CARDIFF UNIVERSITY
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News

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The Way Forward

Biomedical and Life Sciences

Introduction

This edition of *Cardiff News* is dedicated to the new College of Biomedical and Life Sciences – part of a wider structural change designed to enhance Cardiff University's research, teaching, international profile and engagement with Wales.

Professor Dylan Jones

Pro Vice-Chancellor of the College of Biomedical and Life Sciences, Professor Dylan Jones is the former Head of the University's School of Psychology. As Head he played a leading role in establishing the School of Psychology as one of the largest and best in the UK, including the development of the Cardiff University Brain Imaging Centre (CUBRIC) and creating funds for the Wales Autism Research Centre (WARC).

"It's a pleasure to introduce this edition of *Cardiff News*, dedicated to the College of Biomedical and Life Sciences - an area of immense strength in research and teaching terms in Wales, the UK and across the world.

In this edition you'll get a snapshot of some of the best examples of research and teaching excellence. Establishing a College bringing together nine Schools with expertise in their own right helps us create a critical mass of expertise allowing us to do much more.

Take for example, in teaching. In this edition you'll learn how, as a University, we've invested in new flagship teaching and learning facilities in the School of Biosciences, named after our Nobel Prize winning Chancellor, Sir Martin Evans.

Readers will also get a sneak peak of the soon to be opened Hadyn Ellis building – which, when officially opened later this year, will house two of the University's leading Research Institutes both undertaking innovative research, gaining new knowledge and offering new clues in the fight against cancer and the scourge of mental illness.

You'll also learn how an innovative interview method is beginning to widen access to dental training and how we've invested in new state-of-the- art undergraduate simulation facilities to help teach the next generation of healthcare professionals.

"In this edition you'll get a snapshot of some of the best examples of research and teaching excellence."

In addition, you'll see how we are supporting continuing professional development - as the UK's only University to offer teaching and support to optometrists looking to improve their professional skills in our School of Optometry and Vision Sciences.

In our School of Medicine, you'll get a first-hand account from the Dean of Medical Education, Professor John Bligh, who outlines the root and branch review of our medical curriculum, and from our School of Post Graduate Medical and Dental Education on how technology is assisting new doctors at the bedside.

You'll also meet one of our most well-known medical students - Wales and British & Irish Lions Centre, Jamie Roberts, and share his news that he has passed his medical undergraduate degree after a gruelling eight years of juggling a professional rugby career with the demands of a medical degree, and hear the views of the University's Students' Union Heath Park Sabbatical Officer - responsible for representing the views of healthcare students across the University.

However, our teaching and learning goes beyond undergraduate study.

Postgraduate research student and President's Research Scholar, Stacy Littlechild's story is typical. Her research has brought her to Cardiff in a bid to achieve her ambition to make a significant step in cornea replacement treatment.

With ever increasing demand to illustrate the impact of our research - it's vital we reach-out and engage with communities locally and beyond.

Take for example, the recent *Brain Games* event. Organised jointly by the School of Psychology and School of Biosciences, the event attracted more than 2,000 local school pupils to learn about neuroscience.

You'll also see how we are extending and widening opportunities for people to access the nursing profession from those communities not traditionally represented in the profession, through the School of Nursing and Midwifery's *Nursing for All* project.

But our reach goes well beyond our narrow defined borders.

In this edition, you'll learn how we are exchanging research and teaching with experts in China through collaboration in our School of Medicine and how our dental students are supporting dental provision in Ghana.

Finally, and perhaps most crucially for a research intensive University like Cardiff you'll gain a snapshot of some of the best examples of world-leading research that is being undertaken across the College.

From tackling alcohol related violence, establishing new leads in the fight against mental illness, researching new drugs, helping families struggling to conceive, and providing a research base for midwifery studies through the appointment of a Royal College of Midwife Professor – the possibilities and application of our research has no bounds.

You'll also see how creating a College structure can help us do much more and strengthen our research capability and impact even more.

Take for example the recent success in securing a major Wellcome Trust Strategic Award. Led by Professor Mike Owen from the School of Medicine, the £5.2M project draws on research expertise from the Schools of Medicine, Psychology and Biosciences to develop a new and unique approach to try and understand what causes mental illness.

The same is also true of the work of Dr Arwyn Jones from our School of Pharmacy and Pharmaceutical Sciences who is working alongside 13 other European partners to help turn novel therapeutic molecules into effective medicines.

It's this collaborative and interdisciplinary approach that will become the hallmark of the new College. Crucially it will help the College compete and draw down even more vital research income.

It's impossible to do the whole College justice in just one edition, but I look forward to keeping readers informed on our work and future achievements."

The College of Biomedical and Life Sciences includes:

- School of Biosciences
- School of Dentistry
- School of Healthcare Studies
- School of Medicine
- Cardiff School of Nursing and Midwifery Studies
- School of Optometry and Vision Sciences
- Cardiff School of Pharmacy and Pharmaceutical Sciences
- Wales Deanery / School of Postgraduate Medical and Dental Education
- School of Psychology

Supporting Excellence

As Pro Vice-Chancellor, Professor Dylan Jones plays a key role in setting the College's strategy and direction, and in promoting the development of learning, teaching and research excellence. He is supported by a team of Deans responsible for key areas of activity which include: International and Engagement; Student Experience and Academic standards and Research, Innovation and Enterprise.

Professor Paul Dummer

Professor Paul Dummer

Professor Paul Dummer is College Dean responsible for Student Experience and Academic Standards. He is Professor of Restorative Dentistry and Vice Dean at the School of Dentistry and is Consultant in Restorative Dentistry and a specialist in Restorative Dentistry and Endodontics.

He serves as an Editor of the *International Endodontic Journal*, and Editor and Council member of the British Endodontic Society and serves on the Editorial Board of a number of other endodontic, operative dentistry and research journals.

He has lectured extensively within the UK and overseas. He has presented more than 300 hands-on courses in the field of root canal treatment, and published more than 130 original scientific articles, 50 research abstracts. Within Endodontics, he has a particular interest in the evaluation of root canal preparation techniques and endodontic instruments.

Professor Malcolm Mason

Professor Malcolm Mason

Professor Malcolm Mason is College Dean for Research. He is the Head of the Oncology and Palliative Medicine Section at the University's School of Medicine. Based at Velindre Hospital, he is also Director of the Wales Cancer Bank. The Bank is recognised as one of the foremost of its kind worldwide, and has revolutionised opportunities for cancer research, collecting blood and tissue samples from thousands of people in Wales either suffering from cancer or with a potential cancer diagnosis.

Professor Mason's own group has carried out a great deal of research into prostate cancer. Through studies which he has led via the Medical Research Council, it has been shown that survival rates in men with advanced prostate cancer improve when they are given drugs that preserve bone mass, and more recently that radiotherapy added to hormone therapy reduced deaths from prostate cancer by nearly half in patients with locally advanced disease. Non-malignant prostate stem cells are known to exist. From their characteristics, it is expected that malignant prostate cancer stem cells will be resistant to hormone treatment and possibly also to chemotherapy and radiotherapy.

Dr Dianne Watkins

Dr Dianne Watkins

Dr Dianne Watkins is an International Dean with a University-wide remit for Transnational Education.

Dr Watkins has held a number of senior posts in academia and is the Deputy Head of School and Director of International and Engagement for the School of Nursing and Midwifery Studies. She has established a number of collaborative programmes in Oman and Germany and has undertaken University moderator roles overseeing the quality of collaborative programmes in Frankfurt and the Netherlands.

She has been a forerunner in driving the transnational education agenda across the University as an active member of the Collaborative Provision Committee. Dr Watkins has a clinical background as a nurse, midwife and specialist public health nurse; her research interests lie in evaluating the impact of education on practice and she is leading modernisation of Community Nursing Education on behalf of the Welsh Government.

Biosciences building named after Nobel Prize winner

Sir Martin Evans (centre) is pictured with Professor Ole Petersen (left) and fellow Nobel Prize Winner, Professor Robert Huber (right)

A £4M extension offering new research, teaching and learning space for students in the College's School of Biosciences has been officially named after the University's Nobel Prize winner and Chancellor, Sir Martin Evans.

In a special unveiling ceremony, the building received the official title of the *Sir Martin Evans Building* in celebration of the School's former Director whose contribution to medicine has earned him global recognition.

The University's Deputy Vice-Chancellor, Professor Elizabeth Treasure, said: "We are very pleased to name the School of Biosciences after Sir Martin Evans. His scientific research and contribution to higher education have made him a role model for burgeoning scientists across the country. This is a proud day for Sir Martin and Cardiff University.

"We hope his continuing legacy will inspire our students to do great things."

The unveiling ceremony was held in the presence of a number of key figures including Nobel Prize winner and University Professorial Research Fellow, Robert Huber; the School's current Director, Professor Ole Petersen FRS, and Deputy Vice-Chancellor, Professor Elizabeth Treasure.

Sir Martin Evans is known for his discovery of stem cells that have transformed the experimental analysis and understanding of mammalian genetics and also have the potential to be transformed into any kind of specialised cell to be used in tissue repair.

Interview technique helps break down barriers

An innovative interview technique designed to help break down barriers which prevent students from gaining a place to study have been adopted by the College's School of Dentistry.

Cardiff was the first dental school to use Multiple-Mini Interviews (MMIs) and others now follow with nine dental schools using MMIs as part of their admissions processes.

MMIs help prevent the biases, expectations and influences that are associated with more traditional interviews methods of recruiting students. The interviews assess the qualities that are considered more important in relation to the successful progression in dentistry and in turn hopefully produce successful dentists.

MMIs offer applicants the chance to demonstrate skills and qualities that are not always evident on a written application and are generally accepted as a fairer way of assessing applicants preventing weaker candidates from gaining entry based on a single interview and allowing a good candidate the opportunity to overcome the pitfalls associated with a poor single interview.

Dr Robert McAndrew, who has lead the project since 2010 said: "MMIs facilitate the evaluation of areas like practical ability, empathy, reasoning, problem solving and ensuring that the School of Dentistry students go on to be more rounded, ethical and caring dentists."

State-of-the-art healthcare training facilities unveiled

Future healthcare professionals will receive training in one of the most up-to-date training facilities thanks to a major investment in teaching and research.

(From left to right) Professor Patricia Price, Professor Sheila Hunt, Former Health Minister, Lesley Griffiths and Professor Dylan Jones

The new facilities includes simulation facilities, practical rooms, and laboratory space for students to be taught, practice and learn the skills and expertise they will need when they graduate as healthcare professionals.

An *Activities of Daily Living Suite*, a mock Operating Theatre and a Mould Room have also been added and two new Physiotherapy treatment rooms have been constructed, including dedicated postgraduate facilities for the first time.

Professor Sheila Hunt, Head of the School of Healthcare studies, said: "Just as the Welsh Government has recently announced its commitment to safeguarding the future training of healthcare professionals, we are investing in the some of the latest facilities and equipment to ensure the training we provide is among the best in the UK.

"The new suites, their equipment and technology, demonstrate the way in which education must and does keep up with change in clinical practice to provide a workforce with relevant skills and abilities."

Educating around 800 radiographers, physiotherapists, occupational therapists and other allied healthcare professionals each year, the College's School of Healthcare Studies has invested more than £300,000 to create a Professional Skills Suite fit for training today's healthcare workforce.

The new facilities are part of a wider package of investment which includes a new virtual reality research facility, featuring an instrumented treadmill and 180 degree virtual environment providing instantaneous movement feedback to patients.

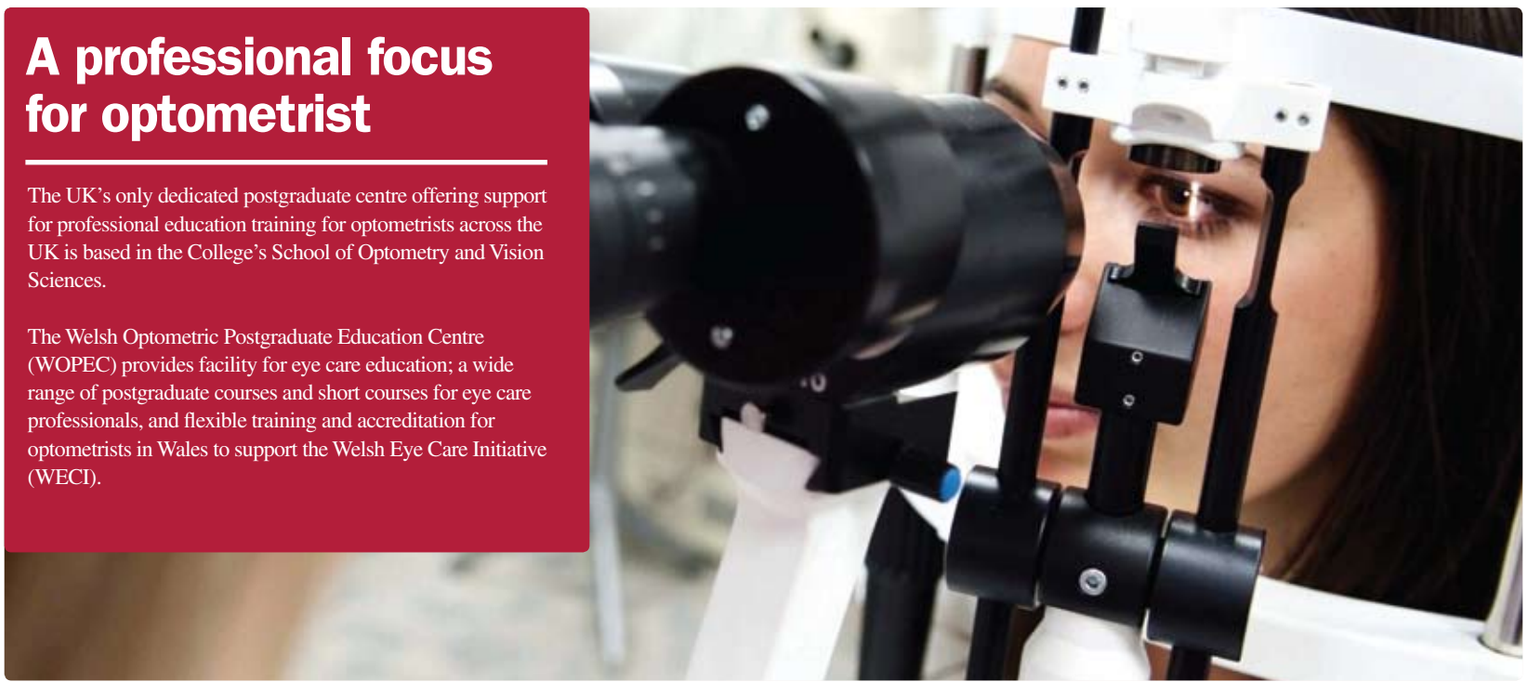
Researchers using this facility are investigating movement and movement disorders such as osteoarthritis, and working to translate interventional research into clinical benefit.

The School of Healthcare Studies is the leading provider of education for Allied Health Professionals in Wales and provides pre-registration programmes, recognised by the Health Professions Council, in Occupational Therapy, Operating Department Practice, Physiotherapy, Diagnostic Radiography and Radiotherapy & Oncology.

A professional focus for optometrist

The UK's only dedicated postgraduate centre offering support for professional education training for optometrists across the UK is based in the College's School of Optometry and Vision Sciences.

The Welsh Optometric Postgraduate Education Centre (WOPEC) provides facility for eye care education; a wide range of postgraduate courses and short courses for eye care professionals, and flexible training and accreditation for optometrists in Wales to support the Welsh Eye Care Initiative (WECI).



Creating world-class medical education

"I believe very strongly that the best educational programmes are developed through excellent partnership and team working"

Professor John Bligh

The Dean of Medical Education, Professor John Bligh based in the College's School of Medicine is leading an ambitious project designed to create a truly world class medical programme for Cardiff which will attract, train and retain the very best doctors for Wales.

Here, he provides a personal insight into the philosophy behind the University's *C21* project and the implementation of changes that are already positively impacting on all students.

"Like my father, grandfather and great-grandfather before me, all of whom were also named John Bligh; I spent many years working as a family doctor on Merseyside. The care of patients is still my first concern as Professor of Medical Education leading the programme at Cardiff.

Medical schools, though they are places of advanced learning, are not ivory towers: the purpose of medical education is to benefit patients by improving the work of doctors.

So the patient is at the heart of everything we do at Cardiff.

I believe very strongly that the best educational programmes are developed through excellent partnership and team working, underpinned by effective and talented administration, and I'd like to thank the administrators, students, academic and clinical staff and above all the patients who have worked so hard on the design and delivery of the new *C21* project.

It's a privilege to work with the team at Cardiff Medical School to develop the curriculum, refocusing on our existing expertise and strengths and making full use of the best evidence and research to inform how teaching and learning are delivered on the programme. One of my claims to fame is that in 1989, I became the first-ever Master of Medical Education in the UK following a course of study at Dundee University.

I was also the editor of *Medical Education*, the leading international research journal for eight years, during which time I read an estimated 6,000 papers! Despite claims to the contrary, there's a lot of very good research out there about what works in medical education, and it's important that we pay attention to what the expert evidence is telling us and make improvements based on this rather than just going along with what has always been done.

For example, it has been shown time after time that the best teaching programmes have assessments that test what medical students can do and how they use what they know, rather than just testing their memories. Assessment and feedback systems need to be valid and authentic, consistent, fair, timely and transparent, and we're putting energy and resources into improving our assessment practice in line with best evidence at all stages of the course. We are pleased that feedback from the NSS suggests that things are improving, but we have no intention of relaxing on this essential component of the course.

Over the years I've written extensively on medical education theory and practice. My most recent book, with Alan Bleakley and Julie Browne, is *Medical Education for the Future - Identity, Power and Location* (2011). It's a distillation of my thinking on medical education over the last 30 years and although it's not exactly light reading, it reveals much of the philosophy behind the *C21* project.

One of the arguments we make in the book is that medical education has traditionally been seen as a 'top-down' process where students come a very poor second to the academics, and patients are barely seen at all. But just as modern medical teams have to learn to co-operate, everyone involved in medical education must work together or any attempt at improvement is doomed to fail.

So I'm delighted at the enthusiastic participation and feedback we've had in recent years, particularly during our two major consultation exercises, the away days, and the three curriculum conferences.

And my door is always open - particularly to students, who are an essential part of the team – so do please call in if you have any worries or feedback."

Bedside app for newly qualified doctors

An innovative collaboration between the College's School of Postgraduate Medical and Dental Education and Cardiff School of Social Sciences is using mobile technology to help transform medical education and improve patient care.

The 'iDoc project' is designed to support newly qualified doctors in Wales by offering free access to the 'Dr Companion' smart phone app which contains key medical textbooks such as the *BNF* and the *Oxford Handbook of Clinical Medicine.*

A new doctor using the technology said: "At 3am I was due to perform my first lumbar puncture under registrar supervision. The patient was understandably anxious and my registrar did not want to have to take me through the procedure step-by-step in front of the patient as this would likely only increase his anxiety!

"I wanted to go over the procedure before-hand and double check the equipment before I started, iDoc was very useful for this as it enabled me to read up without having to hunt for books!"

The technology seeks to address the increasing demands placed on newly qualified doctors. The transition from medical school to ward-based practice is associated with high levels of stress, anxiety and increased patient mortality.

Dr Mark Stacey, Associate Dean at the School of Postgraduate Medical and Dental Education added: "iDoc enhances teaching and learning by supporting trainees' discussions with seniors, and confident and efficient decision-making leads to more efficient and rapid patient care."

In Focus: Stacy Littlechild, President's Research Scholar, School of Optometry and Vision Sciences

Despite coming from a small town in Kansas (USA), PhD student Stacy Littlechild has big ambitions.

Funded by a prestigious University postgraduate President's Research Scholarship, Stacy Littlechild hopes her research into corneal wound healing will enable surgeons to deliver the world's first bio-engineered cornea transplant.

Current treatments for people needing corneal surgery rely on the availability of a post-mortem donor which can often mean long waiting times for patients.

But if Stacy's research ambitions are realised, a cornea could be bio-engineered into the patient, obviating donor dependency using a sample of the patients own cells.

This process of treatment will be achieved through the employment of a 3D cell structure, which will inform the development of a 'scaffold-free' approach to engineering tissue for corneal replacements.

A second aspect of Stacy's corneal wound healing research involves the development of a non-invasive 'freeze/thaw' treatment for Fuchs' Dystrophy – a slowly progressing disease causing corneal tissue degeneration that usually affects both eyes.

Stacy said: "If successful healing of cellular damage caused by Fuchs' Dystrophy can be brought about using a combination of a freeze/thaw technique and inhibitor eye drops, the patients in need of treatment will no longer have to undergo invasive surgery.

"The ultimate benefit from this would be that patients will regain their vision far quicker than previous treatment methods."

Stacy attended Kansas State University from 2008-11 where she received a Bachelor's degree in Biology.

During this time she was involved in the vision research of Dr Gary Conrad, a developmental biologist with a longstanding collaboration with Professors Andrew Quantock and Keith Meek of Cardiff University's School of Optometry, and Dr Bruce Caterson of Cardiff's School of Biosciences.

Her research project in Kansas focused on developing a new treatment to seal the corneal wound resulting from LASIK eye surgery. The project resulted in two first author publications in the journal Investigative Ophthalmology and Visual Science.

President's Research Scholar, Stacy Littlechild

In addition, Stacy was able to present data collected from her undergraduate studies on three separate occasions at an annual ophthalmology conference.

It was at this conference that Stacy met Professors Quantock and Meek who suggested that she come to Cardiff University to pursue a PhD.

She is now in her first year of a three-year programme of research at Cardiff University.

Providing Nursing Careers for All

In a bid to improve the opportunities of underrepresented groups in higher education, the College's School of Nursing and Midwifery Studies been active in its engagement with socially deprived communities around Cardiff.

Recognising the need for increased community engagement and broader access to its courses, the School established the *Nursing Careers for All* programme.

The programme's primary aim is to raise the aspirations and confidence of individuals from *Communities First* areas - those in the top 10 per cent of deprivation, according to the Welsh Index of Multiple Deprivation – and encourage them to pursue a career in nursing or midwifery.

Sarah Fotheringham, Project Manager of the Nursing Careers For All Project said: "The idea for the initiative was borne out of evidence, some anecdotal, from qualified nurses and professionals in the communities, that there was a distinct lack of knowledge, awareness and understanding of what nurses do among some sections of these communities.

"Choosing what course you want to do and having the skills, confidence and knowledge to do it while competing with the best can be daunting. But if we put potential applicants in contact with students - 12 have been involved so far - who act as mentors and role models, then that applicant is often more likely to think they could do it themselves.

"The mentoring can continue once the applicant becomes a student and so the cycle can become sustainable."

Improving Welsh dental health

Cardiff dental students are providing treatment for hundreds of patients without a dentist at a new South Wales outreach unit.

The Clinical Teaching Unit at the Cynon Valley Neighbourhood Hospital provides a wide range of free dental care from fifth year School of Dentistry students to those residents without a dentist.

The experienced dental students offer treatment under the supervision of tutors at the modern facility, based in Mountain Ash. The aim is to help patients reach a good standard of dental health and then allow them to register fully with a dentist.

An estimated 10,000 people in the Cynon Valley do not have access to a dentist.

Professor Michael Lewis, Dean of the College's School of Dentistry and Divisional Director of the Dental Division of the Cardiff and Vale University Health Board, said: "The new Mountain Ash outreach clinic is doubly good news for dental services in Wales.

"As Dental Division Director, I'm delighted to see this fantastic state-of-the-art facility delivering services to patients in an area of high need."

The state of the art unit provides 18 treatment bays.

It is funded by the Welsh Government and run in partnership between Cwm Taf Local Health Board, Cardiff and Vale UHB, and Cardiff University.

The new venture follows on from the success of the first Community Based Clinical Teaching Unit at St. David's Hospital, run by Cardiff and Vale UHB and Cardiff University, which has been running for eight years.

Building an ePortfolio

Dental students have been given the chance to produce an electronic record of their academic achievements and produce a ready-made CV to boost their chances of career success as part of an innovative new online tool.

ePortfolio is an electronic tool available to dental students to record their academic achievements and create a portfolio of their work.

Dental student, Gemma Wheeler said: "The ePortfolio is a great tool for students at the Dental School. It's fantastic to have developed the old paper versions into something which is now online, and so is now more portable - you can just add bits whenever you have a bit of spare time by a computer.

"The ePortfolio is a great way to help keep your CV up to date and to have an opportunity to reflect on work you have completed, an important skill for the world of work. And obviously, it's a lot easier being able to do it as you go along, as we will no doubt forget things as the course lasts for five years."

As well as building a record of their academic work, it also provides new ways to interact, discuss and share work with their tutors.

Paul Milward, Lecturer in Dental Technology & Biomaterial Sciences in the School of Dentistry, added: "Moving to an online system has improved tutee-tutor interaction and made the process more open and accessible.

"It is now much easier to monitor student progress and personal development as they progress through their dental training."

'Doc' Roberts

Cardiff medical student, Jamie Roberts is set to add a medical degree this summer to his long list of accolades.

It marks the end of a gruelling seven-year academic journey and a successful few months, which have seen the award-winning British and Irish Lions centre help Wales secure the RBS Six Nations title and announce his move to a French club.

Dean of Cardiff University's School of Medicine, Professor Paul Morgan said: "The academic rigour and intensity of studying for a medical degree is challenging for most students but especially for someone juggling with life as a professional rugby player.

"Jamie would be the first to admit it's been an extremely challenging time but nevertheless it is clear from my conversations with him that it has been an enjoyable experience.

"I am very proud of his academic and sporting successes and pleased to have played a role. His determination to succeed in medicine, together with lots of hard work and the support, facilities and teaching excellence we have at the School of Medicine, have combined to help Jamie secure his degree.

"On behalf of everyone at the School of Medicine, I wish Jamie and all of our medical students who have received their results recently the best of luck in their future medical careers."

Dr Jamie Roberts

Brain Games

In a bid to increase public awareness of the benefits of brain research, more than 2,600 children and their families have been welcomed to the first Brain Games event.

Hundreds of schoolchildren from across South Wales visited the first Brain Games event

Created by College neuroscientists and funded by the Wellcome Trust, *Brain Games* featured a series of interactive challenges aimed at children aged 8-11 to find out more about how their brain works.

Professor Derek Jones, from the College's School of Psychology and Chief Organiser, said: "I am absolutely delighted at how the event went.

"It was incredible to see how many people from the University wanted to spend their Sunday engaging with the public (we had around 65 bright-yellow t-shirts on the *Brain Games* floor and a dozen or so behind the scenes).

"Importantly, we were overwhelmed by the sheer volume of kids turning up today, and the reaction of both the kids and their parents. To see that light-bulb switch on when the children learn something new about the brain makes the months of preparation all worthwhile!"

Visitors were given the chance to collect points and win prizes with educational and fun challenges; like tricking your brain into believing that a rubber hand feels as real as your own; seeing how well you can shoot when your world is turned upside down, and using brain waves to make a ball float.

Brain Games is part of a sustainable project, organised by neuroscience researchers with engagement and outreach taking place in local communities and schools.

Brain assemblies have been run for Key Stage 2 children in various south Wales schools and a teacher training programme to exchange information about the *Brain Games* to discuss what worked well and what children gained from the event is to begin soon.

This aim is for teachers to become 'Brain Champions' for their schools and to teach the school pupils more about the brain.

Operating Wales' only practice qualification course

Combining University study with clinical placements, the Diploma of HE in Operating Department Practice is the only qualification of its kind, delivered in Wales.

Validated by the Health Professions Council and delivered by the College's School of Healthcare Studies, the Diploma is a two-year programme which opens up career opportunities in operating departments and other medical settings.

Following the completion of a third top-up year, it can be converted into a full BSc.

Completion of the Diploma provides eligibility to apply for registration as an Operating Department Practitioner with the Health Professions Council.

Operating Department Practitioners (ODPs) are registered health professionals, who have to work both autonomously and as skilled members of the inter-professional team.

As part of the role, practitioners will ensure infection control and safety standards are met, monitor patients' vital signs, manage patients' pain, and are responsible for monitoring equipment and disposables used during surgery.

On qualifying, most ODPs are primarily based in the operating department but can also work in accident and emergency departments, intensive care units, maternity departments and as members of the cardiac arrest team.

China link-up to tackle cancer

Some of the College's leading cancer research experts and students will link-up with Chinese counterparts thanks to a new collaboration.

Ministerial support: Education Minister, Leighton Andrews AM (left) joined with the Vice-Chancellor, Professor Colin Riordan to officially celebrate the new collaboration

The Cardiff University - Peking University Oncology Joint-Institute, will see the two countries' experts come together to help build research capacity to tackle the most urgent questions in beating cancer.

Projects will include diagnosis, metastasis, new technologies and clinical trials. The Institute will also offer training opportunities for students, scientists and doctors in the area of cancer and oncology.

Peking University is the top University in China and one of the premier universities in the world. It is ranked within the top 50 world leading universities and it is leading cancer research and cancer service in China.

As part of the partnership, Cardiff will provide the physical space and initial funding for the Institute, with Peking University contributing specialist research knowledge, access to a wide network of research fellows in China and capacity to undertake a different scale of research.

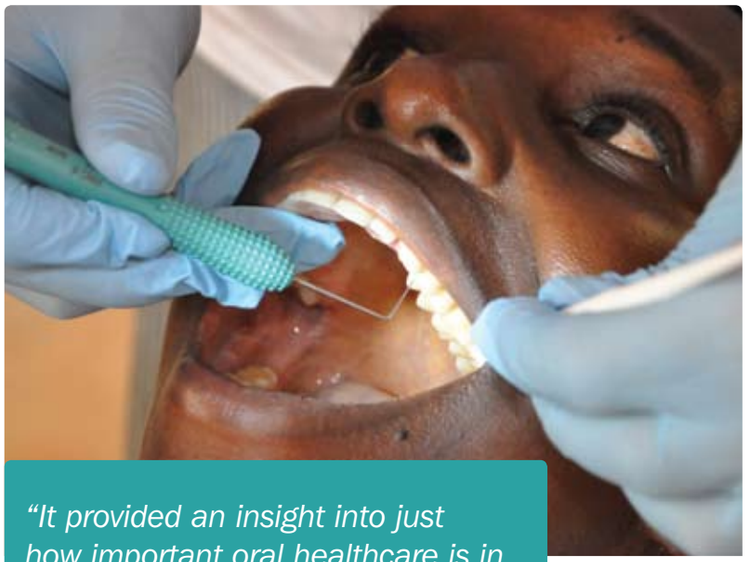
Professor Colin Riordan, the University's President and Vice-Chancellor, said: "One of my first engagements as Vice-Chancellor was to mark the official beginning of this partnership whilst in China at the end of 2012.

"The University's links with Peking University date back to 2001 when a University-wide agreement was signed to establish a framework for potential collaboration in academic research, exchange of teaching materials and joint supervision.

"This relationship has developed over the years, thanks in large part to our School of Medicine and Professor Wen Jiang and Peking University's Professor Ji Jiajfu - the Institute's joint Directors.

"This event is a culmination of that relationship and the beginning of world-leading research projects that have the ability to deliver health benefits worldwide."

Filling gaps in Ghana's dental treatment



"It provided an insight into just how important oral healthcare is in improving quality of life."

A team of Cardiff dental students have visited Ghana to offer dental education and treatment to residents in some of its remotest villages.

As part of the trip, the students established a makeshift clinic and disinfection unit in the village of Ekumfi Egyankwa using the local church and school.

Chirali Patel, a fourth year dental student who helped lead the trip, said: "The trip was truly rewarding, and experiencing other cultures opened our eyes to unfortunate conditions in the outside world.

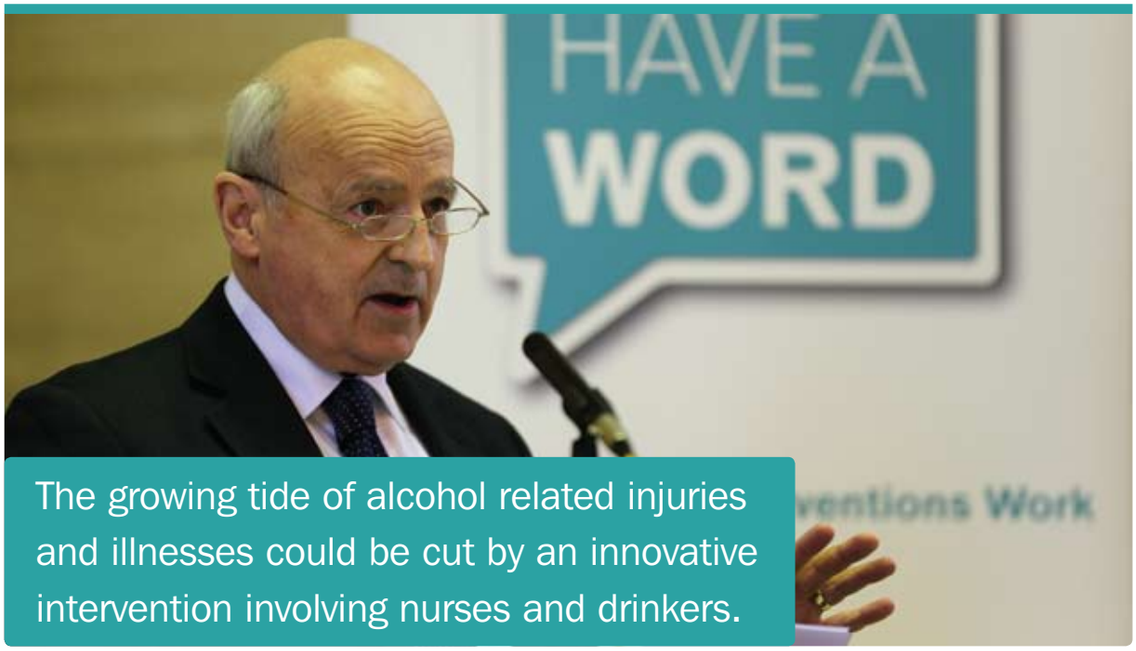
"It provided an insight into just how important oral healthcare is in improving quality of life and just how lucky we are with all the resources we have readily available to us.

"The villagers were very appreciative of the treatment and we were highly grateful for them letting us be part of their community."

In total, more than 800 school children and adults received oral hygiene instruction and dental care packs comprising toothbrushes, toothpaste, pens and stickers. The response for treatment far surpassed the initial expectations with bus-loads of patients coming from the surrounding communities.

Dr Neil Snowdon-Taylor, one of the staff supervisors on the trip, said: "The students acted in an incredibly professional manner throughout the project and I have to say that they represented the values of their future profession and Cardiff University in a mature manner which belied their age and experience.

‘Have a Word’ bids to cut alcohol injuries



The growing tide of alcohol related injuries and illnesses could be cut by an innovative intervention involving nurses and drinkers.

Professor Jonathan Shepherd

The *‘Have a Word’* campaign is the brain-child of Professor Jonathan Shepherd, who leads the Violence and Society Research Group, based in the College’s School of Dentistry.

Trials conducted by Professor Shepherd and his team, found that opportunistic brief interventions carried out by nurses were highly effective.

The *‘Have a Word’* training enables nurses to screen patients for alcohol misuse and to deliver brief interventions for those patients identified as drinking at hazardous levels.

Jonathan Shepherd, Director of the Violence and Society Research Group and Professor of Oral and Maxillofacial surgery in the School of Dentistry said: "A brief intervention is a structured conversation between the patient and the nurse, known to motivate the patient to change their drinking behaviour.

“The aims are to prompt the patient to recognise the harm which their drinking has caused, especially the wound being treated; to review their drinking; to set themselves drinking limits and to make and act on decisions to reduce their hazardous drinking."

Research singled-out for STAR treatment

Pioneering research which has helped reduce the number of unnecessary antibiotics prescribed by GPs has been singled out for national recognition.

Professor Chris Butler and colleagues from the College’s School of Medicine have been nominated for this year’s BMJ *Improving Health Awards*’ prestigious *Research Paper Of The Year.*

The Stemming the Tide of Antimicrobial Resistance or *STAR* programme was designed by and implemented by experts from the Institute of Primary Care and Public Health and South East Wales Trials Unit (SEWTU) to cut the number of unnecessary antibiotic prescriptions for common conditions such as acute cough and sinusitis.

Led by Professor Chris Butler, the two-year trial involved 68 practices across Wales covering some 480,000 patients offered GPs access to unique antibiotic prescribing and resistance data derived from their own practices and advanced ‘consulting skills’ tools.

The learning tools, the result of more than 15 years of work in infections and communication sciences by members of the Institute of Primary Care and Public Health team, are designed to enable GPs to discuss treatment options more effectively with their patients to better achieve evidence-based, shared and acceptable treatment decisions.

The study gave GPs access to on-line learning materials including videos, and allowed them the flexibility to learn and try out the new skills with their patients at times that were convenient to themselves.

The paper is one of six shortlisted in this category, which recognises ‘outstanding original research that has the potential to contribute significantly to improving health and health care’.

Helping families conceive

A new tool which helps assess the reasons why couples maybe experiencing difficulties in getting pregnant, and enable doctors to offer more tailored advice and support, has been developed by experts.

Dr Laura Bunting, then PhD student, developed the tool with Professor Jacky Boivin from the College’s School of Psychology, surveyed more than 10,000 people from 18 different countries about their knowledge of the signs, symptoms and preventable causes of infertility.

Armed with their research, they developed the *Fertility Status Awareness Tool (FertiSTAT).*

The tool takes women through a set of questions about their lifestyles, like exercise, diet and drug use matched by characteristics of their reproductive history to help generate personalised fertility guidance based on their own risk.

“Most people have life plans that include having children – but about 9-15 per cent of the world’s population or some 72M worldwide experience problems conceiving,” according to Professor Boivin.

“Overall our research found that men and women of childbearing age had poor knowledge which made it difficult for them to safeguard their fertility actively or know when to seek timely medical advice.

“The reasons for infertility are complex and multifaceted.

“However, what our research has shown and our tool has been able to support is that an objective assessment through a series of questions means we can tailor the advice and support needed,” she adds.

As a result of the research the tool is being used by public health authorities and highlight in major campaigns. For example, in Belgium the Ministry of Welfare, Health and Family used the technique to attract young people to an interactive website which distributed information about preventable causes of infertility.

Restoring public confidence in child protection

Restoring public confidence in clinicians involved in child protection cases is the driver behind a research programme designed to provide a scientific foundation for new standards in clinical assessment of child abuse.

"Just ten years ago there were no evidence-based standards or clinical guidelines to inform the clinical assessment of suspected child abuse or neglect," according to Professor Alison Kemp, from the College's School of Medicine, who leads the research.

"The reality was when cases of suspected physical abuse went to Court expert medical opinions were provided by a handful of clinicians who relied on their own clinical experience rather than scientific evidence

"As a result clinicians were accused of misrepresenting evidence and being instrumental in the wrongful prosecutions of mothers for causing the deaths of their babies," she added.

To provide an evidence base and help restore public confidence the Cardiff team established the Cardiff Child Protection Systematic Review Group to identify and critically appraise the scientific evidence relating to the recognition and investigation of child abuse.

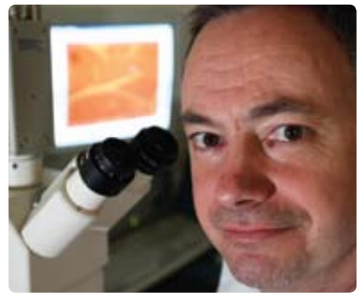
The team's research findings have helped inform the first national clinical guidelines in child abuse and neglect, and are endorsed by the Royal Medical Colleges and the Department of Health

The guidelines have also informed national clinical policy, practice and clinical standards across the UK.

Celebrating ten years of genetic discovery

Professor Julie Williams

Professor Julian Sampson



Professor Alan Clarke

An innovative project which brings together genetic experts from across Wales has marked ten years of successful discoveries.

The Wales Gene Park (WGP) draws on the expertise of academics from Welsh universities, clinicians and educators to pool knowledge in medical genetics and engages professionals and public in genetic issues and applications.

Professor Julian Sampson from the College's School of Medicine, and Chairman of the WGP said: "The work of *The Wales Gene Park* has improved understanding, diagnosis and treatment of inherited diseases and cancer and has ensured that these opportunities have been taken up by the NHS and commercial sector in Wales."

Part of the project's mission is to promote and facilitate medical genetic research and to educate and inform the public, health professionals, and young people about the issues and opportunities raised by genetics.

The WGP was borne out of a multimillion proposal from Cardiff University and the University Of Wales College Of Medicine.

The project won approval from the Departments of Health and Trade and Industry and the Welsh Development Agency in 2002, and continues to receive support from the Welsh Government.

Some of the *Wales Gene Park's* greatest achievements in the last ten years include:

Professor Julie Williams CBE is one of the UK's leading figures in Alzheimer's research. Her research has focused on identifying and understanding genes which increase the risk of developing complex psychological and neurodegenerative disorders. Among her most important work is the discovery of susceptibility genes for Alzheimer's disease – findings highlighted by *Time Magazine* as among the top ten medical breakthroughs of 2009.

Professor Alan Clarke and Dr Matt Smalley have conducted pioneering studies into using genetically engineered murine models to further our understanding of the causes and treatments of cancer. Dr Smalley's research strives to identify the differences between individual tumour cells within breast cancer.

Professor Julian Sampson has pioneered a drug treatment for the inherited disorder tuberous sclerosis that replaces the activity of the causative faulty gene. The treatment shrinks the brain and kidney tumours that patients with tuberous sclerosis develop and is now being trialled for autism and psychological problems that affect many of people with the condition.

€30M boost for new medicines

College experts are joining forces to take a leading role to improve the process of moving novel therapeutic molecules into effective medicines.

The €30M *COMPACT* project, funded by the European Innovative Medicines Initiative (IMI) and the European Federation of Pharmaceutical Industries and Association (EFPIA), is designed to develop the delivery and targeting of biopharmaceuticals based on biological macromolecules such as genes and proteins.

Along with experts from the School of Pharmacy and Pharmaceutical Sciences, 13 European academic institutions, two biotech companies and seven major pharmaceutical companies are involved in the research.

The five-year research programme is led by Dr Arwyn Jones and Dr Mark Gumbleton and Dr Pete Watson and Professor Paola Borri from the School of Biosciences.

Dr Jones said: "The insides of cells contain thousands of new therapeutic targets for treating diseases such as cancer, neurodegeneration and rare genetic diseases.

"Increasingly the therapeutics are biological entities that require a vector to deliver them to the insides of cells.

"Solving the bottleneck of biopharmaceutical delivery into cells is a major remit of *COMPACT* and the hope is that it will lead to development of new drug delivery systems that efficiently deliver therapeutics to reach intracellular targets."

Research boost for midwifery

Research in midwifery, obstetrics and public health has been boosted by the appointment of Professor Billie Hunter as Professor of Midwifery Research.

The focus of the role is on improving the quality of care for childbearing women and their families. Professor Hunter will develop and lead high quality clinical midwifery research that will make a significant difference not only to the midwifery profession, but to women in Wales and further afield.

The post is supported by the Royal College of Midwives (RCM) and with start up funding from the Welsh Government.

Professor Sheila Hunt, Dean and Head of the School of Nursing and Midwifery Studies said: "I am delighted that Professor Hunter has joined the School and welcome the vision, commitment, collaboration and support from both the RCM and the Welsh Government in creating this post.

"The opportunity to build strong collaborative links with other researchers in Cardiff University is vital to the future success in developing midwifery research.

Midwifery research is at its best when it is a team effort and the infrastructure of support at Cardiff and in Wales is superb.

"Professor Hunter joins world-leading researchers in midwifery, obstetrics and public health and will have the opportunity to be involved in new research which will make a difference to women and their families, not just in Wales but across the world."

Professor Hunter has been a midwife since 1979, working in NHS, voluntary sector and independent

Professor Billie Hunter

midwifery settings, before moving into midwifery education and research in 1996.

Alongside the Professor of Midwifery post, the University is also home to the Royal College of Nursing Professor of Nursing, Professor Danny Kelly.

Research appeal secures 1,000th volunteer

Professor Nick Craddock

An all-Wales research centre which brings College experts together with frontline health professionals to develop new ways to improve services and treatments for people with mental health problems has successfully recruited its 1000th volunteer.

The National Centre for Mental Health (NCMH) has issued an appeal for people to join the Wales Mental Health Network (WMHN).

The Network includes individuals from childhood to old age who suffer with mental health problems including people with neuro-developmental disorders such as ADHD and Autism, major psychiatric disorders such as Schizophrenia, Bipolar Disorder, and Post Traumatic Stress Disorder (PTSD) and neurodegenerative disorders, such as Alzheimer's disease.

"Traditionally it's been difficult for people to come forward to discuss their mental health problems to help others - we want to change that," according to Professor Nick Craddock from the College's School of Medicine and NCMH Director.

"Mental health problems can affect anyone regardless of age, location, race, gender or social background and our research aims to use patients' experiences to ensure services and treatments reflect the needs of sufferers.

"We've rapidly recruited our first 1,000 volunteers – but we need more volunteers to come forward to help others. The process is simple and straightforward and we would urge as many people as possible to join the Network," he added.

£2.4M for cancer research

Experts from the College's European Cancer Stem Cell Research Institute have received a £2.4M funding boost to investigate cancer causes and developing new therapies to halt its spread.

Professor Alan Clarke and Senior Lecturer, Dr Matthew Smalley were awarded the funding by Cancer Research UK to drive forward their research in cancer stem cells.

Professor Clarke, who is also Head of Research at Cardiff's School of Biosciences, said: "Cancer stem cells are a small population of tumour cells believed to be responsible for the formation, growth and spread of cancers. Our work is aimed at understanding the fundamental properties of this important cell type and has the potential to transform the way we tackle cancer.

"The funding received will help us to continue on our research journey to better understand the function and application of our research findings, testing novel therapies based on nanoparticle technology to develop novel anti-tumour strategies."

Dr Smalley's research strives to identify what drives the differences between various types of breast cancer, and what drives the differences between individual tumour cells within a breast cancer.

Dr Smalley adds: "The grant will go a long way to supporting my research aims, which are to clarify the origins of breast cancer stem cells and to develop more targeted therapeutics.

"Defining the biological basis of these differences will help better target current therapies to those who really need them while avoiding unnecessary treatment for those who do not. It will also enable us to develop therapies targeting specific tumour and cell types, including tumour cells with stem cell-like properties."

Cancer Research UK programme grants are awarded to outstanding individuals with an established scientific track record and are generally intended to be held for five years.

Meet the Team: College Board

College Board

Chaired by the Pro-Vice Chancellor Professor Dylan Jones the Board members consist of the Heads of Schools and College Deans for Research, Education & Students, and International, and the College Registrar.

The Board acts as an advisory body to the Pro Vice-Chancellor for the overall direction, management and activities of the College.

Together they are responsible for the direction of the College's 2,000 academic and professional staff, 7,000 students and nine academic schools.

"Drawing together the research and teaching expertise from across biomedical and life sciences offers enormous potential for the new College," according to Professor Jones.

"In the Heads of Schools and the newly appointed College Deans we have a vast array of skills and talents. All of the College's Schools bring strengths and opportunities which we can now develop collectively in a way not possible before.

"Many of our disciplines were ranked amongst the very best in the last Research Assessment Exercise, so we are strongly placed to contribute to the achievement of the University's wider target of a top ten position next time round," he adds.

Another focus of work for the Board will be to build on the existing strong base of engagement with Wales, the UK and internationally, helping out the University and putting Wales on the world map.

"Drawing together the research and teaching expertise from across biomedical and life sciences offers enormous potential for the new College."

"The College is responsible for providing much of the future workforce for the NHS in Wales.

"From GPs working in communities across Wales, to the nurses, physiotherapists, optometrists and dentists - it's this College's graduates who see to our nation's every healthcare need.

"To ensure this remains we must renew our efforts to make Cardiff and this College the destination of choice for Welsh and UK students and do more to sell the unique benefits that come from studying in a research intensive environment like Cardiff."

In the coming months the Board is set to focus on further establishing the College's strategic direction and developing an investment plan to enable it to meet its ambitious objectives.

Professor Jones adds: "Our most important investment will continue to be in our outstanding academic and administrative staff. I look forward to working with all of them as we take the next steps toward the achievement of our academic ambitions"

Cardiff People

Hannah Pask, Heath Park Campus Officer Cardiff University Students' Union

I graduated from the School of Healthcare Studies in 2012 with a first in Physiotherapy. Although academic study was not always something I found easy, I thoroughly enjoyed my time at Cardiff University. It was my involvement in the Broadway Dance Society that encouraged me to run for Heath Park Campus Officer, because of the clear need to make Park Place based activities accessible to those at the Heath Park Campus.

Four years ago, hundreds of healthcare students stormed the AGM to request a new sabbatical position to ensure they were fairly represented within the Students' Union and won.

Therefore I have prioritised giving these students a voice, by gathering the student opinion to improve the student experience, which has involved lobbying for more social space, better signage, improved safety or improved access to the student support centre.

I have also undertaken a large piece of research to investigate what students think of their time on clinical placement, to make sure these students are not forgotten when they are studying away from campus.

I feel really privileged to have been elected to represent the 7,000 healthcare students at Cardiff University - it really has been an amazing year.

Dead or alive - who would be your three ideal dinners guests and why?
Any three of my close friends and family, because you can guarantee it would be a great dinner.

Describe yourself in three words
Enthusiastic, excitable, caring.

In Desert Island Discs style, if you were cast away alone on a desert island which three songs would you take with you?
Together Again by Janet Jackson – An absolute tune from my childhood
Catch my Breath by Kelly Clarkson – I love her music
On My Way by Boyce Avenue – Such a beautiful song

Who and what inspires you most?
I don't think I can put this down to just one person or one thing. It's often the people that you meet every day that can make you so excited about achieving in the future.

Hannah Pask

What makes you smile?
I have always enjoyed dancing, it's my way of expressing myself.

Tweet or not to Tweet?
Tweet, but I don't have a smart phone so I'm not too great at keeping up to date with my twitter feed.
@HeathParkCSU

What makes you get out of bed in the morning?
This definitely used to be chocolate spread on toast, but then I decided it would be better to go with a healthier option.

If you could banish one thing into room 101, what would it be?
Unhappiness – I'm a happy person, and I hate to see anyone in distress. And who likes being grumpy?

Who has been the biggest influence on you during your time at the University?
Harry Newman (current Student Union president), for suggesting I run for this job. He changed my perspective on my future, which has given me so many opportunities to do amazing things and work with amazing people.

If you were Vice-Chancellor for the day what would you do?
I would give free internet access to all students that study away from the university campus, so that they can access the online resources all students need without difficulty.

Hadyn Ellis to welcome new research residents

Hadyn Ellis building

Two of the College's leading Research Institutes are gearing up to move into their new home.

The University's new Hadyn Ellis building will host to the College's European Cancer Stem Cell Research Institute and Neuroscience and Mental Health Research Institute as well as the flagship MRC Centre for Neuropsychiatric Genetics and Genomics.

The new building includes an attractive public area for lectures, displays and conferences about the University's work.

The building is named in honour of the late Deputy Vice-Chancellor, Professor Hadyn Ellis. Professor Hadyn Ellis was highly influential in the development of the University until his death in 2006.

In his own field, he was a pioneer in the cognitive psychology of face recognition. He published groundbreaking research on prosopagnosia – the inability to recognise faces following brain injury.

Professor Ellis became Pro Vice-Chancellor for Research in 1994. This period saw the University double its research income and shoot up the national league tables for research.

Scientists unite to solve mystery of mental illness

Some of the College's leading neuroscientists, stem cell biologists, psychologists and psychiatrists are set to break down scientific barriers in a bid to solve the mystery of mental illness and develop new treatments.

A team from the Neuroscience and Mental Health Research Institute have secured a £5.2M Wellcome Trust Strategic Award to combine the latest findings in genetics, brain imaging, animal models and stem cells.

By developing a novel approach - combining human, animal and cellular experiments for the first time - the team hopes to gain new understanding on how specific genetic risk factors impact on the brain and behaviour.

"Recent findings in genetics have advanced our understanding of mental illness and major psychiatric disorders in important new ways," according to Professor Mike Owen, School of Medicine, who leads the research.

"We now know that that disorders like schizophrenia, attention deficit hyperactivity disorder, autism and intellectual disability share some of the same genetic risk factors.

"They also point to an important role in these disorders for abnormalities in synapses – the structures through which brain cells communicate with each other.

"The next step in understanding these disorders is to take the genetic findings and trace them into how the brain functions and influences behaviour by harnessing recent advances in neurosciences and stem cell research," he added.

Cardiff has assembled a team of scientists with complementary expertise in psychiatry and neuroscience from across Medicine, Biosciences and Psychology.

By working across and integrating these different research areas, the team hopes it will offer new understanding and eventually lead to new treatments for psychiatric disorders.

Cardiff News

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Front cover image illustrates white matter tracts – nerves and fibres that form the 'wiring' of the human brain. Professor Derek Jones and Dr Silvia De Santis of the University's Brain Research Imaging Centre (CUBRIC) in the School of Psychology worked with local artist Phil Lambert to produce an exhibition called CUBART (CUBRIC-ART).

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