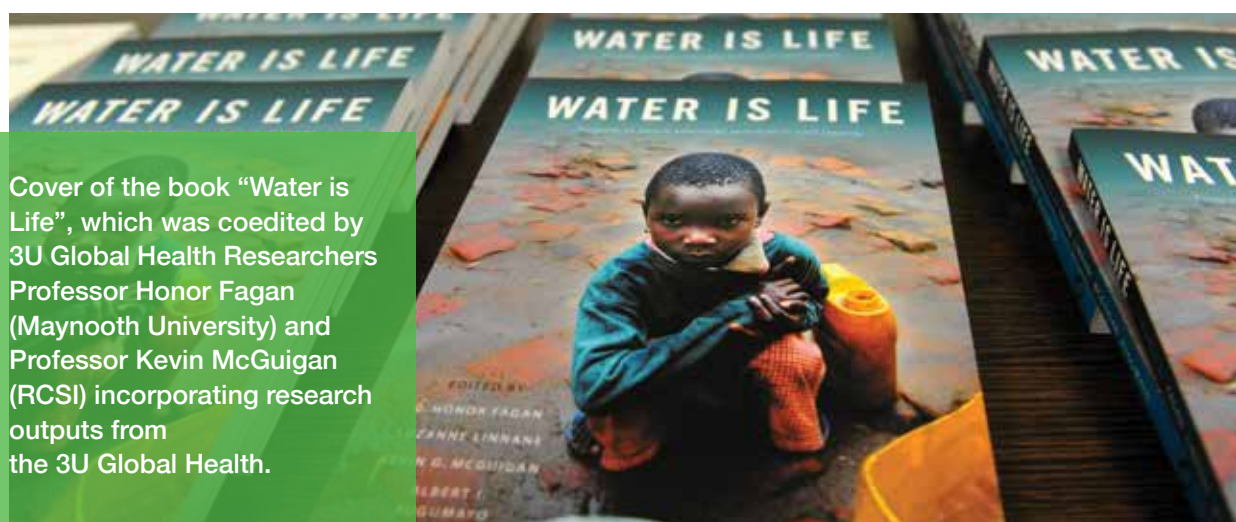
Recently, researchers from 3U Human Disease Proteomics succeeded in publishing an article in the prestigious biochemical journal *Proteomics* arising from a collaborative project between scientists in Maynooth University, DCU and the University of Bonn:

- Holland, Dowling P, Meleady P, Henry M, Zweyer M, Mundegar RR, Swandulla D, Ohlendieck K (2015). Label-free mass spectrometric analysis of the mdx-4cv diaphragm identifies the matricellular protein periostin as a potential factor involved in dystrophinopathy-related fibrosis. *Proteomics*.15(13):2318-2331.

The 3U Global Health research group published 17 research articles and chapters arising from its areas of collaborative interest. Of particular note is the publication of two books which have been co-edited by 3U Global Health researchers which will be formally launched by 3U Partnership in November 2015. These are:

- *Water is Life (Amazzi Bulamu): Community Based Research for Sustainable Safe Water in Rural Uganda*. Editors: Fagan H, Linnane S, McGuigan K, Rugumayo A. Practical Action Publishing: Rugby, U.K. (2015).
- *Water and Development: An African Perspective*. Edited by Munck R, Asingwire N, Fagan H, Kabonesa C: Zed Press: London (2015).
- In addition, 3U Global Health along with RCSI Bahrain had a joint research paper accepted for publication in the *Journal of Solar Energy*. This research paper: Capability of 19-litre polycarbonate plastic water cooler containers for efficient solar water disinfection (SODIS): field case studies in India, Bahrain and Spain – Authors: Keogh M.B, Castro-Alferez M, Polo-Lopez M.I, Fernandez Calderero I, Al-Eryani Y.A, Joseph-Titus C, Sawant B, Dhodapkar R, Mathur C, McGuigan K.G, Fernandez-Ibanez P(2015). *Solar Energy*, is the result of an interdisciplinary collaboration involving Physics, Biology, Anthropology, Environmental Engineering spanning two continents (Europe and Asia) and four countries (Ireland, Bahrain, Spain and India).

A list of all the 3U Research Publications is provided in Appendix page 37.



Cover of the book “Water is Life”, which was coedited by 3U Global Health Researchers Professor Honor Fagan (Maynooth University) and Professor Kevin McGuigan (RCSI) incorporating research outputs from the 3U Global Health.





3U
EDUCATION



3U EDUCATION

BUILDING DIGITAL LEARNING CAPACITY

3U Partnership established NSTEP, the National Initiative in STEM Education and Practice, in order to encourage research into teaching and learning at university level.

During 2015, the National Forum for the Enhancement of Teaching and Learning announced the results of the first funding call under the Teaching and Learning Enhancement Fund scheme. The aim of this fund is to enhance teaching and learning by building digital capacity in Higher Education institutions; €2 million was made available in Phase 1 of this scheme.

Two of the research projects supported under the 3U Partnership NSTEP initiative concerned a) an analysis of the types of tasks in first year calculus courses, and b) the development of an audience response system for use in mathematics and engineering lectures. These two projects, and the staff from DCU and Maynooth University who worked on them, formed the basis for a successful application to the Teaching and Learning Enhancement Fund scheme. The successful project, entitled Assessment for Learning: Resources for First Year Undergraduate Mathematics Modules, received €274,000 from the National Forum for the Enhancement of Teaching and Learning and was led by Maynooth University along with partners DCU, Athlone Institute of Technology and Dundalk Institute of Technology. The project concerns the development of formative assessment techniques in order to improve the teaching and learning experience of first year undergraduate mathematics modules.

3U EDUCATION EVENT

3rd Annual 3U Leadership Symposium – Leadership for Sustainable Communities

Over 400 delegates attended the 3rd Annual 3U Leadership Symposium aimed at Education and Health Professionals which was held on 7th March 2015 at Maynooth University. This year's theme focused on "Leadership for Sustainable Communities" and featured a keynote address by Emeritis Professor Richard Pring, University of Oxford. The event was opened by Professor Philip Nolan, President Maynooth University.

Other speakers on the day included:

- Professor Sharon Todd, Maynooth University
- Professor Finian Buckley, DCU
- Professor Ciarán O'Boyle, RCSI
- Professor Freddie Wood, Medical Council
- Mr Tomás Ó Ruairc, Teaching Council

This vibrant annual event celebrated the postgraduate research work of students from the Postgraduate Diploma in Educational Leadership (Tóraíocht) offered by Education Department Maynooth University, in partnership with Professional Development Service for Teachers' (PDST) and RCSI (Institute of Leadership) and from MSc programmes in Leadership delivered by DCU's School of Educational Studies and the DCU Business School (in a 3U Partnership with RCSI & Beaumont Hospital), who presented insights from leading change projects in teaching & healthcare professions.



Professor Aidan Mulkeen, Registrar of Maynooth University, and Dr Ruth Davis, Director of 3U Partnership with keynote speakers – Emeritis Professor Richard Pring, University of Oxford; Professor Sharon Todd, Head of Department of Education, Maynooth University; Professor Freddie Wood, Medical Council and Mr Tomás Ó Ruairc, Teaching Council, pictured at the 3rd Annual 3U Leadership Symposium held at Maynooth University.





3U
INTERNATIONAL



3U INTERNATIONAL

3U Partnership's international programme comprises the following key activities:

- 3U Pathway programmes for international students
- 3U Pre-sessional English language programmes.

The academic year 2014/2015 has been a very significant year of activity for 3U Partnership on the international front.

Key achievements during the year included the first enrolment of international students onto its flagship undergraduate foundation programme – the 3U Pathway University Foundation Programme, the development of a second flagship Pathway Programme aimed at preparing international students for postgraduate study in Ireland, and the opening of the 3U China Office in Beijing.

FIRST INTAKE OF STUDENTS ON THE 3U PATHWAY UNIVERSITY FOUNDATION PROGRAMME

The 3U Pathway University Foundation Programme offers international students a vital bridge between the education they have already received in their home country and the requirements for undergraduate study at either DCU or Maynooth University. It provides students with the knowledge, skills and attitudes to flourish in their undergraduate study.

Throughout the programme, students will develop their English language proficiency, their knowledge of their chosen academic subject(s) as well as their communication and study skills.

3U Partnership welcomed its first two cohorts of international students onto the 3U Pathway University Foundation Programme during the academic year 2014/15, commencing in September 2014 and January 2015, respectively. In total, 19 students undertook studies on the two 3U Foundation Programmes with 16 students successfully completing the programme and going onto further study at DCU and Maynooth University. The students who participated on the 3U Pathway University Foundation Programme came from a wide diversity of countries of origin including; Japan, Oman, Malaysia, Saudi Arabia, Nepal, Nigeria, Vietnam and United Arab Emirates.

The feedback of the students who completed the programme was very positive with some constructive suggestions for ways for enhancing the programme for future students.



Students from the 3U Pathway University Foundation Programme celebrating the completion of their 30-week programme in May 2015.

Fáilte

Welcome to 3U Partnership



One of the new students who embarked on our new 3U Pathway Postgraduate Foundation Programme.

NEW 3U PATHWAY PROGRAMME FOR POSTGRADUATE STUDENTS

Last year 3U International developed a new programme of study for international students: the 3U Pathway Postgraduate Foundation Programme.

The 3U Pathway Postgraduate Foundation Programme provides international graduates with a vital bridge between their undergraduate education and the requirements for postgraduate study at Maynooth University or RCSI. This intensive programme develops students' knowledge, skills and attitudes required for effective postgraduate study. Throughout the programme, students will develop their knowledge of English for Academic Purposes and English for Specific Purposes, research skills, international communications skills and leadership skills. 3U Partnership welcomed its first cohort of seventeen students onto the 3U Pathway Postgraduate Foundation Programme in September 2015 and expects to enrol a second cohort of students onto the programme commencing in January 2016.

3U PRE-SESSIONAL ENGLISH LANGUAGE PROGRAMMES

The 3U Pathway Pre-sessional English Language Programmes are aimed at international students who wish to pursue undergraduate or postgraduate study at DCU, Maynooth University or RCSI but who require additional English language support. Each programme aims to prepare and equip students with the knowledge, skills and confidence to succeed in their chosen undergraduate or postgraduate programme. Over 80 students choose either a 10, 8 or 5 week programme of intensive English language study (depending on their English language level) which was delivered both by DCU Language Services and Maynooth University Language Centre during summer 2015.

3U Partnership in association with Maynooth University Language Centre also managed a bespoke pre-sessional English Language programme that was developed for 32 students partaking in a study abroad programme from Nihon University in Japan.

OPENING OF 3U PARTNERSHIP'S CHINA OFFICE

The Minister for Education and Skills, Ms Jan O'Sullivan T.D., officially opened 3U Partnership's China Office in Beijing's award winning Galaxy SOHO urban complex on 26th October 2014. The event coincided with the Education in Ireland mission to China, organised by Enterprise Ireland and led by Minister O'Sullivan. The 3U China Office symbolises the commitment of all three Partner Institutions, DCU, Maynooth University and RCSI, to working collaboratively to promote themselves both collectively and individually as quality higher education destinations for Chinese students. In particular, 3U Partnership's China Office is home to representatives of DCU and Maynooth University who are available to meet with Chinese students and their parents to advise them on the world-class education and research opportunities at both Universities.

The 3U China Office delivers on important strategic objectives for the Partner Institutions, DCU, Maynooth University and RCSI, who wish to expand the global reach and bring greater diversity and fresh perspectives to their university communities, both student and staff. The recruitment of high calibre Chinese students at both undergraduate and postgraduate levels to the Partner Institutions and the development of strategic academic collaborations with top-ranking Chinese universities such as Sichuan University, the Communication University of China and the Capital University of Economics and Business strengthen the already extensive relationships between China and Ireland.

Through collaborations such as these, 3U Partnership will provide international students with enhanced educational opportunities and also the opportunity to contribute to the diverse cultural fabric of our universities.



Minister Jan O'Sullivan T.D. (3rd from left) pictured at the opening of the 3U China Office with (l-r) Professor Jim Dowling, Deputy President, DCU; Mr Michael McGrail, Director of Corporate Affairs, RCSI; Professor Philip Nolan, President of Maynooth University; Mr Paul Kavanagh, Irish Ambassador to China and Dr Ruth Davis, Director 3U Partnership.





3U GOVERNANCE



3U GOVERNANCE

PROTOCOL FOR JOINT ACADEMIC PROGRAMMES

The 3U protocol for the initiation, approval, management and implementation of 3U joint academic programmes, which was developed by the 3U Registrars' Group under the chairmanship of Professor Jim Walsh, Vice President for Strategy and Quality in Maynooth University, was used during the past year as a valuable template for the development of other joint academic programmes involving partnerships across the wider Dublin-Leinster Pillar II regional cluster. Regulatory and Governance Matters

3U COLLABORATION LTD

The last year saw the Shareholders of 3U Collaboration Ltd, DCU, Maynooth University and RCSI approve the first set of accounts for a full year of trading by 3U Collaboration Ltd.

Other significant developments included the recognition of 3U Partnership's legal entity, 3U Collaboration Ltd, by the Revenue Commissioners as a charitable organisation (Charity registration number CHY1277). Also, in compliance with new Charities Act 2009 and the Statutory Instruments arising from this Act, 3U Collaboration Ltd has been registered on the new register of charities under the Charities Regulatory Authority.



TOGETHER
WE CAN
ACHIEVE EVEN
MORE

APPENDIX

3U BIOMEDICAL RESEARCH PUBLICATIONS

1. Alsaraj F, O’Gorman D, McAteer S, McDermott J, Hawi Z, Sreenan S (2010). Haplotype Association of Calpain 10 Gene Variants with Type 2 Diabetes Mellitus in an Irish Sample. *Irish Journal of Medical Science* 179:269-272.
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13. Davies M, Heller S, Sreenan S, Sapin H, Adetunji O, Tahbaz A, Vora J (2012). Once weekly exenatide versus once or twice daily insulin detemir: randomized open label clinical trial of efficacy and safety in patients with type 2 diabetes treated with metformin alone or in combination with sulfonylureas. *Diabetes Care*. PMID: 23275363.
14. Dowling P, Hughes DJ, Larkin AM, Meiller J, Henry M, Meleady P, Lynch V, Pardini B, Naccarati A, Levy M, Vodicka P, Neary P, Clynes M. (2014) Elevated levels of 14-3-3 proteins, serotonin, gamma enolase and pyruvate kinase identified in clinical samples from patients diagnosed with colorectal cancer. *Clin Chim Acta*.
15. Dowling P, Holland A, Ohlendieck K Maynooth. Mass Spectrometry-Based Identification of Muscle-Associated and Muscle-Derived Proteomic Biomarkers of Dystrophinopathies. (2014) *Journal of Neuromuscular Diseases*. 2014;1.
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