

Annual Review 2016

Creating global connections since 1828

OUR UNIVERSITY

★ THE FIRST MODERN UNIVERSITY IN THE UK TO BE INCLUDED IN THE QUACQUARELLI SYMONDS (QS) WORLD UNIVERSITY RANKINGS ★



181,714
MEMBERS OF
THE ALUMNI
NETWORK



256 Honorary Fellows of the University

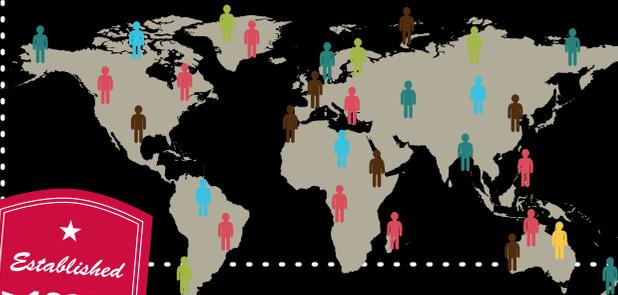
OVER **100** PROFESSORS

More than **600** research or knowledge transfer-active members of staff

825 RESEARCH STUDENTS

45 NATIONALITIES

represented within our academic staff body



PARTNERSHIPS WITH **125** INTERNATIONAL INSTITUTIONS ACROSS THE WORLD

Ranked in the top 1% of universities worldwide for the number of international students that we educate

One of the **largest** undergraduate research internship schemes in the UK with **over 400 students** having made major contributions to **high-quality research** projects

THE TOP UK UNIVERSITY FOR ENTREPRENEURS

- **number 1 in the UK** for graduates still running thriving businesses after 3 years



Over **£1 million** of University funding has enabled more than **1,000 students** to undertake a work placement or study period **overseas**



£ Annual turnover of nearly **£200 million** and every year we contribute indirectly in the region of **£300 million** to the local economy

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Foreword from the Chancellor

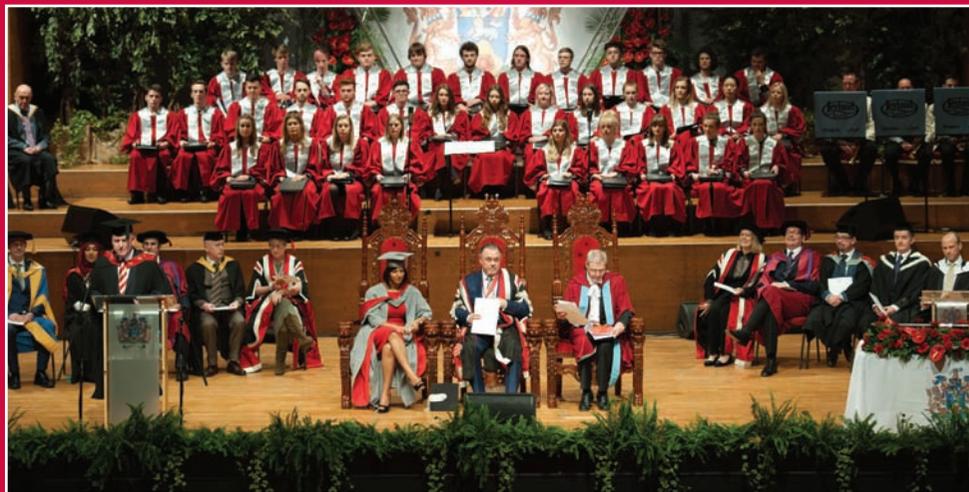
I am delighted to introduce our Annual Review for 2016, a year in which I was deeply honoured to accept the role of becoming the University's third Chancellor.

It is certainly apt that this year's review is themed around 'connections'. As a working journalist, I fully appreciate the importance of building contacts and networks, and in the coming years will do all I can to lead the charge for this great place of learning – a place that hones passions, and propels people of all ages to think big and reach their potential.

I think it is a testament to the University community that our mission still connects us to our farsighted founders who set out to bring education within the reach of working people at a time when money, position and religion were still the main entry requirements for aspiring students.

The following pages illustrate many examples of what the combination of education, aspiration, and ambition can achieve. It is a recipe that means over 92% of our students go into work or further study six months after graduation, which fills me with confidence that this University has an extremely bright future for all those connected to it.

Ranvir Singh, Chancellor,
University of Central Lancashire



Introduction from the Vice-Chancellor

Welcome to the University of Central Lancashire's Annual Review for 2016, which represents an ideal opportunity to highlight the many successes and achievements we have enjoyed over the last calendar year.

It was a period of great progress where we were named in the top 3.7% of worldwide universities; when our Campus Masterplan proposals went from a planning to development phase; and a year that culminated in winning the 'Excellence and Innovation in the Arts' category at the prestigious Times Higher Education Awards.

It was also a year where decisions made nationally could undoubtedly present new challenges for ourselves, the higher education sector and for the country as a whole.

Nationally, the vote for Brexit will bring about significant changes for everyone. EU and international students make a powerful contribution to university research and teaching – and have a positive impact on the British economy and society. It is critical that the concept of university education continues to be international in its outlook: studies clearly show that the most employable students are those who have spent time overseas and broadened their horizons through experiencing other cultures. With colleagues from across the sector, we are lobbying the Government to set out how we can secure opportunities for our researchers and students to access vital pan-European programmes, and build new global networks.

The Brexit decision only reaffirms my belief that we must intensify our strategies to

not only remain global in our outlook, but also reach out through local economic and community development programmes. Growing the skills of local workforces and fostering opportunities through locally focused enterprise, innovation and productivity has never been more important.

At the time of writing, the Government's new Higher Education and Research Bill is experiencing a bumpy ride through the Parliamentary process and we are yet to see if the overall intention of increasing the marketisation of the sector is to be realised. Whatever the outcome, rest assured that the University will be ready for what emerges once the bill becomes law. We have appointed dynamic, visionary and experienced leaders who will grasp the change agenda, embrace our ethos and work collaboratively with colleagues to drive our future success – realising the clear vision we have set ourselves through our 2020 strategy.

"Growing the skills of local workforces and fostering opportunities through locally focused enterprise, innovation and productivity has never been more important."



Our students remain at the centre of all we do, and as the following pages of this review demonstrate, student talent continues to shine through. As a university, it is our responsibility to draw out that talent, and ensure that our academic colleagues continue to connect with students so they can achieve their aspirations. For me, that is a true measure of our success.

Innovation within our curriculum provision is also key to student achievement and we are making bold strides. The University is committed to working with local employers on new and emerging educational models, such as degree apprenticeships, two-year degrees and earn-as-you-learn programmes. Indeed, we are working on a new model of educational delivery in conjunction with the Lancashire Enterprise Partnership, further education partners and local companies to ensure our future graduates meet the employment needs of the local economy. This is very much a first, and we are proud to

model a programme that Central Government may look to adopt and roll out across the UK.

You will see that this year there is a theme to our review. We are the University of Central Lancashire but we are also the university of 'connections'. We connect students to their career aspirations, we connect together research teams whose work is helping to change the world, and now we are doing much more to connect with our wider communities through deep-rooted engagement.

Community engagement goes hand-in-hand with our determination to realise our potential as a civic university. 'Reaching out' to the community will not only depend on what the University does, but also on the capacity of our local and regional partners to work together and 'reach into' the University. As a civic university, we see ourselves as delivering benefits to individuals, organisations and to society as a whole. It means putting in academic knowledge, creativity and expertise to come up with innovations and solutions that make a difference. It combines both economic and community strategies to produce new developments, research and learning that improve the business and cultural life of our citizens.

I am delighted that, through our own home-grown connections, we have installed our new Chancellor. In the summer of 2016 we

announced that Ranvir Singh, who graduated from our Postgraduate Diploma and Broadcast Journalism in 2000, would take up the role following Sir Richard Evans, who served us with distinction and commitment as Chancellor since 2001. Sir Richard has been a symbol of continuity in a period of enormous change for the University, ensuring the focus on our mission, our local roots in Lancashire and our will to innovate and succeed.

In January this year, Ranvir was officially inaugurated into the Central Lancashire family at a memorable ceremony at Preston Guild Hall – in front of an audience made up of staff, students and University friends. It was a day I will always remember and one that symbolically signified the beginning of an exciting new chapter in our University's development. In Ranvir we have someone who is hugely committed to the University, the city and the region. She will relish the challenges ahead and I look forward to working alongside her in the coming years.

I hope you enjoy reading about our latest achievements and I look forward to updating you again in the near future.



Vice-Chancellor,
Professor Mike Thomas

"We are also the university of 'connections'. We connect students to their career aspirations, we connect together research teams whose work is helping to change the world, and now we are doing much more to connect with our wider communities through deep-rooted engagement."



Year in review 2016



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January

World leaders in fire and hazard science visit University

The University holds an international fire toxicity conference that provides the only international forum for global experts to highlight research and open discussion on the hazards of fire smoke. The conference welcomes speakers from a whole host of international pools, including medical experts from the United States of America and Sweden, as well as the UK Government's Chief Fire Advisor, Peter Holland. ¹

Students' animation set for BBC show

Two undergraduates from the University see their ideas for short animations come to life on the BBC. Second and third year students Liam Springthorpe and Declan Holgate are named as two of the five winners of the Scream Street competition. In collaboration with animation company Factory, the students spend a week bringing their storyboard/animatic to life under the guidance of Jo Chalkley, a top motion animator with over 25 years' experience in the industry. ²

PhD student wins first place in global Korean studies competition

PhD student Priscilla Jung Kim wins a global competition for her research into North Korea. Priscilla is awarded first place in the 2015 'Academy of Korean Studies Research Paper Contest' and is handed a prize of £1,200. The first year PhD student, who originates from Los Angeles, submitted her paper that looked at what informal, non-governmental relationships exist between the USA and North Korea. ³

February

Success for soap partnership

A new creative partnership sees famous faces from Coronation Street and Emmerdale share the small screen with Central Lancashire students. Around 50 cast and crew work alongside 90 undergraduates to write, produce, act and direct a 15-minute drama. Filming takes place across the Preston Campus, which includes the new outdoor 'street' – a purpose built facility which features external frontage of a pub, a shop and two houses. Coronation Street's Connor McIntyre and Tisha Merry, and Emmerdale's Michelle Hardwick and Anthony Quinland, were cast in roles alongside the students. ⁴

Students claim prestigious law prize

Central Lancashire law students have been named the best mediators in the business. Dorota Estkowska, Charlotte Hurst, Matthew Smith and Josiah Raphael beat off stiff competition from 15 law schools around the UK to claim the 'Best Team' title at the National Mediation Competition. The two-day competition tests students on civil and commercial issues, assessed by 32 judges. The winning prize is a trip to Chicago to compete in the International Mediation Competition. ⁵

City centre shop to strengthen community links

Preston city centre sees a new shop open with a view to strengthening links between the University and the local community. 'In The City', on Lune Street, is to host both University-led and community group activities such as exhibitions, health and well-being services, business and legal advice workshops. Members of the local community are encouraged to send in proposals with ideas for any future events they would like to see take place. ⁶

March

Recognition for pioneering work in China

The University's pioneering work in China is recognised at a prestigious awards ceremony. Named as a finalist in the educational links category of the UK Trade and Investment Greater China Awards, the Central Lancashire entry focuses on the success of the UK outward mobility scheme 'Journey to the East'. The scheme, a joint initiative between Lancashire Business School and key partners in Beijing, Shanghai and Fuzhou, enables successful students to travel and liaise with Chinese students on different cultural sessions to develop skills and learn more about business in China. ⁷

Crowning glory

Fifth year undergraduate dentistry student James McParlane wins the dental industry's equivalent of The X Factor. James fights off tough competition in an intense final of the Dental Clinical Skills Competition, in Edinburgh, to be announced the winner of the event. The tests range from suturing and fracture restoration, to communicating with patients and tooth shade matching. The competition is now in its second year and is designed to showcase the dental talent of the UK's undergraduate dentists and to help develop the best skills for future careers. ⁸

University links with St Catherine's Hospice

A new partnership between UCLan and St Catherine's Hospice is set to pave the way for greater collaborative working in the future between staff, students, researchers and lecturers. The aim is to raise standards and improve access to quality care for the Central Lancashire community. Work will be built around themes of developing expertise; encouraging internships; volunteering and working together on new research projects. ⁹

April

Sir Kevin Smith joins EIC Steering Group

UCLan alumnus, Sir Kevin Smith CBE, is appointed to a steering group that is shaping the future of the University's Engineering Innovation Centre (EIC) – a key project within its £200 million Masterplan. The group already plays a significant role in ensuring the EIC meets industry needs and maximises graduate recruitment in key engineering skills gaps. The £30 million plus EIC aims to exploit the University's location at the heart of one of the most intense engineering and manufacturing areas in the UK, and establish the University as a leader in engineering innovation. ¹⁰

University unveils new £200,000 telescope

Astronomy fans in Preston are celebrating after the University unveils a new £200,000 telescope. The highly specialised Altitude-Azimuth reflecting telescope takes pride of place at the University's Alston Observatory. It is the largest telescope of its kind at a university in the north of England and the third largest in the UK. ¹¹

World science leaders meet in Preston

The world's leading experts in nanoscience and technology visit Preston to take part in a first-of-its-kind event. More than 130 academics and industry specialists attend the first International Symposium on Functional Nanomaterials in Industry Applications. During the conference, the delegates discuss and share information on how the development of ultra-small particles can be used to help solve global challenges in health, medicine, soil and water contamination, and green technology. ¹²

May

Lancashire's volunteering stars honoured at annual awards event

Volunteering champions in Lancashire are recognised at the annual Volunteering and Community Leadership Awards held by the University. Organised by the Centre for Volunteering and Leadership, 71 awards across 14 categories honour the hard work that people do in their free time to make a difference to communities across Lancashire. The Centre's aim is to develop community cohesion through active citizen projects, and works with more than 200 organisations across the country to provide volunteering opportunities. ¹³

UCLan psychology lecturer recognised for major research contributions

Professor John Archer receives the 2016 Scott Award from the International Society for Research on Aggression, after contributing significantly to aggression research. Professor Archer is also Editor-in-Chief of the journal, Aggressive Behaviour, and has been an active researcher for more than 40 years. His research focuses on sex differences in aggression in relation to sexual selection, as well as partner violence. ¹⁴

Kenyan schools benefit from University action

Health students help young people in Kenya continue their education while learning about women's health in different cultures. Four students on midwifery, children's nursing and sexual health courses visit the Maasai community, in Kenya, after raising more than £1,500 for the MaaChild charity. The charity provides educational bursaries for local children to continue their schooling at secondary level. In addition to fundraising, students also took equipment such as uniforms and gloves to use in clinics, as well as toiletries. ¹⁵

June

Research highlights benefits of independent advocacy for children in care

Research led by Professor Nigel Thomas for the Children's Commissioner for England is published in a key report. The research is carried out in partnership with the National Children's Bureau Research Centre and shows the value of independent advocacy for children and young people in care and protection, mental health and youth justice provision. The findings are varied, including increased confidence among young people, and positive changes in the way services are provided. The research team make suggestions as to how these outcomes can be understood and how the quality of this service can be improved. ¹⁶

Two new Deputy Vice-Chancellors appointed

The University appoints two new Deputy Vice-Chancellors to its Executive Team. Dr Lynne Livesey moves from her role as Central Lancashire's Pro Vice-Chancellor to become Deputy Vice-Chancellor (Academic) while Liz Bromley is welcomed from Goldsmiths, University of London, to take up the role of Deputy Vice-Chancellor (Corporate Planning and International Strategy). ¹⁷

Preston rolls back the years to the 1940s

An organised collaborative event attracts more than 100 people to a Navy, Army, and Air Force Institutes tea party in celebration of Armed Forces Day. Awash with 1940s glamour, civic dignitaries and members of the public join staff and students from UCLan to celebrate the day in Preston's Old Post Office. Stepping back in time, guests experience all the fun of the decade, and favourite wartime tunes are played by the Leyland Band. ¹⁸



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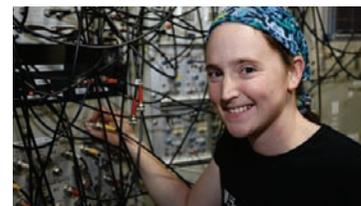
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July

Chris Boardman pedals into Preston

Hundreds of local cycling enthusiasts listen to Chris Boardman, who talks about his record-breaking career at an event held at the University. The Olympic gold medalist shares stories from his long-awaited autobiography *Triumphs and Turbulence* at 'In Conversation With', hosted by BBC Radio Lancashire's John Gilmore.¹⁹

University's Lancashire Science Festival attracts thousands

Around 17,500 pupils, teachers and members of the public attend the free Lancashire Science Festival hosted by the University. Treated to a variety of interactive and entertaining shows and activities across the three-day festival, visitors are stunned by the performances at the science, technology, engineering and maths event. These include the Defying Gravity Stunt Show, the Amazing Acrobalance Duo and the Experimentrics Theatre Show. Handling a piece of the moon, using remote controlled mini robots, and building model Lego bridges over Preston rivers were some of the popular activities available.²⁰

Young Scientist Centre strikes gold

The University wins the Best Community Engagement Campaign prize for its pioneering UCLan and Royal Institution of Great Britain (Ri) Young Scientist Centre. A collaborative partnership with the Ri, Central Lancashire fights off competition from nine other shortlisted universities to win the Gold Award at the HEIST Awards for Education Marketing. Opened in 2015, the centre is the first-of-its-kind in the UK.²¹

August

Entrepreneurs impress on international stage

Budding entrepreneurs pitch their business ideas to investors in China after winning the UK stage of an international business competition organised by the University. The China Innovation and Entrepreneurship Competition, which is now in its eighth year, offers UK small and medium-sized enterprises the opportunity to receive financial and commercial support to help establish a business in China. Six teams are shortlisted and will travel to China to compete with the hope of accessing a share of approx. £200 million in funding from the Shenzhen Municipal Government and private pledges.²²

Oesophageal cancer research breakthrough

The University's Professor Janusz Jankowski co-leads an international study into oesophageal cancer. The findings reveal new genes that provide further evidence towards the causes of the disease and could be used to develop novel, targeted and personalised treatments for those predisposed to it. The research is a major international collaboration led by scientists from a wide range of universities including Cambridge, Oxford and Washington. It identifies nine new genes involved in the development of oesophageal cancer and precursor Barrett's oesophagus. The findings are published in the peer-reviewed *Lancet Oncology Journal*.²³

Football is an international dialogue

Reporting on their latest trip from Morocco, The Centre for Volunteering and Community Leadership (CVCL) staff and students help at an orphanage in Agadir to set up a football club for the boys and young men. The Centre Sauvegarde de l'Enfante Garcons caters for around 92 boys up to the age of 18, and the objective of the visit is to set up somewhere for them to play football within the centre. This project aligns to the CVCL and UCLan Sport agenda for FIFA 2018 in Moscow, where the University is invited as a key partner in developing the Football Volunteering programme.²⁴

September

Film festival raises mental health awareness

The University celebrates a decade of stamping out stigma, and raising mental health awareness, with its free 'One in Four' Film Festival. Organised by the University's Comensus and Service Users, and Carers Advisory Group, the festival runs from 10 to 14 October with the first day marking World Mental Health Day. Aiming to bring mental health issues to a much wider audience, a different film is screened each day with the line-up including *The Danish Girl*, *Up* and *Inside Out* amongst others.²⁵

Healthcare needs of young trafficking victims aren't being addressed, study finds

A revealing research study relating to healthcare provisions for trafficked young people is published in the international journal: *Child Abuse & Neglect*. The study finds a high prevalence of mental health barriers to care, while healthcare professionals are highlighted as needing to show greater compassion and sensitivity when dealing with young victims. Professor Nicky Stanley works in partnership with researchers at King's College London amongst others for the investigation. The study highlights several areas for improvement that will allow healthcare professionals to provide a more compassionate and supportive service to people who often fall outside of the system.²⁶

University rewarded in best value survey

The University sweeps the boards in a survey for finding the best value for students. Central Lancashire receives four awards, including one gold, from online discount site MyVoucherCodes.co.uk. The gold award is received for offering free gym membership to all students and the silver award is given for the low prices of University clothing such as t-shirts. Finally, the bronze award is given for the low cost of the University's accommodation.²⁷

October

Exploring death and disaster in former prison

The University's Institute for Dark Tourism Research organises an event in which dark tourism experts from around the world meet to examine society's interest in sites of death and disaster. Held in the 'A' wing of former HM Lancaster Prison at Lancaster Castle, project partners from the universities of Manchester Metropolitan, Bath, Durham, Hull and York, gather for the 'Packaging up Death and the Dead for the Contemporary Visitor Economy' conference. Speakers from the UK and USA look at what makes people want to visit sites of death and disaster, how appropriate this is, and whether visiting such sites is insensitive and exploits those affected.²⁸

Lecturer leads national paramedic education

Senior lecturer Lizi Hickson steps up her role in shaping the UK's paramedic education as she is appointed as the Trustee for the ambulance practice's professional body. Lizi, who works as a practising paramedic for the North West Ambulance Service, is also course leader for the Dip HE Pre-Hospital Care (education for paramedics) at the University, and takes on her new role as Trustee Official for Education for the College of Paramedics. Lizi will represent all College members' interests in education and career development, as well as reviewing the profession's teaching curriculum.²⁹

Accolade for UCLan medical student

Jamal Khudr, a second year Bachelor of Medicine and Bachelor of Surgery student, wins the award for the best oral presentation at the 2016 North West Student Research Conference. Fighting off competition from 50 students from other universities, Jamal's presentation focuses on the association between helicobacter pylori and peptic ulcer disease. The judging panel is made up of members of the Madagascar Medical Expedition group, which carries out research and annual trips to Madagascar to help treat schistosomiasis, a parasitic disease.³⁰

November

For my eyes only

Five-time James Bond film director John Glen is given a license to thrill a packed audience at the University as he officially opens the annual Great Northern Creative Festival. John, who in total has worked on eight James Bond films and directed all those made in the 1980s, shares stories from his long and successful career in 'an audience with...' style event on the first day of the annual media festival. The festival showcases creative student talent in media, film, photography, journalism and performance. Over 100 events take place during the festival with performances, exhibitions and guest speakers coming to the University.³¹

International visitors discuss future relationship

International academics from China visit Preston to discuss potential new ways of working with the University. Baogang Cao and Hongo Zhang, from the Hebei Academy of Social Science, speak to a range of staff from across the University before meeting local civic dignitaries and taking a tour around the Harris Museum. During their two-day stay, the visitors learn about Central Lancashire's current international partnerships, areas of research and innovation, knowledge transfer and business development opportunities.³²

Scientist swaps lab bench for the green bench

A scientist from Central Lancashire trades a lab coat for legislation as she meets with parliamentarians and civil servants in Westminster as part of a unique pairing scheme run by the Royal Society. Dr Megan Argo, from the Jeremiah Horrocks Institute for Mathematics, Physics and Astronomy, will pair with Chris Green, MP for Bolton West, and civil servants to explore how research findings can inform policy making. The visit provides scientists with a behind the scenes insight into how policy is formed and how they can share their expertise with policy makers.³³

December

UCLan hosts major table tennis event

Olympic Silver medallists, Germany, beat England at the Sir Tom Finney Sports Centre, which hosts a European Championship qualifying table tennis match. England Leopards women lose the tie 3-0 overall in nine matches. The visitors are three-time European Champions and were Olympic Silver medallists in the Rio 2016 Games, with world number six Shan Xiaona included in the team. Big hitters from the England squad included Commonwealth Games medallists Tin-Tin Ho and Kelly Sibley.³⁴

Academic honoured for dental service

Angela Magee, Head of UCLan's School of Dentistry, is selected as a Fellow of Dental Surgery of the Royal College of Physicians and Surgeons, Glasgow. The Dental Surgery Fellowship is offered to dental surgeons who have made substantial contributions to their speciality. Angela is chosen in recognition of her major involvement with dental education at the University where she has worked since 2008.³⁵

Neonatal knits bring festive cheer

Festive cheer is brought to neonatal units throughout the county thanks to a University-inspired community project. The University's community engagement team delivers knitted items to four county hospitals in Preston, Lancaster, Blackburn and Burnley. Volunteer knitters, who meet once a week in UCLan's city centre shop, create 200 knitted items including hats, booties, mittens, cardigans and blankets for premature babies.³⁶

CONNECTING THROUGH RESEARCH

Growing a vibrant community of academic innovators, nurturing postgraduate students and early-career researchers.

University of Central Lancashire Strategy 2015-2020



Researchers make out of this world discovery

Does life exist beyond Earth? It's the age-old scientific question that we're still seeking the answer to, and has been the subject of many sci-fi films over the years. Our Sun is one of 300 billion stars in a universe with billions of galaxies, so it is unlikely that Earth is the only place where life has evolved – yet if the truth is out there, so far we haven't found it. However, last year we came a step closer when astronomers from around the world, including a postdoctoral research associate from the University of Central Lancashire, discovered a record seven Earth-like planets orbiting a star 40 light years away.

The NASA Spitzer Space Telescope revealed the first known system of seven Earth-sized planets around a single star. Three of these planets are located in an area called the habitable zone, the right distance from the star where they aren't too hot or cold for liquid water to exist. The system sets a new record for greatest number of habitable zone planets found outside our solar system, and any of these seven planets could have liquid water – key to life as we know it.

At about 40 light-years (235 trillion miles) from Earth, the system of planets is relatively close to us, in the constellation Aquarius. Because they are located outside of our solar system, these planets are scientifically known as exoplanets.

This exoplanet system is called TRAPPIST-1, named for The Transiting Planets and Planetesimals Small Telescope (TRAPPIST) in Chile. In May 2016, researchers using TRAPPIST announced they had discovered three planets in the system. Assisted by

several ground-based telescopes, including the European Southern Observatory's Very Large Telescope, Spitzer confirmed the existence of two of these planets and discovered five additional ones, increasing the number of known planets in the system to seven.

The new results were published in the journal Nature, and announced at a news briefing at NASA Headquarters in Washington.

Dr Daniel Holdsworth, a postdoctoral research associate at Central Lancashire's Jeremiah Horrocks Institute for Mathematics, Physics and Astronomy, was one of the European scientists involved in the project and monitored the TRAPPIST-1 system from South Africa in an attempt to measure the transit of the outer most planet.

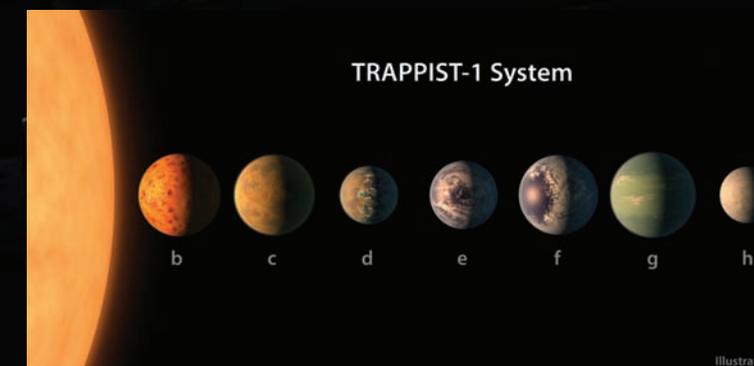
He said: "The TRAPPIST-1 planetary system hosts the largest number of exoplanets close enough to their parent star that liquid water might exist. By precisely monitoring the

brightness of the host star, we have been able to detect the planets as they pass in front of the star and block a small amount of light. By knowing how big the star is, and measuring how much light is blocked, we can calculate how big the planets are. The planets are small and rocky and are comparable in size to Earth. At just 40 light years away, this makes TRAPPIST-1 a prime target to study the atmospheres of exoplanets to search for traces of water, and even life, in this nearby solar system.

"As the TRAPPIST-1 star is very cool, just 2,550 degrees compared to the Sun at 6,000 degrees, the team used NASA's Spitzer space telescope, which is very sensitive to red light, to monitor the star for 500 hours. These data, in conjunction with data collected at some of the largest telescopes around the world, led to this fantastic discovery."

Thomas Zurbuchen, associate administrator of NASA's Science Mission Directorate in Washington, said: "This discovery could be a significant piece in the puzzle of finding habitable environments, places that are conducive to life."

He added: "Answering the question 'are we alone' is a top science priority and finding so many planets like these for the first time in the habitable zone is a remarkable step forward toward that goal."



The TRAPPIST-1 system planet line-up.



An impression of what one of the TRAPPIST-1 exoplanets might look like.

Dr Daniel Holdsworth pictured at the University's Alston Observatory.



All in the mind

Research uncovers the key factors that separate the also-rans from the champions

The road to sporting success never runs smooth. The years of dedication to training are mentally and physically draining as the objective of striving to become a winner looms large on the horizon. But what makes a talented youngster achieve greatness and realise their dream of becoming a champion?

It is a question that millions of coaches, parents and aspiring athletes around the world have sought the answer to. In 2016, the University's Professor Dave Collins was the lead author on a study which suggested what really distinguishes champions is how they navigate a 'rocky road' and overcome such obstacles.

The research team discovered that learning how to navigate the rocky road, which is often riddled with small doses of trauma both on and off the field, was a key part of shaping the attitude and mindset of athletic superstars. The research pinpointed the number one commonality among athletes who achieve greatness was that they had experienced periods of adversity on their ascent to the top.

Professor Collins, Chair and Director of the University's Institute of Coaching and Performance, said: "We found that there are universal psychological characteristics amongst those who are aspiring to lead their field. We have a good idea of what makes people excellent and how we can help them reach peak performance."

By interviewing athletes from varied sports such as football, rowing, skiing, and combat sports, Professor Collins and his collaborators – including Central Lancashire Reader Áine MacNamara – sought to find distinguishing characteristics between the best of the best, the good, and those that didn't quite make the cut. For each participant, they collected information about career trajectory, perceived challenges and the participant's reactions to such obstacles. Interview questions also explored participants' commitment to their sports and their interactions with coaches and families.

The results showed that elite performers expressed an internal drive and commitment to their sports that their 'almost' great colleagues lacked. The elite approached

training with a "never satisfied" attitude, whereas 'almosts' might avoid challenging training exercises. Following an injury or a failure to perform, high performers were determined to get back to their sports, stronger than ever. Low achievers, on the other hand, often expressed surprise at their failures, explaining how they lost enthusiasm after such incidents.

Despite these differences in the athletes' attitudes, there was surprisingly little variation in the nature or number of the challenges themselves. All had roughly comparable traumatic incidences during their careers. More than the challenges themselves, the differences came down to how the athletes reacted to these obstacles and the champions' positive "learn from it" attitudes.

Professor Collins added: "From our research, we're assembling a set of rules to guide coaches so they can better equip athletes with the skills and mental strength they need to reach their potential. Furthermore, these characteristics hold true for other fields as well, from sports to music to any environment."

While challenge may be integral on the path to success, this research suggests that challenge is not sufficient in itself. An aspiring athlete's attitude towards challenge is what most distinguishes the champions from the rest.

'The Super Champions, Champions, and Almosts: Important Differences and Commonalities on the Rocky Road' study was published in the open-access journal, *Frontiers in Psychology*.

"We found that there are universal psychological characteristics amongst those who are aspiring to lead their field. We have a good idea of what makes people excellent and how we can help them reach peak performance."

Cancer's origins run deep

New research highlights prehistoric tumour discovery

An estimated eight million people around the world die from cancer each year, making the disease one of the most common causes of death in modern humans – yet the origins of cancer have remained a mystery for many years. There are many arguments around what causes the disease, with some suggesting modern lifestyles and environments are to blame and that cancer is not a naturally occurring condition. While it is true that the number of people affected by different types of cancer has risen since the industrial revolution, ground breaking research in 2016 found that the origins of cancer in the human family go back much further than we ever anticipated, in fact to almost two million years.

An international team of researchers, led by the University of Central Lancashire's Dr Patrick Randolph-Quinney, diagnosed the most ancient evidence for cancer and bone tumours ever found in the human fossil record – with bones recovered from two cave sites in South Africa. These caves, located in the Cradle of Humankind UNESCO World Heritage Site, have produced some of the most compelling evidence for human evolution covering the last three million years, and are now giving clues about the diseases and ailments that affected our ancestors and extinct cousins.

The core of the research was the diagnosis of malignant cancer in a fossil foot bone, dated to around 1.7 million years ago, from the site of Swartkrans. Though the exact species to which this bone belongs is unknown, it is clearly that of a hominin, or bipedal human

relative. The cancer was identified as an osteosarcoma, an aggressive form which usually effects younger individuals, and if untreated typically results in death. This research was published in the South African Journal of Science. In an accompanying paper in the same journal, the team identified the oldest non-malignant tumour ever found in the human lineage. A benign osteoid osteoma was found in the vertebrae of a juvenile of the species *Australopithecus sediba*, from the site of Malapa, which dates to just under two million years ago. The oldest previously demonstrated possible hominin tumour was found in the rib of a Neanderthal and dates back around 120,000 years ago.

The research on both papers was coordinated by Dr Randolph-Quinney, and comprises researchers from the University of the Witwatersrand's Evolutionary Studies Institute and the School of Anatomical Sciences; New York University, Chaffey College, Duke University, and Lincoln Memorial University in the United States; the South African Nuclear Energy Corporation (NECSA); and the European Synchrotron Radiation Facility (ESRF).

Dr Randolph-Quinney explained how these discoveries came about: "The presence of both malignant osteosarcoma and a benign osteoma in such ancient hominin fossils came as a surprise. Recent work on Egyptian mummies by researchers at the University of Manchester failed to identify incidences of neoplasia (the general term for cancers and tumours), which led them to suggest that it was absent in the pre-modern world. However, this conclusion may simply be down to the use of inappropriate

imaging and diagnostic methods applied to mummified remains."

Unlike previous studies using clinical tomography, both fossil cases were diagnosed through the use of state-of-the-art 3D imaging technologies, including synchrotron tomography and micro-computed tomography. The team also applied a comparative clinical diagnostic methodology (a form of virtual histology), which has not been attempted before. Even though the Swartkrans fossil was found over 50 years ago, it is only now, thanks to innovations in non-invasive imaging, that researchers can peer inside cellular makeup of these fossils to reach a firm diagnosis.

"We know from the fossil record that tumours and cancers affected 300-million-year-old fish, and later ancestral reptiles and the dinosaurs" said Dr Randolph-Quinney. "Our research complements a growing body of evidence that malignancy occurs in almost all complex animals in the fossil record, suggesting that the mechanisms behind cancers have a very old evolutionary history. Thanks to the study of fossils we know that malignancy and tumorigenesis is ancient and may be implicitly linked to the evolution of both bone and cartilage – primary cancers may thus be unavoidable consequences of vertebrate development and skeletonisation in complex organisms."

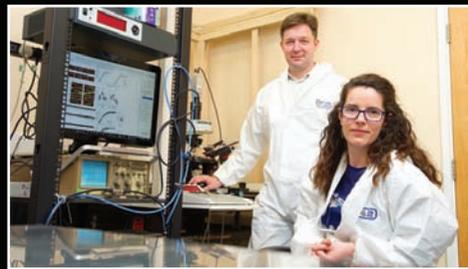
He added: "We are currently working on likely fossil tumours from Rising Star Cave in South Africa and Kanam in Kenya, which may allow us to track the emergence and evolution of cancers and other diseases through time."

Dr Randolph-Quinney, Senior Lecturer in Biological and Forensic Anthropology.

Major discovery could have global impact for understanding neurological diseases

Nearly one billion people around the world are affected by brain disease during their lifetime. Despite huge global investment into medical research, it means that one person in every six will suffer from one of more than 1,000 brain-related diseases or disorders. But, in 2016, a group of UCLan academics worked alongside research colleagues at other institutions to discover a novel way to manipulate the brain in order to strengthen the way we make memories. The work revealed a potential new treatment target for brain diseases like dementia and epilepsy among others.

The global study, which was the largest and most in-depth of its kind, uncovered a unique way to strengthen the connections in the hippocampus – the area of the brain responsible for memory and emotions – in its natural environment. The findings were published in the world-renowned scientific journal, *Nature Neuroscience*.



Dr Milos Petrovic and Dr Inma Gonzalez, the co-authors of the ground-breaking study.

Nerve cells in the brain communicate and transmit information across points of contact called synapses. By stimulating the synapses in the hippocampus – specifically specialised proteins known as kainate receptors in these synapses – the researchers were able to increase the number of signal receptors, called AMPA receptors, which are responsible for the storage of new information among other processes.

The breakthrough discovery of this new mechanism, which underlies the ability of our brains to learn and memorise new things, has wide-spread implications in many aspects of neuroscience and our understanding of how the brain works. The findings offer new avenues of research, including potential new targets for memory-related diseases such as dementia and Alzheimer's disease, and may also help us to better understand what happens in the brains of people suffering from epilepsy.

Dr Inma Gonzalez, leading co-author of the study and Lecturer in Neuroscience at the University, said: "The potential applications and reach of this discovery are huge, and we have only just started to explore the implications of this new memory-formation pathway. Our findings will open new research lines that will certainly contribute to our understanding of why we learn in different ways and, importantly, why our learning skills are reduced with age or disease."

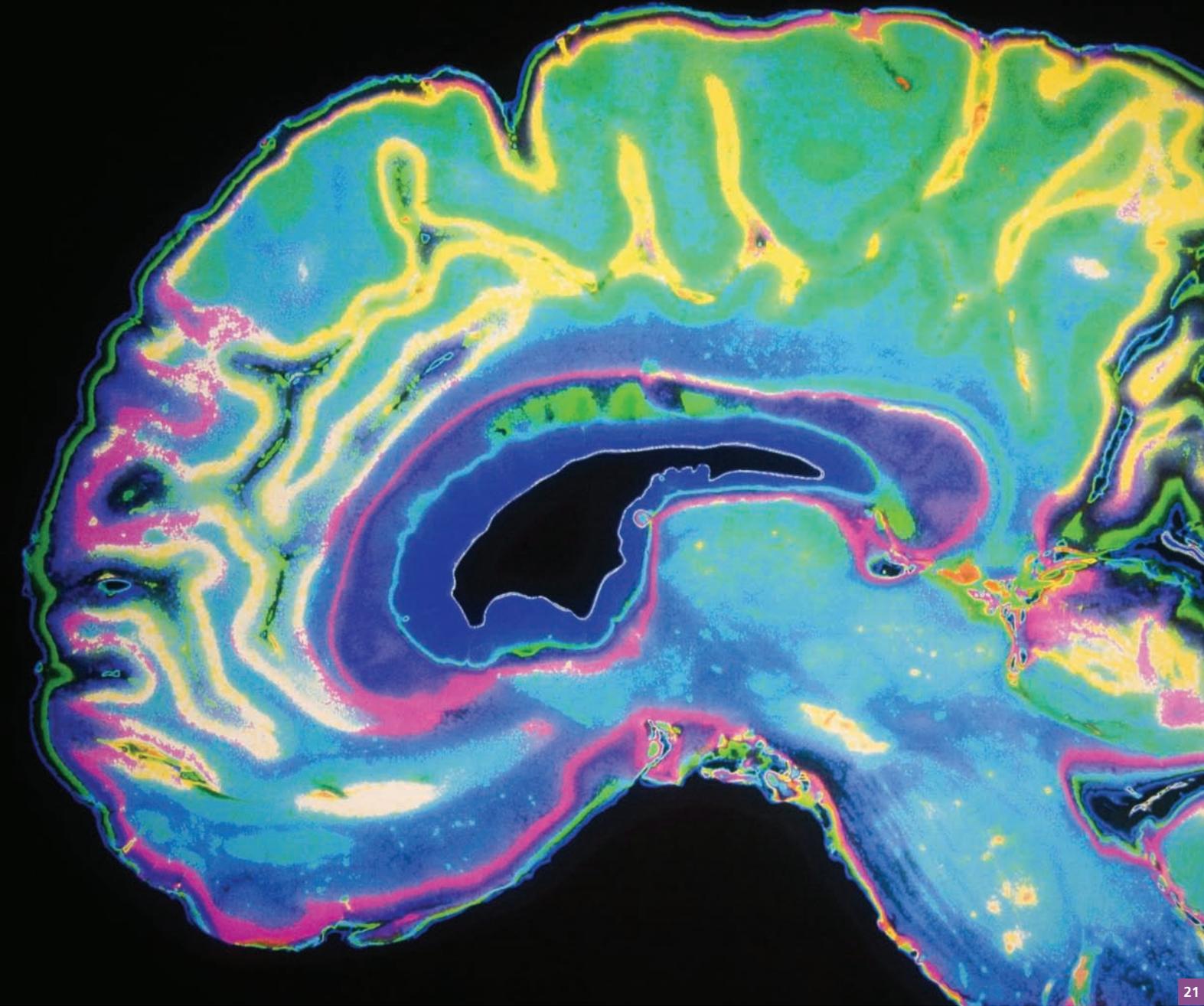
Dr Milos Petrovic, co-author of the study and Reader in Neuroscience at Central Lancashire, added: "Untangling the interactions between the signal receptors in the brain not only tells us more about the inner workings of a healthy brain, but also provides a practical insight into what happens when we form new memories. If we can preserve these signals it may help protect against brain diseases.

"This is certainly an extremely exciting discovery and something that could potentially impact the global population. We have discovered potential new drug targets that could help to cure the devastating consequences of dementias, such as Alzheimer's disease. Collaborating with researchers across the world in order to identify new ways to fight disease like this is what world-class scientific research is all about, and we look forward to continuing our work in this area."

In addition to the team at Central Lancashire and the University of Bristol, work was conducted with academics from India, France and the Czech Republic.

The study was funded by the European Research Council, the Medical Research Council, the British Heart Foundation and the Biotechnology and Biological Sciences Research Council.

"Our findings will open new research lines that will certainly contribute to our understanding of why we learn in different ways and, importantly, why our learning skills are reduced with age or disease."



Tackling the silent problem: what can be done to reduce stillbirths?

Remarkable progress has been made in recent decades to reduce the number of child and maternal deaths worldwide, yet stillbirths remain a neglected global issue. Little has been done to address this silent problem with a staggering 2.6 million stillbirths occurring per year around the world.

In 2016, new research from a study with significant contribution by a Central Lancashire professor, has found that in low and middle-income countries half of all stillbirths occur during labour and birth. The findings from the research project highlights that half of these deaths could be prevented with improved quality of care.

Published in *The Lancet*, 'The Ending Preventable Stillbirth' study also found that in contrast, in high-income countries such as the UK, the vast majority of stillbirths happen during pregnancy. It is estimated that women and parents who are from minority ethnic groups, or who are living in poverty, are more likely to experience the stillbirth of their baby. This new research highlights that the annual rate of reduction for stillbirths is 2.0 percent, much slower than progress made for maternal (3.0 percent) and child deaths (4.5 percent).

Further afield, new estimates of stillbirth rates for 195 countries developed by The London School of Hygiene & Tropical Medicine – alongside the World Health Organization and

UNICEF – reveal huge inequalities around the world. The highest rates are in Pakistan (43.1 per 1,000 total births) and in Nigeria (42.9). The lowest rates are in Iceland (1.3), Denmark (1.7), Finland (1.7) and the Netherlands (1.8).

The University's Professor of Midwifery Studies, Soo Downe, is a member of the Lancet Ending Preventable Stillbirths Series Advisory Group, and a co-author on the Economic and Psychosocial Consequences of Stillbirth research paper. She said: "Despite the relative frequency of stillbirths, the subsequent implications are overlooked and underappreciated. This undervaluation might contribute to the slow pace of change to address stillbirths on a national and international level."

Reducing inequalities is essential, since marginalised populations in all countries are much more likely to experience stillbirth and neonatal death. Other factors that could have an effect on reducing stillbirth include treating infections during pregnancy; strengthening access to – and the quality of – family planning services; tackling the global epidemics of obesity and non-communicable diseases; increasing respectful, collaborative, woman-centred continuity of professional care; and relationship-based social and community support during the maternity episode.

New estimates suggest at least 4.2 million women around the world are living with

symptoms of depression due to stillbirth – suffering from psychological distress, stigma and social isolation, as well as increased risk of family breakdown, abuse and violence. Fathers also commonly report suppressing their grief, and almost half of 3,503 parents surveyed in high-income countries felt society wanted them to forget their stillborn baby and try to have another child.

Professor Downe said the research echoes how important it is for a voice to be given to parents and families: "The global community needs to recognise the long-term effect of stillbirth on parents, families, staff, societies, and health and social care systems – including the challenges faced by parents after a stillbirth such as stigma and social isolation – and that the indirect and tangible costs of stillbirth are extensive and usually met by families alone."

Christina Sapulaye from Malawi, who experienced a stillbirth last year, commented: "It was a very painful situation to me and I never knew what to do... I am being stigmatised by my own people and was divorced due to the stillbirth, and now I am by myself with my little kids."

UN Secretary-General, Ban Ki-moon, added: "We must make a global push to eliminate the tragedy of the millions of mostly preventable stillbirth deaths that occur every year."

"The global community needs to recognise the long-term effect of stillbirth on parents, families, staff, societies, and health and social care systems."



CONNECTING WITH STUDENTS

Producing high-calibre graduates, with the right blend of skills and attitudes to succeed in their future careers.

University of Central Lancashire Strategy 2015-2020



Inspiring a new medical generation

School of Medicine aims to access the widest possible talent pool

The University has a strong track record of widening access to under-represented groups. The most recent Government figures show that Central Lancashire met or exceeded its targets, with 18.1 percent of young full-time first degree students coming from low participation neighbourhoods (target 15.5 percent), and 45.1 percent of young full-time first degree students being drawn from lower socio economic groups (target 39 percent).

Now the University's School of Medicine is aiming to enhance the University's success in this area, and indeed take a national lead, by attracting high quality applicants to its courses from the widest possible talent pool.

It's a strategy that the evidence shows is long overdue. Recent research by the Sutton Trust concluded that 61 percent of the country's top doctors were educated at independent schools; nearly a quarter (22 percent) went to grammar schools; and the remainder to comprehensives.

The data has reinforced longstanding anxieties that Britain's doctors and surgeons fail to mirror the profile of society.

Professor Cathy Jackson, Head of the UCLan's School of Medicine, said: "When we opened our doors in 2015, because of Government limitations on the numbers of funded undergraduate medical places for UK students, we were only able to accept

applications from self-funded international students. Now, thanks to the award of 14, fully-funded undergraduate medical places for UK students, we have the opportunity to 'grow our own' for the first time.

"Our research shows there are many highly talented students out there, from a diverse range of backgrounds, who would love the opportunity to study medicine, become a doctor and help solve some of the health inequalities that our local communities face."

Earlier in 2016, and in association with East Lancashire Hospitals NHS Trust (ELHT) and North Cumbria University Hospitals NHS Trust (NCUHT), the University's commitment to widening access to medical education was underlined further through the provision of two fully-funded scholarships for its MBBS (Bachelor Medicine Bachelor Surgery) degree, aimed specifically at students residing in the East Lancashire and Cumbria regions. The scholarships are targeted at local students whose circumstances mean they are unlikely to study medicine despite being academically capable.

Attracting current students to the School of Medicine is important but inspiring the next generation of doctors is just as crucial and, in 2016, the latest in a series of medical taster events was organised in conjunction with ELHT. Young people from across East Lancashire and beyond spent the day at the Royal Blackburn Hospital, followed by

a visit to the University's Medical School where they learned more about the medical profession and the training involved.

Luke Philippides, a 17-year-old pupil at St Mary's College in Blackburn, took part in the event. He said: "It's been a really insightful few days and I particularly enjoyed going onto the wards and speaking directly to patients. It's given me the first glimpse of life as a medical student."

Professor StJohn Crean, Executive Dean within UCLan's Faculty of Clinical and Biomedical Sciences, concluded: "We need to break down the barriers that prevent so many talented youngsters from accessing medical careers. We are taking a highly innovative and creative approach, which has been recognised by the Government who have awarded us fully-funded, undergraduate UK medical student places for the first time. We have also created further pathways into medicine by introducing foundation programmes through our educational partner trusts in both Cumbria and East Lancashire – as well as looking to expand other medically-related educational programmes with local partner colleges and University Technical Colleges.

"We are well on our way to realising our vision of creating an inclusive medical school that widens participation in medical education, and enables an integrated health and care provision in rural, remote and dispersed communities."

Warriors' partnership gives students the competitive edge

Sports industry professionals of the future know that to achieve their goals they need to learn on the job, working with current elite athletes and gaining hands-on experience that, combined with their studies, will set them apart when it comes to breaking into an ever-increasing competitive industry.

The University of Central Lancashire makes sure its students do just that. It has worked with Super League giants, Wigan Warriors, for the last eight seasons, developing a mutually beneficial relationship for both the club and University.

As the 'official university' of Wigan Warriors, Central Lancashire provides fitness assessments, video analysis support, strength and conditioning training and several University degree places for its staff. Students play an integral role by working with the Warriors, performing pre-season fitness tests for the first team squad using the University's high quality equipment to test each player against a range of physiological checks. These include the punishing VO2 Max assessment, which pushes the athletes to exhaustion and tests their aerobic capacity.

The Warriors last visited Central Lancashire for fitness testing ahead of the club's World Club Challenge game against the Cronulla Sharks, which they then went on to win. Speaking at the time, Director of Performance at Wigan, Mark Bitcon, said: "We're hitting pre-season as Super League Champions, which gives us a different approach as the World Club Challenge game against the Cronulla Sharks is at the front of all the players' minds.

"We're very lucky that we now have eight years' worth of accurate data from our visits to UCLan to work with, which puts us in a really strong position and helps us develop individual pre-season training programmes for each player."

Other opportunities for both undergraduate and postgraduate students include supporting strength and conditioning training during team visits to the University, and taking work placements with Wigan in areas such as management, media relations, performance analysis and sports therapy.

Dr Adrian Ibbetson, Head of the School of Sport and Wellbeing at UCLan, said: "The University has enjoyed working with the Warriors for a number of years now. It's a privilege to support the players and see them progress to such a high standard, while at the same time allowing our students to work directly with professional, elite athletes in an industry setting.

"Nothing can prepare you for work more than doing the job and our sports students, whether it be on a science, coaching, journalism, management or therapy related course, are able to learn from experienced tutors here at the University while gaining practical experience with Wigan."

One graduate who has benefited from the ongoing partnership is nutrition and exercise sciences graduate, John Wilkinson. John took a year-long internship with the Warriors during his studies before being offered a job with the club to assist in strength and conditioning.

He said: "Working with professional athletes at one of the best Super League clubs in England was a great opportunity. It was something I made the most of and I subsequently got this job on the back of it. I'm here to learn as much as I can."





Alumnus Kevin Crooks who won the DBACE award.

Graduate driven to creative success

For thousands of drivers who cross the Pennines on a daily basis, the M62 is seen as a vital stretch of motorway that can help or hinder the journey from home to work. The natural beauty outside of the window, and the interesting infrastructure on the 107-mile route, can often be lost on commuters desperate to avoid the lengthy tailbacks. However, for one recent graduate, the busy northern motorway provided the inspiration for a photographic exhibition which received national acclaim.

In 2016, Kevin Crooks entered his eye-catching work into the Deutsche Bank Award for Creative Enterprise and he was crowned the winner in the art and photography category. His captivating work gained unanimous approval from a panel of judges made up of top industry professionals.

He said: "I was delighted to win the award, particularly when considering the quality and standard of the work produced by previous winners. I was also thrilled to present my work to a group of judges that I admire and respect. Throughout my presentation they were incredibly supportive and constructive, and they asked questions that gave me the opportunity to discuss how I envisaged the project developing."

His award-winning work was part of an on-going social documentary project geographically centred within communities and towns which spread the length of the east to west motorway. The project began when he was studying a module within his MA Photography course.

Kevin, who also completed a fine art undergraduate degree between 1999 and 2002 at the University's Preston Campus, commented: "I was asked to produce a project that responded to the concept of

the Anthropocene – the new era in geology caused by human intervention, primarily the burning of fossil fuels. I felt that the M62 was a perfect location to visualise the effects of the Anthropocene because it has, and continues to have, a major impact on the landscape in which it is situated."

He was awarded £10,000 to continue his project and received a year's mentorship supported by Deutsche Bank and their network.

The married father-of-two added: "The award allowed me to continue to develop my own professional practice by providing me with the opportunity to produce a project that was ambitious and challenging, not only in terms of its potential size, but also in terms of the themes and concepts that I explored through the production of the work."

A photo-book of the first phase of the project, produced by Tide Press, will be released in mid-2017 while his work has also been published in the University's Photography publication North, Volume II.

Kevin graduated in 2015 and combined his photography study with a part-time lecturing role at a North West college. He studied part-time over two years for his Masters at Central



Lancashire and worked as a photography and art lecturer at Warrington's Priestley College.

He is now imparting his creative knowledge on to the next generation of photographers and artists in his role as Head of Photography at Carmel College, in St Helens.

"The award gave me such a boost," said Kevin. "To be recognised on a national level by experts in my field was tremendous and that encouragement has definitely fed through into both my own photography projects and the work I do with the students. They are a great group of youngsters who are willing to experiment with a range of ideas or techniques to make them think differently about what's around them. That enthusiasm really comes across in the work they produce and that's so nice for me to see."

Pictured above: One of Kevin's award-winning photographs of the M62.

CONNECTING WITH THE WORLD

Growing strategic, high quality partnerships in targeted overseas locations, providing international students with access to cutting-edge UK higher education.

University of Central Lancashire Strategy 2015-2020

Students from the University's Cyprus Campus.



Global gateway broadens educational horizons

The University of Central Lancashire has always maintained a global outlook, focused on providing students and staff with unique opportunities and cultural experiences that impact, influence and encourage innovation in teaching, research and partnership. Last year, the University celebrated its 30th anniversary of working with educational institutions in China, and during this period it has established a strong and vibrant network of partners.

Since those early days, many thousands of international students have passed through Central Lancashire's educational doors: the University now enrolls students from more than 100 countries and has partnerships with 125 international institutions. Its growing global reputation and reach is stretching even further as the University encourages UK students to broaden their educational horizons, and builds on established international links to work with new partners around the world.

2016 was an exciting year for the University, with the establishment of a new international collaborative franchise partnership in Sri Lanka. The year also marked a key milestone for the University's Cyprus Campus with the graduation of its first cohort of undergraduate students, four years after the Campus was established. In a lavish ceremony, 74 undergraduate and 14 postgraduate students received their degrees and an additional 14 students were honoured for their high academic achievements.

To further celebrate the University's educational connection with the country, it awarded two Honorary Fellowships at the Cyprus campus awards ceremonies. Dr Erato Kozakou-Marcoullis was recognised for the fostering of multi-cultural education and exploring of cultural conflict and conflict resolution in Cyprus, while Dr Yiannis Laouris was honoured for outstanding contribution to neuroscience and technology and scientific contributions in the fields of peace and development, and for his contribution to education within Cyprus.

Over in Sri Lanka, the University was delighted to partner with Universal College Lanka (UCL) in Colombo, owned by private education services company Eduko Lanka. The contract will allow Central Lancashire to deliver BSc (Hons) Software Engineering and BA (Hons) International Business at UCL from September 2017. The partnership intends to expand into further subject areas that meet the needs of Sri Lanka, building on the core strengths of Central Lancashire and UCL.

The University's Travel Bursary Scheme continues to go from strength to strength, providing students with the opportunity to add an international dimension to their studies. Throughout the year, students have undertaken fashion shows in Kuala Lumpur, joint projects in China and Kenya, and utilised their time at the University to benefit from study abroad opportunities in countries such as Australia, Canada, Japan, Korea and Russia.

The year also saw the University appoint two senior members of staff with an international remit; Liz Bromley, Deputy Vice-Chancellor (Corporate Planning and International Strategy) and Tim Steele, Vice-President International Strategy and Partnerships. The University has ambitious plans to further enhance its international reach and offering and these new appointments will be key in taking forward the Internationalisation Strategy 2016-2020.

Tim Steele said: "The University has an ambitious international strategy that is being rolled out to attract quality students, staff and partners, diversifying where necessary to provide sustainable and appropriate opportunities both overseas and in the UK.

"We have a history of developing strong international partnerships, particularly in China where the University first entered into links with Chinese partner institutions via the British Council's 'Academic Links with China Scheme' as far back as the 1980s. The University has continued to build on these solid foundations and 2016 was a particularly exciting year with new partnerships cemented across Asia, UCLan Cyprus reaching such a significant milestone in its history, and more students taking advantage of our global connections to study abroad.

"The University is committed to producing graduates who are globally competitive and we believe that an international environment and perspective will enhance and shape our graduates, staff and institution."



University to join hands with China for pioneering sign language project

The University of Central Lancashire has long since been recognised for being a global trailblazer in British Sign Language (BSL), deaf studies and working with international sign language communities. From being the top higher education institution in the United Kingdom for training BSL-English interpreters, to producing world-leading research, Central Lancashire's reputation is renowned on a worldwide scale. It was this success that played a crucial part in the University gaining external funding to undertake a unique global research project with Chinese researchers for the first time.

Dr Junhui Yang, Professor Ulrike Zeshan and National Teaching Fellow, Lynne Barnes, received over £76,000 to collaborate with academics from Zhengzhou Institute of Technology in the teaching of English, British culture and deaf studies via online multimedia platforms. The project aims to allow lecturers to create an online platform for sign language-based teaching of English, rather than current inappropriate sound-based learning.

As part of the exchange, deaf and hearing researchers from Zhengzhou visited the Preston Campus in July 2016 to survey the BSL/deaf studies, English and education courses and online course materials, in

addition to learning some BSL. The visitors, along with more than 50 other invited guests, took part in a Chinese Culture and Art Showcase in which they watched a demonstration of the Baduanjin martial arts and were encouraged to get hands-on with Chinese paper-cutting, painting and calligraphy. All these activities were run by the Chinese academic visitors, the University's Confucius Institute and deaf studies academics.

Project Lead Dr Junhui Yang, Senior Lecturer in Deaf Studies at Central Lancashire, explained: "This is the first time that deaf Chinese academics have visited to undertake a project of this kind and it was fantastic to have them here. It's a privilege to share the wealth of expertise in e-learning platforms here at UCLan so that more deaf students will have the opportunity to learn English literacy and deaf studies content with the use of online resources and sign language. This is a very interesting and innovative research project and this trip was a fantastic start to our work."

The University team will visit China during 2017-2018 to observe deaf students being taught English, and moderate the multimedia teaching materials that the Chinese lecturers will have created. The Central Lancashire lecturers will offer training seminars and the Zhengzhou lecturers will demonstrate

teaching English with sign language and the online platform.

Finance has been provided by the British Council's 'UK-China Partnership Innovation Challenge Fund'.

Deaf studies courses have run for more than 40 years in the UK, but despite there being 21 million deaf people in China, there is no deaf studies course in the country, yet there is a high demand for teaching English to deaf students in preparation for university, study abroad or for work placement experiences.

Professor Zeshan, Director of the University's International Institute for Sign Languages and Deaf Studies, is particularly delighted that this project offers a chance to further extend its on-going work with Lancaster University and international non-governmental organisation partners on deaf literacy in India, Ghana and Uganda. She said: "Adapting some of these literacy teaching and learning approaches to suit the needs of deaf learners in China is an exciting opportunity that we look forward to."

"This is the first time that deaf Chinese academics have visited to undertake a project of this kind and it was fantastic to have them here."



Project lead Dr Junhui Yang interacting with her fellow academic researchers.

CONNECTING COMMUNITIES

Creating deep-rooted engagement between our University and the wider communities of Preston, Lancashire and the North West, encouraging the sharing of ideas, knowledge and the spark of learning.

Nurturing a vibrant and integrated community based on mutual respect and inclusivity where all staff, students and those with whom we engage feel empowered to succeed.

University of Central Lancashire Strategy 2015-2020

Vice-Chancellor Professor Mike Thomas 'gets crafty' with local school children in the University's City Centre shop.



University united

Organisations thrive on inspiration, creativity, vision and motivation, and the University of Central Lancashire is no different. To nurture these qualities, the University's Senior Executive Team is committed to continue developing an organisational ethos centred on staff engagement and shared core values.

In 2016, new and improved channels for open, two-way communication were developed and the University made it a priority to thank staff at all levels for a job well done – exemplified through initiatives such as the 'Winter Celebration' and 'University Stars' event.

The evening included themed entertainment, live music and an awards ceremony where nominated members of University staff were recognised for their hard work and dedication in helping students and the University achieve success.

The year also saw the University agree its 'Five University Values', a framework for decisions, actions and behaviours, representing a promise to people about how they will be treated. These are currently being embedded into the recruitment of new staff, appraisals, promotion and reward, and have been defined as:

- **Common Sense** – empowering staff to use judgement to do the right thing;
- **Compassion** – treating students, staff and the wider community with consideration, care and honesty;

- **Teamwork** – thinking and acting together, valuing collective as highly as individual achievements;
- **Attention To Detail** – taking personal and professional pride in the quality of work;
- **Trust** – relying on each other, showing respect and integrity in all activities.

Vice-Chancellor, Professor Mike Thomas, said: "I thought it was important to first define and then enshrine our values across the University. On the face of it, what we're proposing doesn't sound revolutionary and as an outsider looking in you'd think that the vast majority of organisations would aspire to operate under these principals. However, this is not the case, and I'm pleased that colleagues support the University in taking a lead here."

2016 also saw the appointment of Ken Lee as the University's new Executive Director of Human Resources. Ken joined the University from BBC North and he has a clear aim to help the University deliver its ambitious development plans through building a culture in which all staff are engaged and can realise their potential.

"I am encouraged that the University has already made great strides in this area," he said. "It's clear that the new values, as defined by the Vice-Chancellor, resonate with the University community and our aim now is to embed them through our work, and our working relationships, so they are established and demonstrated across the University by all staff."

"To assist with this we will be enhancing all coaching-based development for leaders, and support for managers, so that they can better develop their teams and contribute positively towards the University goals. Providing equal treatment, transparency and opportunity is key to this work, as is the acknowledgment of success and encouragement of positive role models."

"Events like our Winter Celebration and the University Stars initiative are examples of how we are turning plans into actions."

The University's commitment to this work is already showing encouraging results. In the latest staff survey undertaken by Capita, the University was awarded 'Employer of Choice' status. Out of over 200 public sector companies working with Capita, Central Lancashire was ranked as one of the top 25 places to work. The survey also revealed 93 percent of respondents said they were interested in the University and to them it was not just a job, while 92 percent said they enjoyed their work.

The Vice-Chancellor concluded: "The latest staff survey was encouraging. However we cannot be complacent. The University sector is evolving faster than ever, and by building a strong values-based culture that recognises, rewards and cares for staff, I am confident we will deliver on the targets set out in our 2020 strategy and the University will thrive in the years to come."



Winners celebrate at the University Stars event.

Transforming justice

Partnership brings fresh perspective to ever-evolving criminal justice system

Crime is becoming more sophisticated and increasingly 'faceless' as boundaries are blurred. It is widely recognised that an international and more holistic perspective is needed to address a range of issues such as child sexual exploitation, cybercrime and terrorism. The police, and other agencies such as Her Majesty's Prison and Probation Service, the NHS, social services and the judicial system, are now having to re-think how they tackle crime, support victims and deal with offenders.

The University established its Criminal Justice Partnership in 2016 as a vehicle to bring together academic expertise and practitioners to challenge current working practices and develop new approaches. Experts across the University from subjects such as law, mental health nursing, policing, psychology and social work are all involved in the partnership and work on tailored research projects that address particular challenges faced by organisations in the field.

Commenting on the collaborative nature of the partnership – both internally and externally – Professor of Policing, Stuart Kirby, said: “We’re able to work with a large number of agencies to see if something is working, how it can be improved and if the cost can be justified. The partnership has a breadth of expertise to utilise and many disciplines can feed into one project.”

Policing experts have already worked with Lancashire Constabulary to appraise its Early Action Intervention Programme through data analysis, seeing what works, what needs to

change and how it impacts the community. The Programme is supported by the Home Office and focuses on people already at crisis point. It looks for new ways to be proactive and prevent incidents from developing into something more serious. This includes helping people in mental health crisis, providing additional services for female offenders to break the re-offending cycle, and providing additional support to vulnerable callers, such as confused elderly people so they get the help they need before dialling 999.

Students, academics, practitioners and the public have all benefited from a series of twelve workshops and conferences organised around five internationally distinguished academic visits. Areas included mental health issues in the criminal justice system, new approaches to understanding domestic violence, and looking at ways to reduce serious crime by proactively engaging with those at high-risk of committing offences.

More than 677 people registered to attend the events – and the ‘Understanding the Psychology of Aggression’ workshop included 17 prisoners alongside psychologists, prison staff, academics and students. Two partnership academics have already organised trips to Canada and New Zealand to continue exploring research opportunities.

The team is also working with HM Prison Kirkham – a Category D open male prison – on a scheme that brings academics, students and inmates together for debate and discussion around a variety of issues that affect society. Not only has it allowed students on criminology-related courses to experience a

prison environment and meet inmates, it also encourages the prisoners to mix with new people, engage in open discussion and improve confidence.

Graham Beck, Governor of HM Prison Kirkham, commented: “It is really exciting to see the potential for improvements in practice when working in partnership. We’ve seen a positive change in many of the men who have gone from being introverted to confidently chairing a discussion group. It’s certainly making a difference and raising aspirations. UCLan has brought together experts, practitioners and other stakeholders in a range of initiatives that positively influence us all.”

Dr Allison Jones, Executive Lead for the Criminal Justice Partnership, said: “The justice system has changed in recent years and it’s important to recognise that as the kind of criminal threats we face change, then the way agencies operate must also evolve.

“The University’s Criminal Justice Partnership is helping services such as the police, victim support groups and the prison system to work together and find new ways of responding to ongoing challenges. Universities are morally obligated to share their expertise and the partnership gives our academics the vehicle to do this. We have created a vibrant community of academics and partners that can respond, in innovative ways, to the needs of the criminal justice sector. We are able to join the dots, challenge current working practices and fill intelligence gaps for a multitude of agencies that are constantly having to reassess the way they work.”

“We are able to join the dots, challenge current working practices and fill intelligence gaps for a multitude of agencies that are constantly having to reassess the way they work.”



Sporting focus helps achieve community goals

Creating a sporting legacy for the community has been the ethos for many sporting developments around the world over the past two decades. From the Manchester Commonwealth Games to the 2012 London Olympics, ensuring that world-class facilities are used by the community has been integral. In Preston, a similar sporting effect has come from the University of Central Lancashire's Sports Arena. When the facility was opened in 2000 by HRH The Princess Royal, it was hoped it would become the focus for the city's sporting activity. Fast forward to 2016 and the vision has become a reality, as 90 percent of the people who arrive through the gates live and work in the local community.

The multi-million pound facility is the home, or training base, for around 80 sporting clubs and organisations. Preston North End's Academy teams are based at the Arena; the athletics track and field is used by Preston Harriers; and the astro turf pitches provide training and match day facilities for Fylde Hockey. The 1.5km cycling track is popular with clubs and families alike, while junior and adult football leagues attract large numbers on evenings and weekends.

Alongside the community usage there's a large student population who take advantage of their free sports membership. During the 2015-16 academic year, 33,000 student visits were recorded at the Arena for academic and recreational use, while more than 14,000

student journeys were logged using the free buses from the centre of campus to the out-of-town facility. Overall, 16,000 students were members of the Sports Arena and the Sir Tom Finney Sports Centre.

Investment in the facilities has been integral to the popularity of the venue. In 2016, the University installed a state-of-the-art artificial sports pitch that attracted heaps of praise from users. The Evolution XQ 3G surface, which is FIFA two-star and World Rugby 22 accredited, consists of artificial grass within a rubber crumb and shock pad. The £700,000 development also saw the creation of a new spectator area, dug outs, recessed goals and floodlights.

The pitch was officially opened by Fylde MP, Mark Menzies, whose constituency covers the University's Cottam-based sports facility and neighbouring Westleigh House, which is the home to the University's International Office. He said: "The new Evolution playing surface is incredible – an artificial pitch that can host sports including rugby, football and American football. The entire sports campus is state-of-the-art and a superb centre that I am delighted the local community is taking advantage of – more than 90 percent of users are not students, which means residents are benefiting from world-class professional standard facilities."

Saul Moores, a first-year business management student uses the pitch for games in the Students' Union League. He

said: "We play our matches at the Arena every Wednesday and everybody wants to be put on the new pitch. It's the pitch to play on because it's great underfoot, the ball runs true and it's like playing on a professional grass pitch, but without the mud."

Andy Coverdale, the University's Business Services Manager, added: "This excellent new pitch allows football, both codes of rugby and American football to be played on the one surface for up to 60 hours a week. That's nearly 10 times more games than we used to be able to accommodate on a grass pitch. This is all about giving our students the best experience possible. Over the years their matches have been affected by the weather but this new 3G surface ensures all games can be fulfilled and those players are able to compete on a world-class playing surface."



Mark Menzies MP cutting the ribbon to officially open the 3G pitch watched by student footballers, USA Duty Manager Neil Cottam, UCLan Business Services Manager Andy Coverdale and Joel Arber, Pro Vice-Chancellor of External Relations.



Providing a local platform to discuss the biggest political decision in a generation

Asking the UK electorate in 2016 whether Britain should remain a member of the European Union was one of the most important political questions put to the public in our history. The outcome would not only affect life as we know it now, but that of generations to come.

As a civic institution, the University of Central Lancashire played a public role in bringing the community together to consider the pros and cons of leaving or remaining in an open and democratic fashion. More than 500 people attended the Oxford Union-style debate, chaired by television journalist, Fiona Armstrong, which featured speeches from academics and politicians on both sides of the argument.

UCLan Vice-Chancellor, Professor Mike Thomas and Mark Hendrick, MP for Preston, voiced their opinions for the UK to remain in the EU – while John Bickley, UKIP Party Treasurer, and Dr Mark Baimbridge, Senior Economics Lecturer at the University of Bradford, spoke about the benefits of withdrawing and returning to being an independent nation.

Members of the audience were asked at the beginning and end to hold up 'Remain' or 'Leave' cards to gauge a general opinion and see if they were influenced by the speakers. Many of the unsure voters swayed towards the Leave camp, although the overall majority said they wanted to remain in the Union.

Vice-Chancellor, Professor Mike Thomas said: "People are often passive when it comes to politics, but the Brexit debate really galvanised the nation. We wanted to play an active role in facilitating the discussion and providing a local forum for a national issue – universities should be places that welcome open debate and champion freedom of speech.

"Speaking to audience members at the end, many talked passionately about their views on Brexit and others, who were undecided, felt that the arguments presented really gave them something to think about. It was important that we allowed an open platform for a variety of views, which resulted in a lively and thought-provoking discussion."

MP for Preston, Mark Hendrick, commented: "Freedom of speech is the bastion of every higher educational institution, and the University is exemplary in its approach to ensuring its student body is not only aware of what's going on in the wider world, but actively engages in debate.

"I was called on to speak from the Remain side during the Brexit debate held at Central Lancashire last year, which was very well attended. I outlined that EU Membership should be treasured and valued, and that decades of successful EU membership has contributed in making the UK the world's fifth largest economy. Of course I was dismayed at the result of the referendum. However, what was important was that so many young people – and people from outside the University community – were engaged in the debate. I am thankful to the University for leading the way in ensuring that local communities are included in important discussions such as this.

"Going forward, I hope the University will continue its tradition of engaging local communities and working in partnership with its neighbours. The civic role that it plays in Preston is very much valued, and I have no doubt that the partnership between the local community and University will continue to grow."

We wanted to play an active role in facilitating the discussion and providing a local forum for a national issue – universities should be places that welcome open debate and champion freedom of speech.



Through the kaleidoscope

University builds on civic anchor role through showcase event

For nearly 190 years, the University of Central Lancashire has been renowned for opening its doors to education, research, knowledge transfer and engagement purposes. Its place as a civic anchor institution in the region is well established, and the future vision aims to see the University reach further into the heart of the community than ever before.

Having the opportunity to engage with stakeholders and invite them in to see what the University has to offer – both now and for the years ahead – came in the shape of the University's 'Kaleidoscope' event.

The glitzy evening saw more than 300 people from across the North West descend on the Preston Campus to see a range of projects in action. The audience included University honorary fellows, civic dignitaries, representatives from businesses and the community, as well as University students and staff.

Wearable robotics, a virtual reality universe and the first graphene-coated unmanned aerial vehicle wing were among the exhibits on display. Other highlights included the University's research into antimicrobial resistances and new antibiotics, bringing the dead 'back to life' through forensic anthropology, and the development of a lightweight and portable ECG machine.

The construction phase of the University's £200 million Masterplan also attracted attention from a wide variety of stakeholders.

David Taylor, Pro-Chancellor and Chair of the University Board, said: "The fantastic work on view was just a glimpse of an incredibly exciting future for the University. We are very keen to work with local employers on new and emerging educational models such as degree apprenticeships, two-year degrees and earn-as-you-learn programmes. We're a leader in the field of entrepreneurship and have great international links."

Vice-Chancellor, Professor Mike Thomas, added: "The changing world is not only about making discoveries and creating new technologies. We are also in the business of moulding informed leaders, creative thinkers and bold business minds. We are a University where committed people are inspired to develop their ideas and dreams.

"Realising the potential of a civic university to 'reach out' to the community will not only depend on what the University does, but also on the capacity of our local and regional partners to work together and 'reach into' the University."

"The changing world is not only about making discoveries and creating new technologies. We are also in the business of moulding informed leaders, creative thinkers and bold business minds. We are a University where committed people are inspired to develop their ideas and dreams."

Among the guests was Darrin Robinson, Chief Executive at BeaconFell, a cycle company based near Clitheroe. He and his team have been working with the University's Innovation Clinic to design and create new carbon fibre frames. They have also helped develop new products that meet the strict European design criteria for bikes.

Darrin said: "It's been great working with the University this year and we're looking at future projects together. The team at the Innovation Clinic helped us enormously, bringing design expertise to create our new carbon fibre bikes. They've also helped us gain international approval for our products. We needed very specific technical CAD drawings creating and the University was able to do that very quickly. Having the University so closely based to our business, and so eager to help, is fantastic."



A University visitor testing out a virtual reality exhibit.

CONNECTING OUR CAMPUS

Creating transformational change of the Preston campus to provide an enhanced environment for the highest quality teaching, learning, research and knowledge exchange – underpinned by a commitment to environmental sustainability.

University of Central Lancashire Strategy 2015-2020



The University's vision for the circa £60 million student centre and community square.



Vision 2020: A campus that connects students, businesses and communities

In 2016, the many pathways linking key aspects of the University's Campus Masterplan merged together as architects were appointed, designs were approved and construction work began in earnest.



Above from top: Engineering Innovation Centre; work begins on the Greenbank and Harrington Social Space; progress underway on the Foster Social Space.

The £30 million-plus Engineering Innovation Centre (EIC) was granted planning permission and then in November, Northern Powerhouse Minister, Andrew Percy MP, took part in a turf-cutting ceremony to break ground on the site – officially marking the construction phase of the project, with the completion date set for late 2018/early 2019.

The EIC will deliver a range of key objectives, including reclaiming Lancashire's role as a national powerhouse for advanced engineering and manufacturing, ensuring that local skills reflect social and economic needs, and increasing the number of females in engineering careers.

The year also saw the University team up with The Royal Institute of British Architects (RIBA) to organise a competition that challenged architectural practices across the world to create designs for the University's new circa £60 million student centre and new square.

Design concepts from 41 architects were submitted and then whittled down to a shortlist of just seven, with HawkinsBrown's vision for the student centre and new square winning the day.

The company's initial design was inspired through the idea of 'threads'; connecting the University and the city, drawing on Preston's textile heritage and its future in aerospace electronics. Additional ideas featured a biodiverse roof, LED lighting underfoot, a pavilion café bar and a large glass façade aimed at creating feelings of light, space and airiness.

In a series of exhibitions, which ran alongside the competition, the designs from the Manchester-based company caught the imagination of the Preston public, receiving a huge number of positive comments.

The University anticipates the submission of a formal planning application for both the



Inside the light and airy student centre.

student centre and new square during 2017, with a completion date set for 2020.

The first of the new Masterplan projects to be completed will be the two new social spaces facilities, which students and staff will be able to enjoy from the autumn of 2017.

Designed and constructed at a cost of over £8 million, the new social spaces will enhance the overall campus experience and provide a place for staff and students to come together in a relaxed environment. Importantly, the opening of the facilities will mean that existing students will benefit from the University's investment.

A single storey ground floor extension is currently being added to the University's existing Foster Building, and will include areas for breakout activities and informal spaces for social learning. A similar facility, linking together the Harrington and Greenbank

buildings, is also being created and both are being developed with the Students' Union as a direct result of student feedback.

Their opening will coincide with the development of a new multi-faith facility. The brand new 'Oasis: Faith and Spirituality Centre', being designed in close consultation with the Student's Union, aims to provide a real community boost – ensuring all students and staff have the perfect environment for prayer, contemplation and reflection.

Pro-Chancellor David Taylor, Chair of the University Board, said: "The support for our Masterplan proposals from across the city and beyond has been fantastic, with a number of interlinking projects now converging as we move into the full development phase. We will continue to work very hard with our partners at Lancashire County Council, Preston City Council and the local community to ensure we create a legacy, which as well

as producing a world-class campus, benefits everyone."

Michael Ahern, Chief Operating Officer, added: "Every year the University indirectly contributes over £200 million into the city's economy, and the completion of our Masterplan proposals will boost the city even further, stimulating the commercial fabric of the University quarter with private investment and additional physical and economic regeneration.

"We've made good progress in the last year but there is still much to be done before our vision becomes a reality. As such, we continue to be committed to meaningful consultation with the public through regular workshops and public engagement events with a variety of interest groups. We want everyone to feel they have a stake in our development plans and the future of our city."



Breaking ground on the Engineering Innovation Centre: (L-R) David Taylor, Pro-Chancellor and Chair of the University Board, Northern Powerhouse Minister, Andrew Percy MP and Vice-Chancellor Professor Mike Thomas.

"The support for our Masterplan proposals from across the city and beyond has been fantastic, with a number of interlinking projects now converging as we move into the full development phase. We will continue to work very hard with our partners at Lancashire County Council, Preston City Council and the local community to ensure we create a legacy, which as well as producing a world-class campus, benefits everyone."

Pro-Chancellor David Taylor, Chair of the University Board

CONNECTING WITH BUSINESS AND ENTERPRISE

Cultivating a dynamic, supportive and enterprising environment in which our students, graduates and staff can establish resilient businesses – an area in which we will continue to be sector-leaders.

University of Central Lancashire Strategy 2015-2020



University pilot's next stage of graphene research collaboration at major air show

Graphene is the discovery of modern times. The world's first 2D material is ultra-light, 200 times stronger than steel, incredibly flexible, super thin and an excellent conductor, which means the possibilities for development are endless.

One sector, which is taking a huge interest in graphene, is the aerospace industry. In 2016, a team of aerospace experts from the University of Central Lancashire's Engineering Innovation Team developed a specialist unmanned aircraft that included a graphene skinned wing.

Named Prospero, it's a three-metre wide aircraft, which is part constructed using a graphene enhanced carbon fibre material. It had its world's first public flights at the 2016 Farnborough Air Show and it attracted the attention of major names within the aviation industry.

Billy Beggs, the University's Engineering Innovation Manager, said: "It was a tremendous success for us to showcase our work at Farnborough. The flights went really well and we made so many contacts with people who are interested in finding out more and working with us. We're talking big names in aviation."

The aircraft took to the skies three times during the world-famous event, which attracted more than 90,000 spectators. It was the first aircraft to feature in the aerial demonstration sessions and the pilot executed

planned routines, between four and seven minutes long, which had been approved by the airshow's flight operations team.

It was piloted by David Ringland, the former head of flight testing for unmanned aircraft at BAE Systems. He said: "Prospero flies like a training aircraft. It's stable to handle, lighter, more aerodynamic and floats along without too much drag unlike other non-graphene aerial vehicles, which are often twitchy and heavy."

The aerospace research has been undertaken at Central Lancashire in conjunction with academics from The University of Manchester's National Graphene Institute. The graphene-enhanced materials were produced by industrial partners, Haydale Composite Solutions, and the vehicle was manufactured by Tasuma.

Dr Darren Ansell, the University's Space and Aerospace Engineering Lead, said: "These flights were a great showcase for us. We're now going to look at working with more SMEs throughout the North West – in addition to the larger companies – to see how we can progress the exploitation of graphene in aerospace."



"It has also raised the profile of our engineering degree courses. For example, we had industry people enquiring about enrolling on our courses part-time alongside their work activities to enhance their aerospace engineering skills."

The test flights represented the next stage in the research partnership, which in 2015 investigated the effects of graphene in drag reduction, thermal management, and ultimately the ability to achieve lightning strike protection for aerospace and other related opportunities.

Billy added: "Thirty years ago I went to Farnborough with what is now the Typhoon jet and look at how that's developed. We have now taken Prospero, so who knows where this will lead."

As a result of Prospero's success, the University took a lead role in writing a strategy document on behalf of the Aerospace Technology Institute entitled 'The Graphene Exploitation Strategy for the UK Aerospace Sector', which highlights key opportunities for the UK to become a world leader in the use of graphene in the aerospace industry.

Opposite: Prospero ready for take-off at Farnborough Air Show with the Red Arrows and spectators in the background.



From concept to reality

Getting to the heart of nurturing academic enterprise

Cardiovascular disease is still the number one cause of death in the world. A massive 17.3 million people die each year from the disease. In the UK alone, there are nearly 160,000 deaths per annum – an average of 435 people each day, or one death every three minutes. In addition, there are around 7 million men and women living with cardiovascular disease in the UK.

These hard-hitting statistics highlight how monitoring heart condition is essential to the health of the population, and in 2016 a University of Central Lancashire academic created a unique device that is designed to improve just that.

The iCardio is a portable electrocardiogram (ECG) monitor, which has been developed by Dr Li Guo, a lecturer in computing in Preston.

The product combines the functions of a heart rate monitor and an ECG machine, allowing users to check their pulse, as well as obtain a detailed analysis of their heart's rhythm and electrical activity.

After securing funding worth £30,000 from the University's Innovation Fund, Dr Guo was supported by the University's Intellectual Property and Commercialisation team in developing the product from initial concept through to the manufacturing of the first batch of devices, which are now ready for clinical feedback.

The device is compact and portable, making it suitable for use during exercise, and compatible with smartphones so users can easily access and share their data to gain a more comprehensive understanding of their heart health.

Dr Li Guo said: "Cardiovascular disease is a leading cause of death worldwide. Figures from the British Heart Foundation show that in 2013, more than 300 million prescriptions were dispensed for related conditions – with treatment costing the NHS £6.8 billion.

"The iCardio device was developed to help understand people's behaviours and lifestyles better. Most importantly, the device allows for the tracking and discovery of any unusual patterns that could lead to potential health issues – to raise early warnings to healthcare providers.

"Thanks to the great support from the team at the University, we have finally managed to take the idea from concept into a real product."

Pete Leather, Head of the Intellectual Property and Commercialisation team at the University, said: "As well as supporting the University's academics, the Intellectual Property and Commercialisation team helps businesses achieve commercial success through the delivery of a range of projects and initiatives, including the Innovation Clinic and Idea Investment Voucher scheme.

"Idea Investment Vouchers are available to organisations across the UK to provide access to breakthrough research and specialist facilities to aid factors including innovation, growth and intellectual property protection – as well as product development and tailored, expert access to equity investment planning for Lancashire SMEs."



Dr Li Guo, the academic who created iCardio using funding from the University's Innovation Fund with Sports Therapy student Trevor Alexanderson.

"The iCardio device was developed to help understand people's behaviours and lifestyles better... Thanks to the great support from the team at the University, we have finally managed to take the idea from concept into a real product."



Business on the up

University launches support hub for Small-and Medium-sized Enterprises

As the Northern Powerhouse flies the flag for large-scale business and industry across the north of England, Small-and Medium-sized Enterprises (SMEs) in Lancashire are proving they too can make a big impact on the world of business. The Red Rose County is now home to more than 38,000 thriving SMEs, and in 2016 they received an added boost thanks to the University of Central Lancashire's new Centre for SME Development.

In May, Central Lancashire officially launched the new business support hub to enable SMEs to grow. As a gateway to the University, the Centre assists the region's SMEs to access a range of support, including world-class expertise, workshops and networking events, consultancy, bespoke training and recruitment.

The University-wide initiative also aims to increase SME engagement with UCLan; create economic and business impact through the activities of the Centre; generate student opportunities for enterprise activities and employability; and stimulate opportunities for applied research into SME-specific issues.

The Centre is led by Director, Sue Smith, who was made the University's first Professor in Innovation and Enterprise during the first half of the year. She said: "Lancashire is

home to over 38,000 SMEs and it's important they're aware that the business development support they need is available, regardless of sector or industry.

"The Centre for SME Development is going to play an important role in the local business community, and in turn the economy, by supplying the resources required to achieve success and growth, including fresh talent in the form of students and graduates, the expertise of academics and mentors, and first-class facilities."

On a national scale, small businesses account for 99.3 percent of all private sector businesses: they employ 15.7 million people and the combined annual turnover of SMEs during 2016 was £1.8 trillion*.

The launch of the new initiative, which attracted a large audience to the University's Westleigh Conference Centre, was supported by Jo Fairley, co-founder of Green and Black's, who delivered a speech sharing her inspiring story and top tips for achieving success. Since setting up the ethical chocolate company in 1991 with her husband, Jo helped build the product into a worldwide brand worth almost £100 million. In 2005, the company was sold to Cadbury's, and she now travels the world in her role as a brand ambassador.

Jo said: "A very relevant piece of advice I always give to entrepreneurs is to take all the free help on offer to you, and there are some fantastic new opportunities opening up at the University via the Centre for SME Development. I certainly wish there had been something similar available to me when I was starting out.

"Sometimes in business you can feel like a lone salmon swimming upstream, but with these types of support services on offer, it's a chance to meet like-minded people and realise you're not alone."

Since its launch, more than 450 businesses have engaged with the Centre through a variety of events, including business breakfasts and twilight networking sessions. Working with the Chambers of Commerce, the Centre has created an Academy to provide year-long support for the winners of the Be Inspired Business Awards. The Centre has expanded the University's business community database, and has worked with other business networks to support activities such as the Lancashire Red Rose Business Awards. It has also secured £1.5 million of regional development funding to support the innovation and growth of SMEs.

**Statistics from The Federation of Small Businesses*

"The Centre for SME Development is going to play an important role in the local business community, and in turn the economy, by supplying the resources required to achieve success and growth."



HONORARY AWARDS AND GRADUATION

The University's degree and award ceremonies in Preston's Guild Hall are the culmination of the academic calendar. During 2016, nearly 5,500 graduates celebrated their educational success and received well-deserved recognition for all their hard work from the University, family and friends.



During the graduation ceremonies, the University confers Honorary Doctorates or Fellowships on distinguished citizens who have made significant contributions to their field, or who have strong links with the region. In 2016, ten honorary awards were conferred to the following individuals:



1



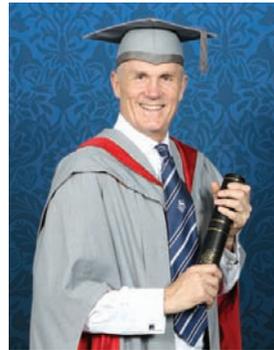
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Angela Murphy OBE was recognised for the significant contribution she made to international development at the University. Angela dedicated 30 years of her career to the University. She held a range of posts, working her way up from a senior lecturer, principal lecturer, Head of School, Dean of a Faculty, to Pro Vice-Chancellor. By 2007, she was Deputy Vice-Chancellor (International) and during this time she witnessed the huge rise in international student numbers and was integral in developing the University's wide range of global partnerships. She was also the Executive Director for the development of the University's first overseas campus in Cyprus. ¹

His Honour Judge Jonathan Rose was acknowledged for the contribution he's made in his career as a Law School graduate and for his support in widening participation. In 1980, he gained his law degree at Preston Polytechnic, now Central Lancashire, and this opened the way for him to be called to the Bar. He worked on several high profile cases as a barrister and recorder before he was given the prestigious honour of becoming the University's first law graduate to be appointed as a Circuit Judge. He is committed to the education of future lawyers, particularly those from less advantaged backgrounds, and he lends his support to current University students. ²

Carl Fogarty was recognised for his services to sport. His competitive debut on two wheels came in motorcross racing but he soon moved into road racing. By age 23, Carl was crowned Formula 1 TT world champion. In 1990, he achieved a double win on the Isle of Man, and the year after raced for the first time in the World Superbike championship. He claimed the coveted crown for the first time in 1994, and went on to win it in 1995, 1997 and 1998. A freak crash forced

him into retirement in 2000 but he then became a team owner of Foggy Petronas Racing. Recently he was crowned King of the Jungle on ITV's I'm A Celebrity Get Me Out of Here! ³

Wasim Akram was honoured for his significant contribution to cricket during his sporting career. The left arm bowler began his career at Lancashire County Cricket Club. He spent 11 successful years playing and captaining the side and he became the county's most successful overseas player. He made his Pakistan debut in 1985, he was instrumental in their World Cup victory in 1992 – and was the top bowler in the 2003 World Cup. Wasim achieved a host of records during his career, including taking the most wickets in a World Cup. He is also the first bowler in international cricket who has taken 400 wickets in both test and one-day cricket. ⁴

Richard Hext was acknowledged for his services to the University, especially the growth and development of international business and overseas campus plans. After studying at Oxford, Richard became a labourer at a Clydesdale shipyard. He was then hired by global marine business Swire, which paved the way for his shipping career. He became Swire's Chief Executive and later held top positions at Pacific Basin Shipping and Univan. He now runs his own company, Vanmar Shipping. Richard is a life-long learning advocate and this brought him to the University. He was Group Chief Executive during 2014-15 and remains as Governor and Non-executive Director. ⁵

James Cole was honoured for the significant contribution he has made to the tourism industry. He graduated from UCLan with an MBA in Business Administration and Management. His first job was



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at Airtours UK and he soon moved into a management position at SunCruises. In 2007, he decided to start his own venture, so he co-launched Cruise118.com. The business survived the recession and is now one of the UK's largest sellers of cruise holidays. This success led him to create World Travel Holdings and he is currently the managing director. Over the past four years, James has delivered an internship scheme to the University's tourism students. ⁶

Peter Hyett was recognised for the significant contribution he made during his time at the University as Group Executive Director of Finance. After studying in Preston, Peter embarked on a career that saw him spend the majority of his time working at universities. In 1989, he became the Chief Accountant and he was integral in helping UCLan in its transition from a polytechnic. After a spell elsewhere, he returned as Group Executive Director of Finance. He was responsible for advising the University Board on financial strategy, and he was heavily involved in the University's expansion into Cumbria as well as the early negotiations for the Cyprus Campus. ⁷

Laura Massaro was honoured for the contribution she's made to sport. She was seven when she started playing squash, and by 14 she was ranked the best junior in England. She won several European junior titles and within a year of turning professional she was ranked 40 in the world. She won her first title aged 21 and has gone on to win 20 World Tour titles, including the prestigious British Open title in 2013. She has won three silver medals at the Commonwealth Games and in 2016, she became the most successful British female of all time, reaching world number one. Laura is coached by her husband Daniel, a University sports coaching lecturer. ⁸

Professor Norman Burrow was acknowledged for the contribution he made to the University's success during his tenure as Pro Vice-Chancellor with specific leadership responsibilities for developments in Cumbria, research and quality and partnerships. He joined Central Lancashire as Head of the Electrical and Electronic Engineering Department and he nurtured new links with Shenzhen, Beijing and Hong Kong universities. He was made Directorate Lead for Research and in 2000, he became Pro Vice-Chancellor and Director for Cumbria. He oversaw the establishment and management of several UCLan campuses to create an integrated higher education base for Cumbria. ⁹

Arthur Whitlock was recognised for the significant contribution he's made to the local community through his charitable endeavours. Arthur is a self-made businessman who started his working life as a market trader. In the 1970s, he became the English agent for Conister Finance and he used his experience to set up Whitlock Finance – and later, Longton Finance, with his late wife. More than 40 years ago he founded the Whitlock seven-a-side Football League and he is a supporter of Galloway's Society for the Blind. Arthur dedicates an immeasurable amount of time to helping the University's Harris Bursary, a scheme to help students in extreme hardship. ¹⁰

Class of 2016: Graduates go the extra mile to achieve their academic dreams

Every student's educational journey is different, with many overcoming personal challenges to achieve their goals. Each year, as more than 5,000 graduates receive recognition for all their hard work from the University of Central Lancashire in front of family and friends, we meet students whose stories of determination and success are both inspiring and humbling.



Philosophy graduate, Michael Newall, shows that it's possible to fulfil a life-long ambition no matter what barriers are in your way. The 59-year-old suffered a heart attack during the Christmas holiday of his first year studies but despite his life threatening illness, he still donned his cap and gown and graduated from the University. Michael is now considering a masters degree and possibly a PhD, despite only returning to education for the first time 40 years after leaving school.

He said: "It felt very natural going back into education, I felt at home. I realised once I started university how little I knew and how much I had to learn. It's been hard work but tremendous."

After leaving Sidcup Grammar School in London at age 16, he immediately went

into the working world and did not pursue anything academic until he was 56. He worked for a variety of companies including Lloyds, Mind – the mental health charity – and the NHS, and has lived in the North for the past 25 years.

Philosophy was always a passion for Michael, but when he made the decision to study it at degree level he found it difficult to find a university willing to accept his application with no post-16 qualifications. Fortunately, he was accepted onto the BA Philosophy programme at Central Lancashire on the strength of an interview and successful completion of an essay-writing task.

Michael said: "I would like to thank the philosophy staff at the University for their unwavering support and kindness both before and during my degree. I never thought I would be here."



Another example of this inspiring determination comes from Samuel Ujewe, who achieved his doctorate dream in 2016. The PhD student not only worked hard on his thesis to receive his doctorate with only minor corrections, he also got married, secured a research job in South Africa and found out his

wife was expecting their first child all in the space of 12 months.

Originally from Nigeria, Samuel has now taken up a research post at the University of Pretoria, in South Africa, and is keen to stress the pivotal role of his Central Lancashire supervisor, Professor Doris Schroeder, in his success.

He said: "My supervisor came very highly recommended to me by another professor at the University of Oxford and I wasn't disappointed. Professor Schroeder was excellent and the best supervisor I could have asked for. She was instrumental to me and her help went far beyond what is expected."

"I also had wonderful colleagues within the University's School of Health Sciences who supported me, and we all helped each other along the way."

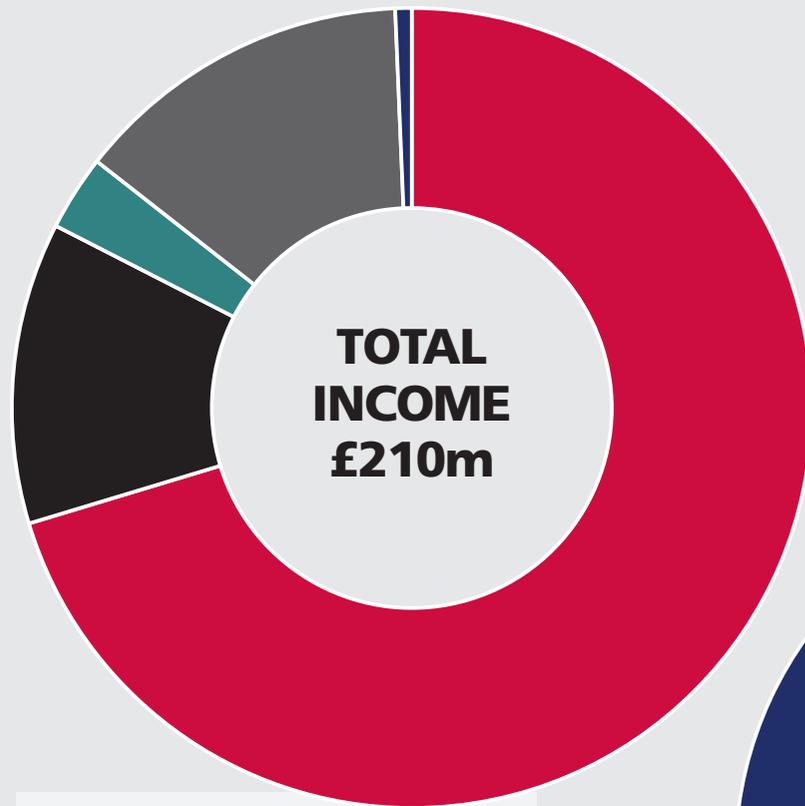
Although it was a year of highs, Samuel's PhD journey was not without its struggles.

"The biggest challenge was the financial difficulties I faced in covering my tuition, which costs £9,950 a year," Samuel explained. "I had to budget very carefully and I worked part-time alongside my studies, which meant I couldn't enjoy some of the regular things students do."

"However, I have been very lucky. I was awarded a generous scholarship from the University, which went a long way towards covering my tuition and I received at least £1,000 a year from an anonymous benefactor that also made such a difference. The two things together have helped me very much and I'm so grateful."

FACTS AND FIGURES:

Financial results 2015/16

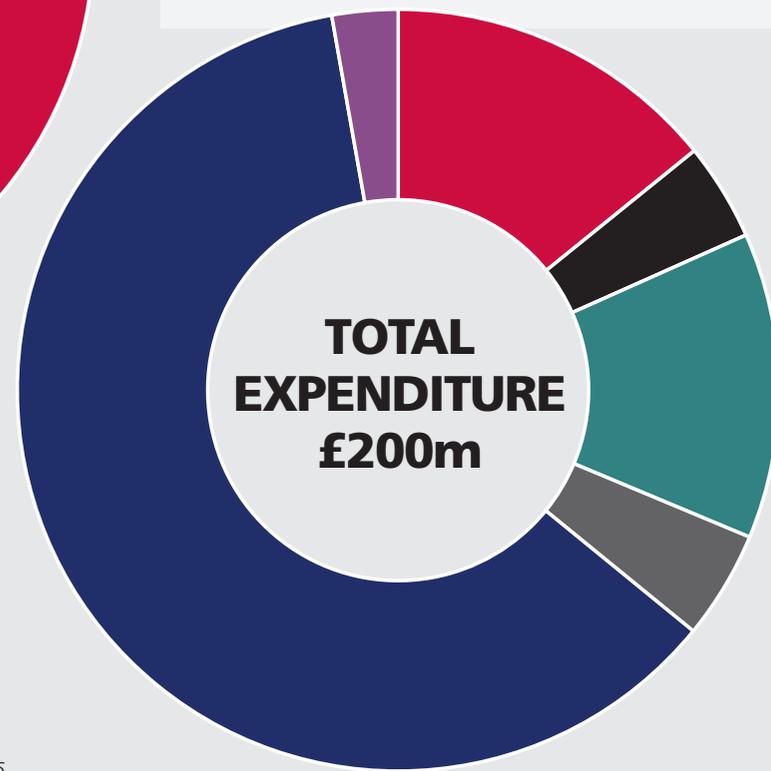


Breakdown of Income 2015/16

TUITION FEES & EDUCATION CONTRACTS; £148m
FUNDING BODY GRANTS; £26m
RESEARCH GRANTS; £6m
OTHER INCOME; £29m
INVESTMENTS; £1m

Breakdown of Expenditure 2015/16

SUPPORT SERVICES; £28m
OTHER EXPENDITURE; £8m*
PREMISES COSTS; £26m**
ACCOMMODATION & COMMERCIAL SERVICES; £9m
CORE ACADEMIC EXPENDITURE; £123m
RESEARCH EXPENDITURE; £6m



NET INCOME
£210m

TOTAL EXPENDITURE
£200.3m

SURPLUS FOR YEAR
£9.7m

WHY DOES THE UNIVERSITY MAKE AN OPERATING SURPLUS?



TO ENSURE THAT THE UNIVERSITY'S ACTIVITIES REMAIN FINANCIALLY SUSTAINABLE IN THE LONG TERM.



TO ALLOW INVESTMENT SUCH AS FOR ADDITIONAL STAFF, FACILITIES AND SERVICES.



TO ENSURE THAT THE UNIVERSITY HAS SUFFICIENT RESOURCES AVAILABLE TO REPLACE, IMPROVE AND INVEST IN ITS PHYSICAL ASSETS IN ORDER TO ACHIEVE ITS ACADEMIC STRATEGY.



TO MITIGATE AGAINST UNFORESEEN EVENTS THAT MIGHT JEOPARDISE THE FINANCIAL HEALTH OF THE UNIVERSITY IN THE SHORT TERM.

KEY PERFORMANCE INDICATORS

4.62%
OPERATING SURPLUS AS % OF TOTAL INCOME

TARGET: 5% ± 10%

0.6%
ANNUAL DEBT SERVICING COSTS AS % OF TURNOVER

MAXIMUM: 4%

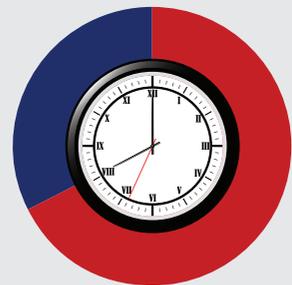
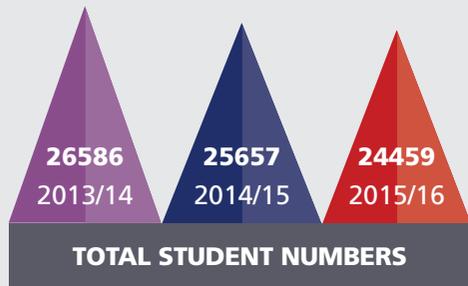
58%
STAFF COSTS AS % OF TOTAL EXPENDITURE

MAXIMUM: ≤60%

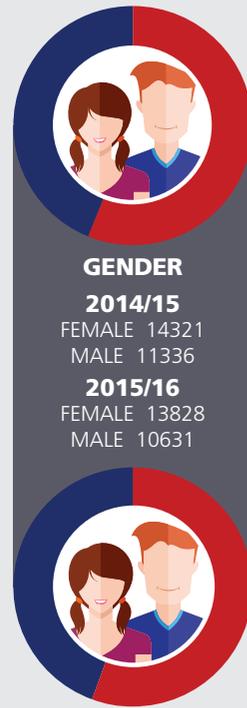
*includes income generating activities and other external activities

**includes infrastructure costs such as depreciation, maintenance, utilities and rates

Students and study 2015/16



MODE OF STUDY	2014/15	2015/16
Full-time & sandwich	17390	17570
Part-time	8267	6889

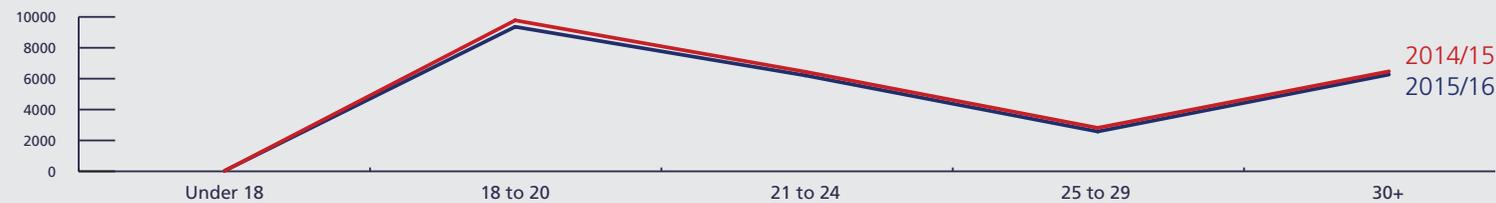


PARTICIPATION

Under-represented groups in higher education
Percent of young full-time students from state schools or colleges - 2015/16

Category	UCLan	Total UK
First Degree Entrants	98.4%	89.9%
Other Undergraduate Entrants	97.9%	96.5%
All Undergraduate Entrants	98.4%	90.1%

STUDENT AGE AT 1ST SEPT



ETHNIC GROUP

Year	Asian	Black	Mixed	Not Known	Other Ethnic	White
2014/15	4015	1089	599	958	523	18473
2015/16	3684	1046	604	1292	500	17333

LEVEL OF STUDY

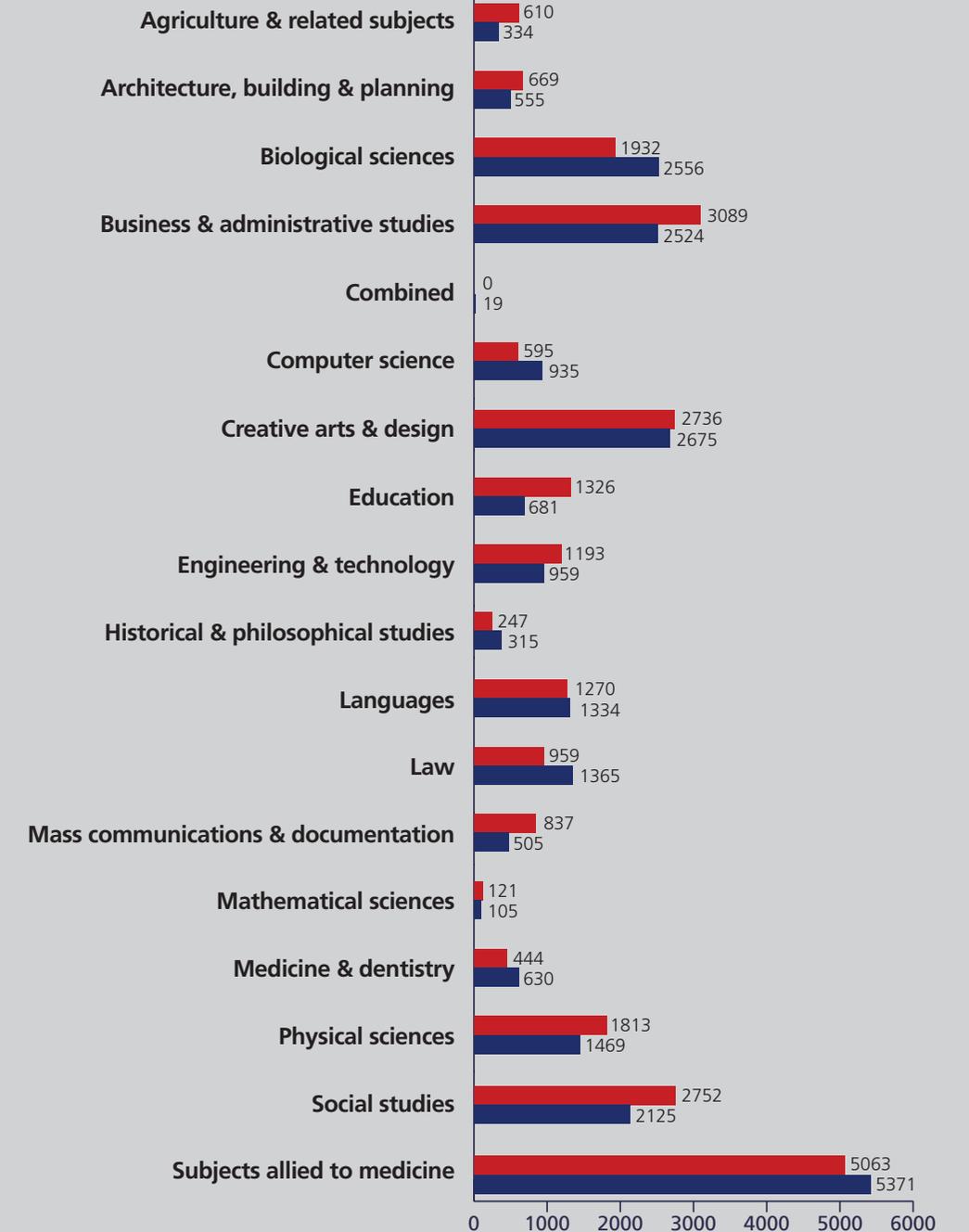
Postgraduate
2014/15 4448
2015/16 4279



Undergraduate
2014/15 21209
2015/16 20180



SUBJECT OF STUDY



Staff profile

Source: HESA Staff Record 2015/16

Gender	Academic Professional	Managers and Support Staff	Total
Female	626.9	396.4	1023.3
Male	576.3	771.3	1347.6
Total	1203.2	1167.7	2370.9

Quality research, transdisciplinary impact and global reach



In the top 800 universities globally
THE World University Rankings



Over 800 research students enrolled currently



More than 100 Professors & Readers working at the university



Over 600 research or knowledge transfer-active members of staff



Spend over £22,000,000 per year in research



393 postgraduate research qualifications awarded over the last 5 years



Royal recognition for University stroke professor

Just before the close of 2016 the University was proud to announce that Caroline Watkins, Professor of Stroke Care, had been awarded the DBE in the Queen's New Year's Honours List.

Caroline, who is the only stroke care professor in the UK, received her damehood from His Royal Highness The Prince of Wales for her services to stroke and nursing care. She has been a nurse for nearly 40 years and has worked at the University for 15 years. Caroline recently co-led the UK arm of an international study into acute stroke care called HeadPost, one of the largest trials of nursing care in the world. She is also Director of the Lancashire Clinical Trials Unit, a Fellow of the European Stroke Organisation and a member of the World Stroke Organisation.

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