

# 2012 Ahead

Profile and Annual Review



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Front cover: The newly refurbished Students' Union during Freshers' Week 2011.

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# Moving Ahead

The past year has been a tumultuous one for higher education. Policy changes have been made – and, indeed, are still being made – which will set higher education in the UK, and particularly in England, on an entirely different path.

From September 2012, state funding for university teaching is to be drastically reduced (by about 80 per cent), and student fees are to be drastically increased. To make up for the cuts, many universities, including Newcastle, have set their overall fees at the capped figure of £9,000 per annum. Students will pay the university, the state will lend them the money to do so, and students will then repay their loans once they have graduated and earn above a certain threshold. In addition, the longstanding central allocation of a fixed number of student places per university will eventually be abolished, and universities will have to compete for students.

In this new environment we have reaffirmed our vision of Newcastle as a world-class civic university, providing our students with an education for life, committed to the marriage of excellence and relevance, and consciously pursuing both quality and equality. We are convinced that a Newcastle degree will prepare our students for life and the world around them, and will stand them in good stead in their lives and careers. We are determined to provide them with the best possible student experience, good facilities, and an excellent teaching and learning environment.

The 2012 *Sunday Times University Guide* recently placed Newcastle University 12th in the country – a rise of eight places and our highest ranking to date. Our graduate employment was also shown as the highest among North East universities at 94.5 per cent. Results from the National Student Survey place Newcastle University 10th in the country for student satisfaction amongst universities. The Higher Education Statistics Agency (HESA) further acknowledges our commitment to our students' success after they graduate by placing Newcastle 5th in the country for graduate employability among its university peer group.

In the new fees and funding environment we are very conscious of the need to provide the best possible deal to our students. We are setting in place a wide range of activities to give good information, raise aspirations, create opportunities, and make available bursaries, scholarships and fee waivers, particularly for students from underprivileged backgrounds. This includes the Newcastle University Promise Scholarships, which will offer up to £9,000 a year to 20 young people who show the most academic potential but are least likely to attend a top UK university such as Newcastle.

We are also, through our Coherent Campus initiative, investing in student services and facilities. This new academic year saw the completion of an £8m refurbishment of the Students' Union. A year later we will have created, at the heart of the campus, a new space called the Student Forum, next to the Arches, by demolishing the now redundant building that housed the Museum of Antiquities (which has relocated to the Great North Museum). This year has seen the completion of our brand new Newcastle University Business School building, opposite St James' Park football stadium, which is now in full use for the new cohort of students.

These activities are underpinned in many ways by our support services staff, who have put in an excellent performance over the past year. Both our Library and our Estate Support Services won, in their respective categories, a top national award from the *Times Higher Education* magazine.

Internationally, we have taken possession of our brand new medical campus in South Johor, Malaysia, which is now in full operation. We have also signed a new agreement with the Singapore Institute of Technology to deliver degree courses in various branches of engineering and science. This will expand our current presence in Singapore to a satellite campus with about 600 students per year.

Our recently established Newcastle Institute for Research on Sustainability (NIRoS) already shows how the application of good science can make a difference in our city and region, with its work on urban transport, underground coal gasification, and geothermal heating. The completion of an almost 2km-deep borehole to bring hot water to the surface could provide efficient and cheap energy on our Science Central site, in the heart of Newcastle.

Our scientists and engineers have been so successful in raising grants from the Engineering and Physical Sciences Research Council (EPSRC) that we have become one of only 12 UK universities invited to join their Framework Agreement. We were successful in a joint bid to the Economic and Social Research Council (ESRC), with Durham University, for a North East Doctoral Training Centre which will support postgraduate social science research. Also, the University and the Newcastle upon Tyne Hospitals NHS Foundation Trust have been awarded £21m from the National Institute for Health Research to be used to continue and expand our world-leading research into, and treatment of, our ageing population.

The University community has really pulled together over the past year. Staff and students have participated in the vigorous debates leading up to the new funding regime, but have also at every turn demonstrated their determination to do their best for the University. Likewise, our alumni, donors, benefactors and friends have been generous in their support. With such commitment we face the future with confidence.

Professor Chris Brink, Vice-Chancellor

- 1 Professor Richard Birmingham with HRH The Princess Royal and Professor Chris Brink, Vice-Chancellor, at the launch of the University's new research vessel on Newcastle Quayside.
- 2 Professor Chris Brink, Vice-Chancellor of Newcastle University.
- 3 The grounds around the newly refurbished Students' Union are a popular place for students to socialise.
- 4 The first cohort of students are welcomed to NUMed Malaysia.
- 5 Newcastle University Business School's new building on the Science Central site.



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# Year in Review

Some of the highlights from Newcastle University's key events, news stories, accolades and achievements over the past year.

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## September 2010

- Scientists pioneer state-of-the-art radio transmitters that can be dropped into the depths of the Earth to provide early warning of a volcanic eruption.
- Newcastle is named a Centre of Excellence by the national blood cancer charity Leukaemia and Lymphoma Research.

## October 2010

- Professor Sugata Mitra, the academic who inspired the film *Slumdog Millionaire*, shares his inspirational method for helping children to teach themselves.
- The Newcastle Institute for Research on Sustainability (NIReS) is launched, bringing together experts from a range of disciplines including science, agriculture, engineering, and social sciences.

## November 2010

- The University and the Sir Bobby Robson Foundation commit to funding new cancer equipment, which is the first of its kind in Europe—a Biomarker Generator to help with diagnosis and treatment.
- Dr Nicola Thompson highlights the need for a coherent vision for the future to protect our National Parks.
- Theoretical physicist Dr David Toms provides new insights into the way that electromagnetic forces interact with gravity.

## December 2010

- The Department of Energy and Climate Change (DECC) awards £400,000 to Newcastle and Durham Universities to drill a geothermal borehole on the planned 20-acre Science Central site.
- Computer scientists develop a beer mat that uses camera-based technology to 'chat' to other mats across a bar in an effort to encourage more social interaction in the digital age.

## January 2011

- A new study shows that regularly drinking green tea could protect the brain against developing Alzheimer's disease and other forms of dementia.
- Prime Minister David Cameron visits Newcastle to see how the University's cutting-edge research at the Institute of Genetic Medicine is benefiting businesses and education.
- Inspired by the University's Changing Age PR campaign, the Coming of Age exhibition explores ageing through the eyes of both artists and scientists.

## February 2011

- The marine Newcastle Network is officially launched, reinforcing the University's reputation as a leader in marine science and engineering.
- Engineers begin the ambitious project to drill under the heart of the city in search of renewable energy.
- Dr Matthew Slater reveals the potential of the humble sea cucumber as a natural, organic cleaner on fish farms and a novel source of food.

## March 2011

- Work begins on a record-breaking, 120-metre wingspan plane that will be kept airborne by a motor developed by University engineers.
- The University is named as a London Olympic 2012 Training Venue.
- Alumna and renowned journalist Kate Adie gives a public lecture on the ability to convey meaning and impact through language and the media.

## April 2011

- Professor Liz Todd tells government that extended schools could be the answer to tackling social inequality, but says they need more support to thrive.
- Newcastle City Council approves the outline planning application for Science Central, which includes the University's new Business School building.

## May 2011

- The Engineering and Physical Sciences Research Council (EPSRC) ranks Newcastle among its top 12 most strongly funded universities.
- The University wins a silver Heist Education Marketing award for its Changing Age PR Campaign.
- The Director of Liberty, Shami Chakrabarti, speaks at a public lecture of the continuing need to ensure that human rights legislature fulfils the spirit of the law.

## June 2011

- A University team discovers that Type 2 diabetes can be reversed by an extreme low-calorie diet alone.
- Government figures show over 94 per cent of our graduates are in employment or further study six months after graduating.

## July 2011

- The Office of Fair Access (OFFA) approves the University's plans to charge £9,000 per year.
- A record 18,000+ visitors attend our two campus-wide Visit Days.
- A £1.2m anaerobic digestion facility is launched which will generate heat from animal dung produced on the University's Cockle Park Farm.
- Dr Robin Humphrey and Dr Tom Joyce both win a prestigious National Teaching Fellowship for excellence in teaching and learning from the Higher Education Academy.

## August 2011

- Health Secretary Andrew Lansley visits the Campus for Ageing and Vitality after announcing a £21m grant to boost ageing research and treatment.
- Latest figures from the National Student Survey show the University in the top 10 in the UK among its comparator group.
- The University plays a leading role in 'The Creative Exchange', a £4m hub aimed at boosting the UK's digital and creative industries.



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# Research with Relevance

Newcastle University's reputation as a world-leading research institution was further recognised this year when the Engineering and Physical Sciences Research Council (EPSRC) ranked us in its top 12 most strongly funded universities.

In recognition of the hard work and world-class expertise of our staff and research students, the University was invited to join the elite group after securing £57.2m of EPSRC funding over the past three years.

Also reinforcing our position as a leader of ageing research was a £21m grant from the National Institute for Health Research presented by Health Secretary Andrew Lansley.

This grant will boost ageing research and treatment at the Campus for Ageing and Vitality, a joint venture between the University and Newcastle upon Tyne Hospitals NHS Foundation Trust.

Work by Professor Roy Taylor and his team at the Newcastle Magnetic Resonance Centre demonstrated for the first time that Type 2 diabetes could be reversed. The clinical trial revealed that patients who followed an extreme diet of just 600 calories of diet drink with 200 calories of non-starchy vegetables were able to dissolve the fat in the pancreas and liver, allowing normal insulin levels to be restored.

A groundbreaking invention, which promises reduced pain for dental injections, won a major national innovation award for its University creators led by Dr John Meechan. The special syringe cartridge works by reducing the acidity of the injection by mixing in a neutralising liquid just before the injection is delivered. The invention, which is in its early stages of development, received the Medical Futures Innovation Award.

Scientists also identified a new gene that will allow rapid diagnosis and earlier treatment of a debilitating neuromuscular condition. The gene, GFPT1, is crucial in causing a variation of Congenital Myasthenic Syndrome (CMS), which gained media attention with the plight of baby RB, who was at the centre of a 'right-to-life' legal dispute.

CMS is a rare genetic condition affecting the way signals travel between the brain and muscles, which can cause paralysis and in some cases death. It affects one in every 500,000 births and the severity of the condition varies, depending on where the fault lies in the complex signals between the nerves and the muscles.

Other research has also played a key role in exposing the failings of an artificial hip joint that has been implanted in 93,000 patients worldwide. Dr Tom Joyce of the University's bioengineering team began investigating the Articulating Surface Replacement (ASR) hip prosthesis manufactured by American-based DePuy in 2008.

This research revealed a number of failings in the design of the implant and explained how and why the metal joint was being worn away, releasing high levels of toxic metals into a patient's bloodstream.

The team's findings have been pivotal in bringing about the decision by DePuy to officially withdraw their ASR hip prostheses and now thousands of patients are being recalled.

Ensuring we make the best of our lengthening lives by improving health and wellbeing, research into drinking green tea was also shown to have benefits in protecting the brain against developing Alzheimer's disease and other forms of dementia.

Meanwhile, new light was shed on milk quality as research showed that wetter, cooler UK summers were having a detrimental effect, resulting in significantly higher saturated fat content and far fewer beneficial fatty acids than in a more 'normal' year. But it was also discovered that switching to organic milk could help overcome these problems, as the organic samples showed more resilience to changing weather patterns.

Innovations developed at the University are not just influencing our health – they are also helping us to understand our environment better.

Scientists are developing radio transmitters that can withstand extreme temperatures, which one day could be dropped into the depths of the Earth to provide early warning of a volcanic eruption.

The state-of-the-art technology uses silicon carbide electronics that can withstand temperatures equal to the inside of a jet engine. Measuring subtle changes in the levels of key volcanic gases such as carbon dioxide and sulphur dioxide, the wireless sensor would transmit real-time data to the surface, providing vital information about volcanic activity and any impending eruption.

“This kind of groundbreaking research into the quality of organic milk is vital to help prove the many public benefits that organic food and farming offer and is invaluable to our policy work.”

Emma Hockridge, Head of Policy at the Soil Association



- 1 Dr John Meechan with the special syringe cartridge designed to reduce the pain of dental injections.
- 2 Dr Tom Joyce with one of the defective hip joints.
- 3 Gillian Butler, who led the study into milk quality, with cows at the University's Nafferton Farm.
- 4 Dr Alton Horsfall demonstrating the extreme potential of silicon carbide.

# Inspiring Learning

Rising to 10th position in our UK peer group for overall student satisfaction in the National Student Survey has been a ringing endorsement of Newcastle University's investment in teaching and facilities. Eighty nine per cent of final-year undergraduates said they were satisfied with the quality of their course.

Professor Suzanne Cholerton, Pro-Vice-Chancellor for Learning and Teaching said: 'These results are due to the commitment, professionalism and enthusiasm of our staff. Academic quality, an education for life, and career success are an integral part of what we offer. All programmes of study at Newcastle build on our aims to provide students with the knowledge and skills that are not only essential for study but will equip them for success after they graduate and last a lifetime, no matter what they go on to do.'

Work is also continuing to ensure that our students come from a range of social backgrounds. The University is spending £44m between now and 2016 on this commitment, including continuing our role as the lead institution for Realising Opportunities, a unique collaboration of 12 research-intensive universities working together to promote fair access and social mobility of students from under-represented groups.

To enhance the overall student experience, the University is investing in the academic and social spaces on campus to bring about an exciting and vibrant transformation of our buildings, infrastructure and public spaces.

- 1 PhD students Julia Miebach and Anja Thieme with Bincam.
- 2 Microscopic examination by students revealed that tarantulas shoot silk safety threads from their feet to hold onto vertical surfaces.
- 3 The refurbished Students' Union includes several social outdoor spaces.
- 4 Professor Jimmy Steele is just one of the engaging lecturers working at the University.

The Students' Union has been refurbished to the highest standard and features 24-hour access study areas, with computers and special 'hubs' for undisturbed group work, as well as revamped bar, café and shop areas.

The striking Newcastle University Business School, adjacent to the Science Central site, has seen the first staff and students through its doors. This state-of-the-art steel and glass structure unites the Business School's teaching, world-class research, enterprise and innovation activities under one roof.

Winning a national award for green and sustainable design, the Baddiley-Clark Building officially opened in April. The building houses both the Institute of Health and Society and the Centre for Bacterial Cell Biology, providing new laboratories and meeting spaces.

## Student numbers At December 2010

Undergraduate	14,712
Postgraduate	5,702
<b>TOTAL:</b>	<b>20,414</b>

With the intention of better preparing students for the workplace, we continue to forge links with industry, such as global consultancy Arup. Focusing on design and engineering excellence through research, students get the benefit of the industry expertise throughout their courses in engineering, design, technology and sustainability.

Inspiring teachers, Dr Robin Humphrey, director of the postgraduate training programme in the Faculty of Humanities and Social Sciences, and Dr Tom Joyce, Reader in Biotribology, School of Mechanical and Systems Engineering, have been recognised with a National Teaching Fellowship from the Higher Education Academy. The continued success of Newcastle University staff in this prestigious national scheme highlights the strength and quality of our learning and teaching.

Students have also been at the forefront of some thought-provoking research this year. This has ranged from Bincam, where students volunteered to have their household rubbish displayed to the world on Facebook in an effort to encourage recycling, to the patient, microscopic examination which revealed that tarantulas shoot silk safety threads from their feet to stay secure on vertical surfaces, putting to rest a long-standing biological question.

‘The refurbishment of the Students' Union has taken a lot of work but it has been worthwhile. The new facilities have really gone down well with the students so far and there is something for everyone. We have left a lot of the old period features in place but just updated the facilities to meet the demands of modern students.’

Laura Perry (middle left), Students' Union President

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# Embracing Culture

Newcastle University's definition of culture is as wide and varied as the students and staff who are part of our community. From the study of fine art and history through to the latest digital media, our aim is to be at the forefront of cultural thought and innovation.

We also strive to make culture inclusive and accessible to everyone, through our popular public lecture and live music programmes, and projects such as OnSite, an off-campus project by our prestigious Culture Lab designed to bring culture, arts and technology research into the heart of Newcastle city centre.

By working with creative industry partners, Culture Lab offers a new venue for the local community to work in an open-minded, collaborative and innovative way with leading figures in digital art and media.

Culture Lab's staff and students are also leading the way on an international scale, with projects such as digital jewellery, an exciting way of making technological items more meaningful.

Researchers have been working with people with dementia to capture their memories and help them hold onto them for as long as possible. By fusing emerging technologies with contemporary jewellery, they have produced emotionally significant, beautiful objects designed to enhance human relationships.

This is an important part of the University's role as a UK Research Council's Digital Hub. It focuses on interaction with computers in everyday settings, and the role technology plays in making people's lives more meaningful. It also aims to tackle social exclusion by making it easier for people to access the life-changing benefits offered by digital technologies.

Our cultural expertise can appear in some unlikely places, such as on the list of film credits for a major blockbuster film, as was the case this year with *The Eagle*.

The production team called upon leading Roman archaeological expert Lindsay Allason-Jones to work as academic adviser to ensure every historical detail was spot on, from the initial script, costumes and speech, through to the post-publicity material.

There was also a Roman theme to more recent excavations in Cumbria, where Head of Archaeology Professor Ian Haynes led a team to uncover the truth behind the mysterious 17 altars at Roman Maryport, once believed to be buried as part of a religious ritual.

The team's work revealed a more down-to-earth answer to the question that has caused years of debate – the altars were actually given far less reverential treatment, rammed into the pits as supports for posts on an enormous wooden building.

Researchers have also brought a modern twist to prehistoric Northumberland rock art this year, with a new mobile phone app designed by the International Centre for Cultural and Heritage Studies.

They realised that people were often left frustrated because they could not easily find the rock art at three significant sites, as most of the markings are flat and often difficult to spot in dense vegetation or overcast conditions.

By using mobile phone barcodes, walkers can now link into an interactive site to download annotated drawings, recorded commentary and photographs onto their phones to enable them to see the patterns more easily.

Literature plays an important role in University life, from bringing world-class talent to the city through the Newcastle Centre for the Literary Arts, to adding to the debate and understanding of literature through the ages.

Dr Matthew Grenby spent 10 years pouring over scribbles in book margins and delving through censuses and parish records to research his book *The Child Reader*.

He challenges many long-held beliefs, such as the theory that children's literature gradually evolved from instructional books to entertaining ones, suggesting that the children's book industry may well have emerged much earlier than previously thought.

What this in-depth study has revealed about the owners of children's books, how they used them and what they thought is key to understanding how children's literature became established as a distinct and profitable industry in its own right.

“I might be just another name in the long film credits, but of all the things I've done in my career this one probably has more impact than any of them. As academics it's important not to lose sight of why we do what we do and what better way to engage young people in Roman history than through an entertaining film?”

Lindsay Allason-Jones, adviser on *The Eagle*



1 One of Dr Jayne Wallace's digital jewellery items, which are designed to store precious memories.  
2 Hadrian's Wall in Northumberland, the setting for the book on which *The Eagle* film was based.  
3 Professor Ian Haynes at the Roman Maryport excavation site in Cumbria.  
4 Trialling the new mobile app designed to make Northumberland's rock art more accessible for walkers.



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# Enough, For All, Forever

This year saw the launch of the University's second societal challenge theme, sustainability. Reflecting Newcastle's research strengths in this field, the aim of the year has been to highlight our long-term commitment to solving one of the great challenges of our age.

Led by the Newcastle Institute for Research on Sustainability (NIReS) under the banner 'enough, for all, forever', the role of the Institute is to bring together leading experts in the fields of science, agriculture, engineering and social sciences to deliver practical solutions to global problems such as future energy needs, water management, food security and protection of the environment.

Professor Paul Younger, Director of the new Institute launched in October 2010, says the aim is to tackle the big societal challenges head on.

'This is about coming up with solutions before it is too late', he explained. 'The pursuit of a "knowledge economy" is much talked about in academia and government. We want to go a step further, pursuing a "wisdom economy" in which knowledge is tempered by a principled commitment to ensuring that all beings – human and non-human – have access to sufficient resources in perpetuity.'

'As Mahatma Gandhi once said; "The world has enough for everyone's need but not for everyone's greed". It's time we started learning how to be good ancestors and think about what we are leaving for future generations.'

Already recognised as a major centre for research into sustainable science and technology, projects such as the deep geothermal borehole in the heart of Newcastle's city centre and the launch of a full-scale anaerobic digester at the University's Cockle Park Farm have put us firmly on the international map.

Working closely with industry to translate our cutting-edge research into real-world solutions, our electrical engineers are working with Cummins Generator Technologies and Gateshead-based Sevcon to develop a new motor for electric vehicles that will significantly reduce our future dependency on rare Earth metals.

The year also saw the launch of the University's new research vessel – *The Princess Royal*. Replacing its 40-year-old predecessor, the new boat will play a major role in the University's drive to focus on sustainability, providing vital data about our coastal waters and informing future decisions about marine conservation zones.

Designed by staff and students in the University's School of Marine Science and Technology, the state-of-the-art boat will also be a key part of the teaching programme, providing valuable practical experience for our marine scientists of the future.

The £1.2m anaerobic digestion facility at Cockle Park Farm, one of the University's two research farms, is the first in the region to be installed on a working farm and is a key part of the University's new Living Lab concept which places research into sustainability at the heart of the region. Already producing heat from animal dung, the next step will be to use this heat to warm the farm's pig pens and to generate electricity to power the milking parlour.

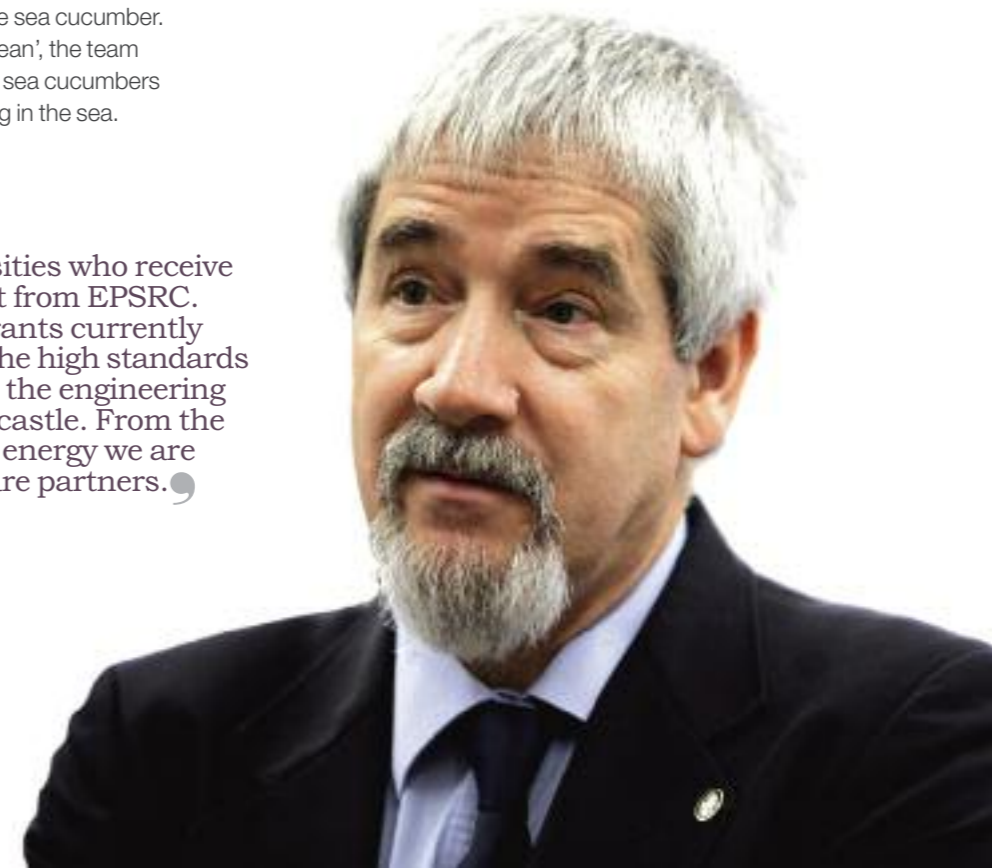
Balancing biodiversity and the protection of our natural habitats with the pressures of producing more food for an ever-growing population, Professor Selina Stead, former President of the European Aquaculture Society, and Dr Matt Slater, have employed the help of the humble sea cucumber. Appropriately named the 'cleaners of the ocean', the team is investigating how we might be able to use sea cucumbers to develop a more sustainable way of farming in the sea.

Also this year, the Engineering and Physical Sciences Research Council (EPSRC) has named the University as the UK provider of the National X-ray Photoelectron Spectroscopy (XPS) service, a state-of-the-art facility that will help engineers to discover new sources of green power. Based in the University's nanoLAB, the new centre was opened by EPSRC Chief Executive David Delpy.

The year of sustainability follows last year's hugely successful Changing Age campaign, which challenged the negative perceptions society has about older people. Next year will see the launch of social renewal – the third societal challenge theme – which will focus on how individuals, communities and organisations adapt and thrive in a rapidly changing and challenging environment.

Newcastle is one of 12 universities who receive the largest amount of support from EPSRC. The nearly £100m worth of grants currently being funded is testament to the high standards of innovation and research in the engineering and physical sciences at Newcastle. From the digital economy to renewable energy we are more than just funders – we are partners.

David Delpy, Chief Executive, EPSRC



1 Professor Paul Younger inspecting the pioneering geothermal borehole at Science Central.  
2 The University's new research vessel, *The Princess Royal*.  
3 Darren Blomfield, pig farm manager at the University's Cockle Park Farm.  
4 A novel motor, similar to those being developed by the University, for the new generation of electric and hybrid-electric vehicles.



# Engaging Communities

From using art to help people with aphasia to transforming a bridge across the River Tyne into a temporary green space, Newcastle University's engagement activities are as varied as the people they benefit.

Beacon NE is one of six UK university-based collaborative centres working to support, recognise, reward and build capacity for public engagement and is a key driver behind many of these activities. It is at the forefront of efforts to change the culture in universities, assisting staff and students to engage more with the public.

Funded by the UK Higher Education Funding Councils, Research Councils UK and the Wellcome Trust, Newcastle University leads on Beacon NE in partnership with Durham University and the Centre for Life in Newcastle.

One of the key aims is to bring together academic specialists with 'experts by experience' from outside the academic world to work with local communities on research that solves real problems and makes a difference.

A highlight was Catalytic Campus in March, which attracted over 800 visitors to the campus across five different venues. Focusing on the theme of sustainability, this showcased cutting-edge research and developing technology in a fun and engaging way.

Among the activities was the opportunity to see the world's first air-purifying dress, create a cloud or mini tornado, handle reptiles and create colourful cocktails.

Beacon NE also supports and funds a range of community regeneration initiatives such as the Guerilla Gardening Group project, involving staff and student volunteers from Student Community Action Newcastle (SCAN). They led the transformation of the Swing Bridge over the River Tyne into a temporary garden as part of the NewcastleGateshead Bridges Festival.

Following the event, volunteers took all of the donated plants and shrubs and worked with communities in the west end of Newcastle to regenerate communal areas in housing estates.

A partnership approach between the University's speech and language experts, North Tyneside Adult Learning Alliance, fine art students and the Stroke Association has shown that art can prove a valuable form of expression when words literally fail.

Aphasia is one of the most frustrating aspects of life after a stroke for both patients and their loved ones as it affects all verbal communication.

However, in just eight weeks 16 artists with aphasia, some new to art and others revisiting old skills, produced an exhibition of original and reworked pieces ranging from portraits to abstracts, forming new friendships and building confidence in the process.

Art was also an important element of a project that brought together researchers from Newcastle University's International Centre for Cultural and Heritage Studies (ICCHS) and Tyne and Wear Archives and Museums to develop digital media content for a new permanent display *Northern Spirit: 300 Years of Art from the North East* at the Laing Art Gallery, Newcastle.

By working with local people to explore different ways of seeing the North East, researchers ensured that the new gallery has its roots firmly in the local community, with 65 pieces of digital media created.

The *Art on Tyneside* workshops in the gallery and on location, along with input from professional filmmakers, sound recordists and photographers, gave participants the support to develop the skills they needed to realise their ideas.

Encouraging local people to explore their environment is the aim behind *Sea Change NE*, a year-long project that aims to capture the beauty of the North East coastline through the eyes of the people who live there.

By capturing the region's coast as it changes throughout the year with photographs, drawings and poems, the University team plans to use the best pieces to compile a 365-page book that charts a year in the life of the North East coast.



1 The Field of Jeans was one of the key attractions at the Catalytic Campus event.  
 2 Student volunteers transformed Newcastle's Swing Bridge on the Quayside into a green oasis as part of the NewcastleGateshead Bridges Festival.  
 3 Budding photographers were keen to be involved in a competition to capture the beauty of the North East coastline.



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# Onwards and Upwards

Newcastle University graduates continue to be among the most employable in the country. Latest figures released by the Higher Education Statistics Agency show that Newcastle is fifth in the UK among our university peer group for our graduate employment rate.

Last year over 94 per cent of our graduates were either in employment or further education six months after graduating, an increase on the year before. And over three quarters (77.7 per cent) of those employed were in graduate-level jobs, against a national backdrop of continued financial uncertainty and increasing unemployment rates.

The Careers Service provides extensive support for students throughout their time at University and beyond. During the last academic year, over 300 recruiters from companies of all sizes visited the campus, exhibiting at recruitment fairs or giving presentations, connections that help our graduates with their first step on the career ladder.

Entrepreneurs are supported through initiatives such as Rise Up, a unit that specialises in helping students who want to start their own business. Last year a record 31 were launched with the help of University staff and the hard work of our graduates.

New business ideas are recognised every year in the Enterprise Challenge Awards. Among the winners in 2011 was a business which aims to make art and cinema more accessible. Jam Jar Cinema, set-up by Master's graduate Dan Ellis, aims to create a space where films and other art projects can be shown cheaply, giving more young people the opportunity to access these types of events.

Another new idea has the potential to reduce fuel bills in the home. The Radfan, invented by graduates Roland Glancy and Simon Baker, is fitted to the top of radiators, where it spreads out heat evenly around the room, allowing thermostats to be turned down and resulting in lower bills.

Many other Newcastle graduates have made a real impact in the workplace this year, with several major success stories.

Entrepreneur Adam Soliman launched his own brand of specialist teas, after graduating from Newcastle University Business School two years ago.

'Charbrew' was snapped up by Sainsbury's and is now on the shelves of the supermarket's 400 stores. Adam is currently working on building his brand for the overseas market with his tea flavours, including strawberry and cream and Tropical Rooibos, a blend of South African redbush mixed with cardamom, coconut, orange peel and lemon grass.

One of the star attractions at the Chelsea Flower Show last year was a sustainable 'rain garden', created by a team including Newcastle biology graduate Ed Payne. The Royal Bank of Canada New Wild Garden, made entirely of objects which had been recycled, reclaimed or reused, was designed to capture and use every single drop of rain that fell on it.

Fine Art graduate Yvette Hawkins is bringing her version of the ancient Japanese art of origami to an entirely new audience after winning a major contract to supply a new casino hotel in New Jersey, USA. Using mainly secondhand books, she has created 2,999 unusual sculptures for the hotel's bedroom and suites.

Another student who has had a career boost thanks to a degree from Newcastle University is Charlotte Smout. She graduated with a Master's in Chemical Engineering last summer and started a job with major oil company ExxonMobil in September as a utilities engineer at a plant in Scotland.

“I spotted a gap in the market for specialist teas and so far it has paid off. With help from the Careers Service to get my business off the ground it is now going from strength to strength.”

Adam Soliman, graduate and tea entrepreneur



- 1 The Rise Up unit helps support students who want to start their own business.
- 2 Charlotte Smout, the Master's graduate who has started a job with ExxonMobil.
- 3 Artist Yvette Hawkins won a contract to supply an Atlantic City hotel with her artwork.
- 4 The Royal Bank of Canada New Wild Garden, which graduate Ed Payne helped to create.

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# Reaching Out

Newcastle University continued to reach out to the wider world this year, with the opening of its second branch campus in Asia. NUMed Malaysia, at Johor in Iskandar, welcomed the first students (see below) into its brand new building in September, before the official opening ceremony in November.

A replica of the iconic arches of the Newcastle UK campus forms a focal point for the Malaysian campus, cementing the close bond that exists between the two.

Over 900 students will be recruited to study medicine at the new site, with biomedical sciences and postgraduate education courses also offered from 2012 and beyond. Students at the newly constructed campus will benefit from innovative, first-class facilities in which to study, with secure student residences also on site.

At the Ngee Ann campus in Singapore, 67 students graduated from Newcastle University Marine International (NUMI) this year, as it continues to grow after opening in 2008. NUMI now offers degree programmes through four schools: Marine Science and Technology; Mechanical and Systems Engineering; Chemical Engineering and Advanced Materials; and Agriculture, Food and Rural Development.

Closer to home, brand new living and learning facilities opening in summer 2012 will welcome INTO students to the heart of Newcastle University's campus. These will include a state-of-the-art study centre and accommodation for about 530 students on the INTO programme, which prepares international students for undergraduate and postgraduate study in the UK. The study centre will also house science labs, a lecture theatre, a learning resource centre and café. All classrooms will be equipped with the latest teaching technology, including interactive white boards.

As well as the international campuses, Newcastle University academics have made an impact around the world in the past year by helping out at disaster sites, sharing their expertise at conferences and carrying out vital research.

In March, Professor Paul Younger led a workshop on decarbonising the environment at the Global Sustainability Forum, a major international conference in Brazil.

It was an honour to speak at the Global Sustainability Forum and have the opportunity to showcase the University's world-leading research into sustainable solutions. We are aiming to develop responses to the great challenges of our age, specifically issues around urban living, food security, clean manufacturing, low-carbon energy as well as transport and water management.

Professor Paul Younger (right)

He was joined by former US President Bill Clinton and other internationally significant sustainability advocates. The elite group of guest speakers addressed the increasing need to improve sustainable development on a global level.

Professor Younger was also called upon late last year when toxic sludge escaped from a storage reservoir in the Hungarian village of Kolontar. Nine people were killed and more than 150 injured when 700,000 cubic metres of red toxic sludge, a by-product of the early stage of aluminium production, cascaded into the nearby Danube, in October last year.

Prime Minister David Cameron had offered support to Hungary and personally requested Professor Younger's assistance, who then went out to study the long-term consequences of the disaster, sampling sediments to check the level of pollutants they contained.

Another academic who has helped out at disaster sites this year is Dr Sean Wilkinson, who travelled to New Zealand in the wake of the 6.3 magnitude earthquake that hit Christchurch in February, killing 181 people.

Dr Wilkinson and his team studied the patterns of building collapse in the city, gathering information that could be vital to lessen the impact of future quakes. Later in the year he organised a mission to Japan after a major earthquake and tsunami hit the country.

Other University staff have been heavily involved in training international colleagues this year. This included a unique linkup between the UK and Nigeria, organised by Dr Richard Young, a professional development specialist, where a group of Nigerian academics travelled over to Newcastle for three months to learn teaching skills, which they could then take home to help train their nation's engineers and scientists. Thirty-two Nigerian lecturers have now completed the Certificate in Advanced Studies in Academic Practice (Intensive) programme in Newcastle.

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1 Professor Paul Younger speaking at the Global Sustainability Forum in Brazil.  
2 An artist's impression of the new INTO study centre.  
3 Dr Sean Wilkinson in Christchurch, New Zealand in the wake of the huge earthquake.  
4 Investigating the toxic sludge, which devastated parts of Hungary.

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# Influencing Future Policy

Newcastle University has always looked to use the varied expertise of our staff and research to benefit much more than just the academic community. Through links with businesses, government departments and industry, we are helping to influence future policy and ensure the work we do has a positive effect on wider society.

19 The Human Fertility and Embryology Authority (HFEA) has endorsed scientific methods developed at Newcastle University which should allow researchers to replace the defective mitochondria – the ‘batteries’ – of a fertilised egg, preventing transmission of mitochondrial diseases from a mother to her child.

These diseases can cause devastating illnesses and death, which is why leading medical research charities are pushing for regulations to be introduced that will help progress the University’s groundbreaking research.

Health Secretary Andrew Lansley will now decide if the techniques are to be allowed to progress to full human medical trials and eventually treatment.

In another field, our engineers are leading a £3m European project to revolutionise the way we harness energy on board ships. Taking a holistic approach to energy management, the team hopes to combine conventional and renewable energy sources in an effort to reduce the carbon footprint of the shipping industry.

INOMANS<sup>2</sup>HIP is one of three major research projects – worth a total of £9m – that involves experts from the Sir Joseph Swan Centre for Energy. The overall aim is to look at developing technology that will improve the long-term sustainability of world shipping.

Our expertise also travels into some more unusual places, such as a collaboration involving Joanna Gray, Professor of Financial Regulation at Newcastle Law School, who offered advice and guidance to the Moroccan capital markets regulator.

● Mitochondrial diseases are often devastating for patients and their families, but the ability to prevent their transmission is within our reach. It is our duty to these families to do all we can to enable them to raise a family unaffected by mitochondrial disease. ●

Sir Mark Walport, Director of the Wellcome Trust

Being invited to contribute to one of these projects is an honour usually reserved for US academics. ‘It’s particularly rewarding to do something like this when most people think your field of research doesn’t have a huge influence on the developing world,’ said Professor Gray. ‘In fact, a resilient and trustworthy financial system is crucial for a country’s economic development.’

Our influence on learning also extends wider than higher education, as our research often feeds into government education policy across the board.

Professor James Law was part of one of the largest studies of its kind, which showed that parents who foster a love of reading in their child’s early years ensure they get off to a flying start at school. The *Role of Language in Children’s Early Educational Outcomes* report looked at how a child’s very early environment – before their second birthday – influences their language and school performance and highlighted the importance of public libraries and Sure Start centres.

Health is a key global issue and Professor Feng Li, of Newcastle University Business School, is leading a groundbreaking study into health and social care provision for the UK’s ageing population – just one of our ongoing collaborations within the healthcare sector. Working with 10 other partners from the private, public and voluntary sectors, the £2m project is investigating how sustainable assisted-living technologies and services can help older people remain independent in their own homes for longer.

The team is working on sustainable business models for the government-backed Technology Strategy Board, which are expected to lead to new services that will save millions of pounds a year and also generate new business.

By providing a stimulating environment for our students and constantly extending the reach of our research, we also aim to send new thinkers and young influential researchers out into the world.

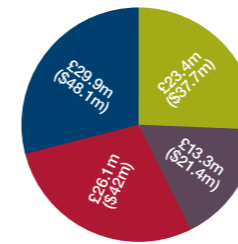
Dr Nick Graham of the Australian Research Council’s Centre of Excellence in Coral Reef Studies and James Cook University, a former PhD student at Newcastle University, has developed a new way of calculating the vulnerability of coral reef fish which revealed that more than a third of species are in jeopardy of local extinction due to the impact of climate change. Dr Graham continues to work with his former colleagues in the UK on the ‘extinction risk index’, which provides coral reef managers with a vital tool for better protecting and managing the world’s coral reefs.

- 1 Professor James Law, whose research showed the importance of fostering a love of books in a child’s early years, with young reader Eve.
- 2 Professor Mehmet Atlar is looking into how to make ship engines more efficient.
- 3 Research has shown that over a third of species on coral reefs are threatened by the effects of climate change.
- 4 The University is investigating how sustainable assisted-living technologies can help older people live in their homes for longer.



# Facts & Figures

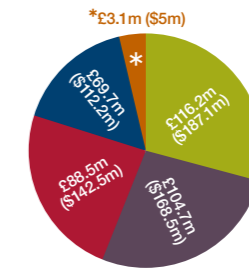
The University is proud of our history and achievements. Our vision is to be a civic university with a global reputation for academic excellence.



The value of new research awards During the year ending 31 July 2011

- Research councils
- European Commission
- UK-based charities
- Other

TOTAL: £92.7m (\$149.2m)



Income for the year Ended 31 July 2011

- Funding council grants
- Academic fees and support grants
- Research grants and contracts
- Other operating income
- Endowment income and interest receivable

TOTAL: £382.2m (\$615.3m)



## University Facts

- The history of the University dates back to 1834 when a School of Medicine and Surgery was established in Newcastle.
- The University offers approximately 200 undergraduate degrees and 300 postgraduate taught programmes and research degrees.
- The University has 24 academic schools organised into three faculties: Humanities and Social Sciences; Medical Sciences; and Science, Agriculture and Engineering. In addition there are 25 research centres and 10 research institutes.
- The Chancellor of the University is Professor Sir Liam Donaldson, currently Chairman of the National Patient Safety Agency (NPSA). Sir Liam is recognised as an international champion of patient safety and has chaired the World Health Organization World Alliance for Patient Safety since its launch in 2004. Prior to this appointment Sir Liam was the Chief Medical Officer for England, and the UK's Chief Medical Adviser from 1998–2010.
- The University is a founder member of the Russell Group, an association of 20 research-intensive universities in the UK.
- For three years running, one of the world's best known travel websites, MSN Travel, named Newcastle as the 'best University city in the UK'.

## Recognition of Achievement

- *The Sunday Times* league table of UK universities placed Newcastle 12th out of 121.
- Newcastle University was rated as one of the top institutions in the country in the 2011 National Student Survey with the results placing us 10th in the UK among our peer group.
- The University is ranked among the best in the world by both the QS and *Times Higher Education (THE)* university league tables, which place Newcastle University in their global top 150.
- The Engineering and Physical Sciences Research Council (EPSRC) has ranked Newcastle among its top 12 most strongly funded universities after securing £57.2 million in the last three years.
- Top honours for University staff in 2011 included an OBE for Professor Peter Stone for services to heritage education and a CBE for Professor Tony Wadsworth for services to the British music industry.
- The quality of Newcastle University research has been recognised by the award of two Queen's Anniversary Prizes for Higher and Further Education, in 2005 and 2009.
- The University has received national recognition for its Library and Estates teams, winning the 2011 'Outstanding Library Team' and 'Outstanding Estates Team' categories in the *THE* Leadership and Management Awards.

## Investing in the Future

- The University will be investing £66m over the next three years to improve our campus for students, staff and visitors alike. This will include the creation of a new open space with landscaping and artwork adjacent to the recently upgraded Students' Union building.
- A new teaching and accommodation centre for more than 500 international students, a joint project between the University and international student recruitment specialists, INTO University Partnerships, is due for completion in 2012.
- Leading the way in advanced X-ray technology, Newcastle University has been named the UK provider of the National X-ray Photoelectron Spectroscopy service by the EPSRC. The state-of-the-art facility will help engineers discover new sources of green power.
- HRH The Princess Royal officially named Newcastle University's new £1m research vessel that will further scientific understanding of the North Sea.
- The University's position in research in the social sciences has been recognised by the Economic and Social Sciences Research Council through the establishment of a major Doctoral Training Centre in collaboration with Durham University.
- Up to 6,000 new students will benefit from the University's generous package of bursaries, scholarships and fee discounts over the next five years. This includes the Newcastle University Promise Scholarships which will provide full-fee scholarships worth up to £9,000 a year to 20 young people who show the most academic potential, but are least likely to attend a top UK university such as Newcastle.

## Engaging with Society

- The University is playing a leading role in some of the UK's biggest collaborative research projects, working with the NHS and global industry to develop and implement the technologies, health innovations and policies of the future.
- Newcastle University Business School has moved into a new state-of-the-art complex at Downing Plaza. Located at the centre of business and commercial development, it provides a gateway to Newcastle Science Central – the ambitious science, education and commercial hub in the city centre. The move enables the Business School to continue to forge collaborative links with the wider business community.
- Honorary degrees awarded in recent years by the University include those to football celebrity Alan Shearer, BBC medical correspondent Fergus Walsh, the journalist and broadcaster Dame Joan Bakewell and children's author David Almond.
- The University has Fairtrade status and is the only university in the world to officially support the Jubilee campaign for developing country debt relief.
- By the end of 2012, more than 10,750 students will have taken part in Newcastle and Northumbria Universities' Students into Schools student tutoring programme, which offers placements to students in local schools where they support learning and raise aspirations, gaining valuable experience and contributing to the local community.