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# Annual Review 2015

Wonderful things  
happen here.





# The Vice-Chancellor's view



**Professor  
Michael Kearney**  
Acting Vice-Chancellor of  
the University of Surrey

“ This year, we were proud to be named University of the Year by *The Times and Sunday Times Good University Guide 2016*. This highly prized accolade commends the ongoing efforts of our staff to ensure that the experience of being a student at Surrey is the best it can possibly be. ”

Students are at the heart of what universities do, and this tenet continues to steer Surrey's strategic decisions and goals. We have invested in high-quality student accommodation and support services, first-rate facilities for learning and teaching, and have brought top academics here to teach and advance their research interests.

As well as helping our students to succeed academically, we also recognise that a good university experience is a preparation for life. In this regard, our relationship with our local community is vitally important and we encourage our students to immerse themselves in the opportunities Guildford has to offer, such as volunteering activities.

Over the last year we raised more philanthropic and legacy income than ever before. This valuable support means that we are better able to recruit talented students regardless of background and financial circumstance.

This year, we were proud to be named University of the Year by *The Times/Sunday Times Good University Guide 2016*. This highly prized accolade commends the ongoing efforts of our staff to ensure that the experience of being a student at Surrey is the best it can possibly be.

For the first time, we are now in the top 10 of all the major national league tables as well as in the National Student Survey, where we rose to 5th for overall student satisfaction (our highest ever ranking).

Surrey's academic offering and research portfolio have been enhanced by two major projects which were given further impetus this year by the official grand openings of their respective buildings, both with royal seals of approval.

The 5G Innovation Centre, which will house Europe's first research hub dedicated to next generation communications technology, was opened in September by our Chancellor, HRH The Duke of Kent. The following month we were honoured to welcome HM The Queen, accompanied by HRH The Duke of Edinburgh, to open the new School of Veterinary Medicine, one of only eight established in the UK.

To be a leading university means never standing still. Here at Surrey, 2015 will be remembered as a year of continuous momentum. This is testament to the leadership and guidance of Professor Sir Christopher Snowden, under whose direction the University has progressed so significantly over the last few years. We look forward to welcoming a new President and Vice-Chancellor in 2016, Professor G.Q. Max Lu, to help us build on this strong legacy.



## Surrey on the global stage



The University Global Partnership Network (UGPN) was founded by The University of São Paulo, North Carolina State University and the University of Surrey. The mission of the UGPN is to develop sustainable world-class research, education and knowledge transfer through an active international network of selected universities collaborating in research, learning and teaching to benefit our global society.

To date, the UGPN has achieved:

- Joint research in a range of areas (including air quality, water, global public health, sleep and nuclear physics), resulting in more than 30 research outputs in high-impact journals (12 of which were published in 2015)
- Career and networking opportunities for more than 45 PhD students attending the UGPN Doctoral Seminar, hosted each year at a Partner University
- Over £500,000 in funding from external agencies for further research

### UGPN Research Collaboration Fund

To date, the annual fund of US\$180,000 has supported 25 research projects. In July 2015, six projects were selected for funding including two trilateral and four bilateral projects. Topics included aerosol emissions, the modelling of disease, storm water and air quality and nuclear physics.

### Global opportunities for students and staff

As part of our commitment to being a truly global University in all our endeavours, we continue to support and search for mobility opportunities for staff and students.

In the 2014-15 academic year, 114 Erasmus grants were awarded to 102 Surrey students to go to Europe, either to study or undertake a Professional Training placement as part of their degree. A further 88 students travelled to international destinations via other arrangements. Destinations ranged from Australia to Singapore, Hong Kong to the USA and nearly all countries in the EU. Surrey staff were awarded 10 Erasmus teaching grants and 15 training grants.

In the same year, we received a total of 117 students, 67 of whom joined from Europe as part of the Erasmus scheme and 50 came from international partners. In the 2015-16 academic year, 255 overseas mobilities are planned.

### Global citizens

The Global Graduate Award programme invites students to start a new language, refresh a forgotten language or continue with one they have already studied. Demand for the free programme continues to rise - 2,666 students enrolled on to Global Graduate Award modules during 2014-15.

## Sustainable success

The Sustainability Team's achievements in 2015 are helping us to become a more environmentally responsible University, as well as saving money.

Continued investment in behaviour-change campaigns are having a positive long-term effect on University culture, translating into measurable energy, water and waste savings. The Carbon Trust estimates that 10-15% savings can be made through behaviour change alone.

Risk management and legislative compliance are being addressed through the implementation of the EcoCampus Environmental Management System (EMS). We are working towards the third stage (gold standard) of this four-stage programme, the completion of which will enable the University to seek accreditation under ISO 14001.

Examples of specific 2015 initiatives include:

- A successful application to the Salix Energy Efficiency Loan Scheme for an additional interest-free loan of £0.5m for a number of projects (including new lighting and enhanced insulation) that will bring lifetime reductions in carbon-dioxide emissions of 7,788 tonnes, with overall utility cost savings of £158,445 per annum
- The NUS Student Switch Off campaign saved at least £20,000 at Surrey through energy savings in Courts of Residence over the year, and is the second most subscribed-to Switch Off campaign in the country (with more than a third of first-year students participating)

- In March 2015, a Blackout event took place in six buildings, saving £185 in one night – equivalent to an annual saving of just over £25,500 in just those buildings
- As a result of the Green Impact scheme, over 170 people pledged to turn off their computers when not in use (saving over £2,200), and around 120 people pledged to print and photocopy double-sided and to re-use scrap paper, potentially saving over £2,300
- The new 'binless office' system being rolled out across campus is intended to increase recycling by 15%, with a financial saving of around £25,000 on annual waste-disposal costs
- The 'WARP-IT' furniture reuse scheme that we launched at Surrey in summer 2015 saved the University of Brighton £20,000 in two months and Sunderland City Council £250,000 in under two years
- Installing a cover on the Surrey Sports Park swimming pool will save around £40,000 a year, so paying for itself within 3 years

The Sustainability Team is cost neutral, delivering significant institutional savings beyond simply covering its own costs.

# £158,445

ANNUAL SAVING IN UTILITY BILLS



# 5G starts at Surrey

**Our networked campus is now the global hub for research into the future of wireless communication.**

September saw the official opening on campus of a £70m research centre with a difference. The 5G Innovation Centre (5GIC) is the world's largest academic centre for research into 5G, the next generation of mobile and data networks.

5G will bring faster download speeds than the current 4G system, but will also carry the vast amounts of extra data generated when billions of devices start automatically exchanging information with each other in the Internet of Things.

What makes 5GIC different is the collaborative approach that has brought partners from business, industry, media, regulators, government and the local community together as integral members of the project, with most of the cost of the Centre invested by these partners. This involvement of the groups that will eventually operate, use and oversee 5G will allow standards and specifications to be agreed on a global scale as research progresses, bringing huge benefits for everyone when 5G networks and devices become available from 2020.

Uniquely, a 4km<sup>2</sup> 4G network has been installed in and around campus as a test-bed, giving researchers a live system that they can upgrade to 5G in real-world conditions as work progresses.

“The ethos of the Centre is not built on competition but co-operation

“The ethos of the Centre is not built on competition but co-operation. 5G will be achieved through global collaboration so that everyone will benefit from working to a single standard. This technology will then be commercialised from 2020, driving economic development and research for the UK, while delivering research that will impact the world.”

Professor Rahim Tafazolli,  
Director of the 5GIC

“The development of 5G presents a significant economic opportunity, and this world-leading centre will position the UK at the forefront of research into the next generation of communications technology. The Government wants Britain to be the best place in Europe to innovate and we are committed to supporting collaborations like this one to ensure pioneering research continues to improve people's lives.”

Jo Johnson,  
Minister for Universities & Science



**NEXT GENERATION  
OF WIRELESS NETWORKS**



**INTERNET OF THINGS  
BILLIONS OF DEVICES EXCHANGING DATA**

**1Gb/s**

**MINIMUM CAPACITY PER USER**



**170 WORLD-LEADING ACADEMICS  
KEY PARTNERS FROM BUSINESS,  
INDUSTRY AND GOVERNMENT**



**THE HUB FOR A  
GLOBAL RESEARCH COLLABORATION**

## GLOBAL PARTNERS

EE, HUAWEI, O2, VODAFONE, HEFCE, ENTERPRISE M3, TEOCO CORPORATION, BBC, BT, COBHAM WIRELESS, ANITE, ASCOM, DIGITAL CATAPULT, FUJITSU, ROHDE & SCHWARZ, SAMSUNG, ROKE, MCLAREN, OFCOM, ITRI, MYCOM OSI, THREE, IMAGINATION TECHNOLOGIES, ORDNANCE SURVEY

# Royal vetting

**The Queen officially inaugurated the new School of Veterinary Medicine buildings on our Manor Park Campus in October 2015.**

Prestigious facilities deserve a special celebration, so we were delighted to welcome HM Queen and HRH The Duke of Edinburgh to the University in October to officially open the School of Veterinary Medicine's new home on our Manor Park campus.

The School of Veterinary Medicine, only the second vet school to open in the UK since 1965, embraces the 'One Health' philosophy that human and animal health is intrinsically linked. The custom-built buildings are integral to the School's innovative approach to veterinary education, which puts veterinary professionals, government agencies and industry at the heart of its teaching and research.

"It has taken five years of vision, enthusiasm and determination from many talented individuals for us to reach the official opening of a new and different School of Veterinary Medicine at the University of Surrey," said Professor Lisa Roberts, Executive Dean of the Faculty of Health and Medical Sciences.

"Veterinary scientists play a pivotal role in animal and human disease control and prevention. The University's veterinary programme encompasses global diseases and food security issues, and facilitates progression into a broad range of careers in the veterinary profession."

Professor Noel Fitzpatrick, one of the founding partners of the School, said: "I had a vision where we would deliver a degree structure which was truly focussed on what you dream about when you are sixteen years old, when you are desperate to become a vet."

"I fully intend to be part of a team that will kindle that fire throughout professional life to shine a light onto the world that badly needs ambassadors of purpose and integrity to be the caretakers of health on Earth, both now and for long after I'm gone and these new buildings will still be standing. This is our legacy, and I am intensely proud to be part of this evolution in health education."





# The student experience



# View from the Students' Union



We recognise the strategic importance of placing the student experience at the heart of our approach to teaching and learning, together with a renewed commitment to personal and professional development for exceptional career outcomes. This strategy bore fruit in 2015 with a range of noteworthy achievements.

**14,094**

2014–15 STUDENT POPULATION, INCLUDING:  
10,464 UNDERGRADUATE  
2,521 POSTGRADUATE TAUGHT  
1,109 POSTGRADUATE RESEARCH

**5<sup>th</sup>**

IN THE NATIONAL STUDENT SURVEY (92% OVERALL STUDENT SATISFACTION)  
*THE TIMES/SUNDAY TIMES* UNIVERSITY OF THE YEAR FOR STUDENT EXPERIENCE

**96.9%**

OF ALUMNI IN WORK/EDUCATION SIX MONTHS AFTER GRADUATING IN 2014

**1,069**

STUDENTS EMBARKING ON PLACEMENT YEARS IN 2015–16

### Sports and fitness

Surrey Sports Park invested £500,000 into a refurbishment of the Health & Fitness Suite, while Team Surrey has now risen 44 places in 5 years in the British Universities and Colleges Sports league.

### Arts

In May 2015 four recent graduates worked on *The Freedom Game* at the Royal Albert Hall, a community opera commissioned by Surrey Arts to mark the 800th anniversary of the sealing of the Magna Carta.

### Technology

The Annual Fund awarded a grant of just under £9,000 to the student Electronics and Amateur Radio Society for the purchase of new tools and equipment. Society secretary Philip Handley said: "This equipment will enable students to practise the skills required for serious employment in a technical role."

**80.8%**

OF UG STUDENTS ACHIEVED A 'GOOD DEGREE' (1ST OR 2:1)  
UP FROM 78.5% IN 2013–14

**2<sup>nd</sup>**

FOR EMPLOYABILITY AMONG ENGLISH CHARTERED UNIVERSITIES

**2,000+**

PROFESSIONAL TRAINING PARTNER ORGANISATIONS

2015 was a big year of change for the Students' Union and the activities that our students took part in, writes the University of Surrey Students' Union President, Mustie Smith.

"On Monday 13 July, the new Students' Union Officer team for the 2015-6 academic year took office. The structure of the Union has evolved, with the organisation now led by four 'Zones' - Activity, Community, Support and Voice - which combined cover every facet of student life.

"At the Union's helm is the President - that's me - supported by four Vice-Presidents, who each represent one of the four 'Zones', assisted by a team of part-time student 'Zone Committee' members.

"This year, the Students' Union closed Chancellor's, its last remaining standalone bar, as the decline in student alcohol consumption continues. In 1995, there were five bars on campus, but now only one remains.

"Conversely, student participation is at an all-time high, with one in three Surrey students now a member of a Union society or sports club, and just under 5,000 students voting in our annual elections. We crowdfunded over £20,000 to provide another minibus to help our sports teams get to their matches each week, and we celebrated the University's technology roots by naming EARS (Electronic and Amateur Radio Society) Society of the Year in our annual Student Awards.

"Encouragingly, we have seen a rise in the number of Surrey students volunteering for schemes varying from teaching in schools to helping at sports events. We are now also a licensed Duke of Edinburgh's Award centre, becoming the first Students' Union in the UK to independently run this scheme.



Team Surrey – Lacrosse training

### Team Surrey

"In the past five years, Team Surrey has become a recognisable brand for sport at the University, helping to support students of all abilities to take part in sporting activity.

"Team Surrey has also seen our performance improve in the BUCS (British Universities and Colleges Sport) league table, finishing 31st last year (up from 75th previously). We may now revise upwards our target of a top-30 finish by 2017.

"Although there is an element of competitive sport, Team Surrey has established a successful participation scheme, 'Play Sport', that allows students to get involved without the competitive element."

**79%**

SATISFACTION RATE FOR STUDENTS' UNION IN NATIONAL STUDENT SURVEY



# Exceptional students

We asked six of our students to tell us about their biggest achievements in 2015.



**Bev Pullen**  
BSc Sociology, Culture and Media

"My greatest achievement was completing my placement year. Before starting my placement I had very little experience presenting in front of large groups of people. This was a major part of my placement, so by the end I was presenting confidently in front of 200-300 people at an open day - something I would never have considered doing in my first year. I went back to my old college and some of the teachers could not believe I was doing what I was. Someone who was very quiet was now talking in front of large groups of people and really enjoying it.

"Just being able to step out of my comfort zone on placement and challenge myself has been an achievement in itself. Travelling the country independently and networking have all contributed to making me a much more well-rounded individual."



**Holly Boothroyd**  
BSc Computing and Information Technology

"For me, learning to be on my own, 5,000 miles from home, was my greatest achievement. I had to learn to adapt to a new culture, new food, new words, new everything.

"I was very homesick at first, but by the end of the year I was sad to leave England. I have successfully established myself in a new environment and managed to maintain a first in all my classes."

“ I saw 2015 as a real opportunity to rebuild my academic confidence, and I decided to jump in with both feet. ”



**Simon Burfoot**  
BSc Mathematics with Statistics

"I had been nervous about starting studying again in a new setting. I saw 2015 as a real opportunity to rebuild my academic confidence, and I decided to jump in with both feet. January marked the start of when I felt I really started putting in hard work. Not just into my degree but into the Beginners' Spanish module I had opted to take, as well as in helping run a society and working part-time as a Student Ambassador.

"There were times where it seemed a bit too much but to be told in July that I had obtained a solid First Class for the year made me feel incredibly proud of myself, and made the slog feel totally worth it. I'm now starting my final year of studies with motivation at an all-time high."



**Alice Kelly**  
BSc International Hospitality Management

"My greatest achievement of the year was definitely completing my placement and the success following on from it. It was an amazing opportunity where I was able to develop as a person and enhance my employability from everything I experienced."

## 1st

FOR HOSPITALITY, EVENT  
MANAGEMENT AND TOURISM  
IN *THE GUARDIAN* LEAGUE  
TABLE 2016



**Eloise Taylor**  
BA French and Translation

"I'm really proud of having done two work placements in France and of how much I improved my French while living in Paris. The year abroad wasn't easy but I proved to myself that I could do it. I can go by myself to live and work in another country, speaking another language, and being at this point with my French is something I have aspired to for years."

“ An amazing opportunity where I was able to develop as a person and enhance my employability ”



**Nick Smith**  
BMus Music

"The highlight of my year was the organising and running of Big Band Tour 2015 back in June. The whole band travelled on canal boats up and down the Avon River all week while playing gigs on the way. It was incredible and very successful."





## Innovative educators

**Our commitment to providing the best possible education for our students requires constant innovation in teaching methods and new additions to our course portfolio.**

In 2015, we launched a range of new undergraduate degrees, including new Major/Minor combinations of programmes that allow students to specialise in one subject while also gaining insight into another. The unique Surrey twist is the provision of integrating modules that help to link and contextualise knowledge from the two academic fields.

Major/Minor is a key component in our commitment to flexible study, joining our new Bachelors programme in Liberal Arts and Sciences. The first cohort of students on this flagship degree completed their initial academic year in 2015, and we welcomed an expanded second cohort to begin their studies in October. Building on existing provision in Sociology and Criminology, we introduced a new BSc in Criminology in response to student feedback.

At postgraduate level, we introduced our first Master of Fine Arts programme in Creative Writing, while our new cybersecurity-focused Information Security MSc is certified by the British Government Communications Headquarters (GCHQ).

The Centre for Environmental Strategy launched the first ever fully industry-funded Practitioner Doctorate in Sustainability programme. This will produce industry professionals who understand the challenges of sustainability and who are well placed to move the sustainability agenda forward within industry. The first cohort of doctoral practitioners joined us in June 2015 (in collaboration with industry partners such as Rolls-Royce, Carillion, Unilever and Ikea-Hubbub), and we look forward to welcoming our second cohort in 2016.

We also launched our first online taster course in Systems Biology, which attracted more than 500 registrations of interest from across the world and now serves as a model for further pilots across the three Faculties.

Working closely with the Students' Union, the University continues to develop and enhance the digital learning environment. Marking and feedback are increasingly delivered online, with peer-reviewing an innovative feature that allows students to provide feedback on each other's work.

The first phase of Lecture Capture saw the introduction of so-called 'micro-lectures', which complement face-to-face teaching in the 'flipped classroom' model. The well-established technology of electronic voting remains a highly popular tool to invite student participation in lectures; we are now using an Electronic Voting System that supports BOYD (Bring Your Own Device) and allows students to use their mobile devices to interact with live quizzes and polls during their teaching sessions.

## Inspiring academics

We can only provide an exceptional learning experience for our students by being in the vanguard of teaching quality and innovation. Here, three Surrey academics who have become National Teaching Fellows share their highlights of 2015.



**Professor Andy Adcroft**  
Head of Surrey Business School  
Faculty of Arts and Social Sciences

"The highlight of 2015 for me was winning a National Teaching Fellowship. University should be a life-changing experience, and I've spent a huge amount of time working with many colleagues to create a student experience that delivers this and allows students to really fulfil their potential.

"In the Business School we help students to develop into graduates who know a lot about business but who can also do a lot for business, so leadership and team working, adaptability and working under pressure, openness and proactivity are all now central to our student experience.

"The award may have my name on it but I think it belongs just as much to the University."



**Dr Simon Usherwood**  
Associate Dean (Learning and Teaching),  
Faculty of Arts and Social Sciences

"My highlight of 2015 has to be the award of a National Teaching Fellowship from the Higher Education Academy. To get such an important recognition of my work with students here at Surrey, as well as with colleagues at other institutions, was a great encouragement.

"My new-found status – and the funding that comes with it – is already proving useful in widening and deepening my network of contacts and my ability to continue exploring new ways of teaching with my students, using simulation games, problem-based learning and the wide range of new technologies now available to us."



**Dr Christopher Wiley**  
Director of Learning and Teaching,  
School of Arts

"My highlights of 2015 have included becoming a Senior Fellow of the Higher Education Academy; organising successful careers and networking events for the School of Arts; being nominated for the Students' Union Academic Staff Member of the Year award; delivering learning and teaching workshops at various UK universities; facilitating discussion sessions externally for prospective applicants to the National Teaching Fellowship Scheme; and publishing a report on the use of electronic voting systems in higher-education teaching, commissioned by the HEA.

"Of course, all that is entirely separate from my primary research activity in musicology, which this year has included two book chapters, organising a major international conference, setting up various book projects, presenting papers at the Universities of Oxford and London, and pre-performance talks for the Royal Philharmonic Orchestra and Glyndebourne Tour."





## Research with results

Our commitment to investing in collaboration continues to drive our research activities. As well as the opening of the 5G Innovation Centre (see page 4), the previous year also saw other significant developments and successes.

We are constantly looking for ways to diversify our research funding. A philanthropic donation of \$1m from alumni Elizabeth and Neil Chapman will be put towards a £2m investment to transform facilities in the Department of Chemical and Process Engineering.

# £43.7m

IN 196 NEW RESEARCH AWARDS

With 196 new research awards worth £43.7m, August 2014 to July 2015 was the best academic year in Surrey's history for research funding. This performance is an impressive first step in the University's drive to dramatically increase new research funding.

# 98%

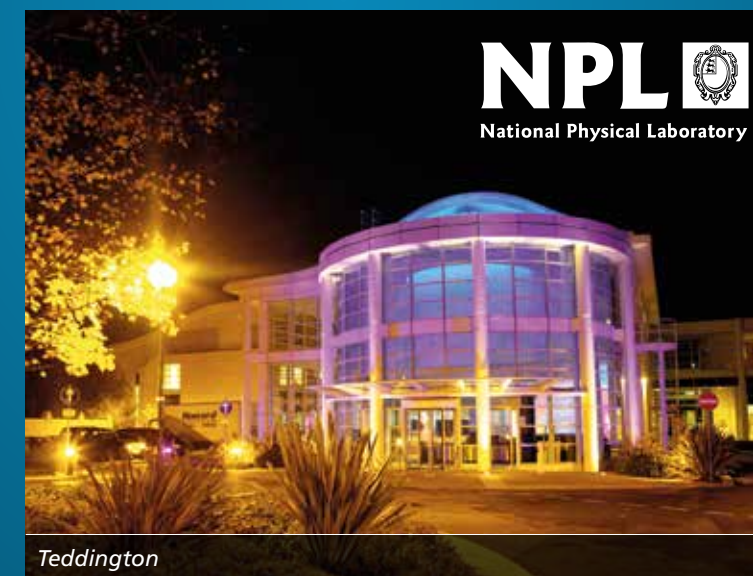
WORLD-LEADING RESEARCH EXCELLENCE

The 2014 Research Excellence Framework (REF) exercise rated 98% of our research world leading, internationally excellent or internationally recognised in terms of originality, significance and rigour.

78% of our research was rated 4\* or 3\* (these being the two highest categories available).

We finished in the top quartile of all UK universities for Biomedical Sciences, Electronic Engineering and Hospitality and Tourism. According to the Times Higher Education (THE), Surrey also ranked in the top 20 for Economics and Sociology.

The School of English and Languages performed extremely well in research impact, for which it has been ranked in joint 23rd place out of 89 institutions entered.



Teddington

In March 2015, the University signed the Partnering Agreement under which we will work with the National Physical Laboratory (NPL), the Department of Business, Innovation and Skills and the University of Strathclyde to set and support a new strategic direction for NPL. As the UK's National Measurement Institute, NPL has developed and maintained the nation's primary measurement standards for more than a century.

An important early success of the partnership was the inauguration on 23 October 2015 of a new Post-Graduate Institute for Measurement Science, which will train high-calibre PhD students and provide a pipeline of professionals skilled in the area of measurement science. NPL is already involved in the supervision of over 150 postgraduate students, including more than 35 Surrey students.



Redeveloped simulation suite with video capture

New facilities and equipment were unveiled across the University in 2015, many funded with investment from external organisations. These included:

- A real-time human-performance capture studio
- A spatial audio production system
- A 5-laser-wavelength Raman microscope system (for use as a regional spectrometer facility)
- An additional beam line at the Ion Beam Centre for the processing of semiconductor materials
- New premises for the Centre for Environmental Strategy (CES)
- A redeveloped simulation suite with video-capture technology, which is being used to educate care-home staff about dignity and compassion
- State-of-the-art gait and movement equipment for development of health-related assessment and rehabilitation
- The only MASK-ED high-fidelity silicone props equipment currently in use in UK higher education for simulating patients in healthcare teaching
- Gold-standard dual X-ray absorptiometry equipment for measuring muscle distribution and bone density in nutritional sciences and sports and exercise science



# Global research impact

Our research activities spanned the globe in 2015. Here is just a selection of our international projects and collaborations.

## Brazil

### 1. University of São Paulo, Brazil

The University of São Paulo is a strategic partner for the University of Surrey and a founding member of the Universities Global Partnership Network (UGPN). Current collaborations include a project funded jointly by the FAPESP-ESRC-NWO Sustainable Urban Development Fund, awarding £284,000 to academics at Surrey to investigate physical and socio-economic processes underlying uneven distribution of urban outcomes. The project is also in partnership with the University of Twente in the Netherlands.

### 2. Oswaldo Cruz Foundation, Rio de Janeiro

Professor Johnjoe McFadden has been awarded a Newton Fund grant, together with the Oswaldo Cruz Foundation, to work on developing new vaccines against leprosy.

## United States

3. North Carolina State University  
North Carolina State University, also a founding member of the UGPN, is a strategically strong partner for Surrey. Research collaboration covers a broad range of disciplines, as demonstrated by the two trilateral and two bilateral UGPN projects currently underway. These projects seek to better understand CaPP Deposition Disease (Pseudogout), the treatment of Aerosol Emissions, Green Infrastructure for Stormwater and Air Quality and the Characterization of Organic Scintillator Response to Fast Neutrons for Detection and Identification of Special Nuclear Material.

### 4. University of Chicago

In a multinational project funded by the Global Initiative Innovation Fund (GII), together with colleagues at the University of Chicago and the University of São Paulo, Dr Malcolm von Schantz is studying sleep, circadian rhythms, and their relationships with health in the Baependi cohort, based in a small town in Minas Gerais, Brazil.

## France

5. Institute for Research in Computer Science and Automation  
Led by Professor Mark Plumbley from the Centre for Vision, Speech and Signal Processing at Surrey, this project seeks to set up a machine training network and has received funding from Horizon 2020.

## Germany

6. Institute of Applied Microbiology  
The University of Surrey has been awarded £450,000 for a European project that aims to reduce the detrimental effects of plastic waste. Surrey is one of eleven European partners to take part in the P4SB (from plastic waste to plastic value) project which has a total budget of €7 million.

## Norway

7. University of Bergen  
Professor Diane Watt has been awarded a Leverhulme International Network Award for a project entitled 'Women's Literary Culture and the Medieval English Canon'. The project also includes network partners Boston University, Texas A&M, the University of Lausanne, and several UK institutions.

## Switzerland

8. University of Geneva  
Professor Graham Stewart is the Surrey lead on a collaborative project investigating the genetic basis of Mycobacterium Bovis Intracellular Infection. The project has received significant funding from the National Centre for the Replacement, Refinement and Reduction of Animals in Research (NC3Rs).

## Canada & New Zealand

9. University of York, Canada  
University of Canterbury, New Zealand  
Surrey Professor Tim Jackson, from the Centre for Environmental Strategy, is leading on a project funded by the ESRC to set up a new 'Centre for the Understanding of Sustainable Prosperity'.

## South Africa

10. North-West University, South Africa  
Staff from both universities are working on a project looking at cardiovascular disease development in Africans, funded by the Academy of Medical Sciences.



A selection of our research projects worldwide.

## Japan

### 11. Tohoku University

A project bringing together partners from across the EU and Japan seeks to investigate three big technological fields (IoT, Big Data and Cloud Computing) to develop a new platform. The iKaas project, funded by Horizon 2020, will run for three years, and involve higher-education institutions and corporate partners.

## China

### 12. Chinese University of Hong Kong (CUHK)

Civil Aviation University of China (CAUC)  
Surrey's Centre for Aviation Research was established in 2014 and led by Dr Zheng Lei. The Centre has strong connections to industry (with particular strengths in airline strategy, air transport regulation and policy analysis), as well as air transport market analysis and traffic forecasting.

## Australia & New Zealand

### 13. Christchurch University, New Zealand

Victoria University, Australia  
Researchers based in the Surrey School of Hospitality and Tourism Management are investigating tourism innovation policy with colleagues at Christchurch University in New Zealand, as well as looking more closely at adaptations to climate change in the South Pacific with colleagues from Victoria University, Melbourne, Australia.

## India

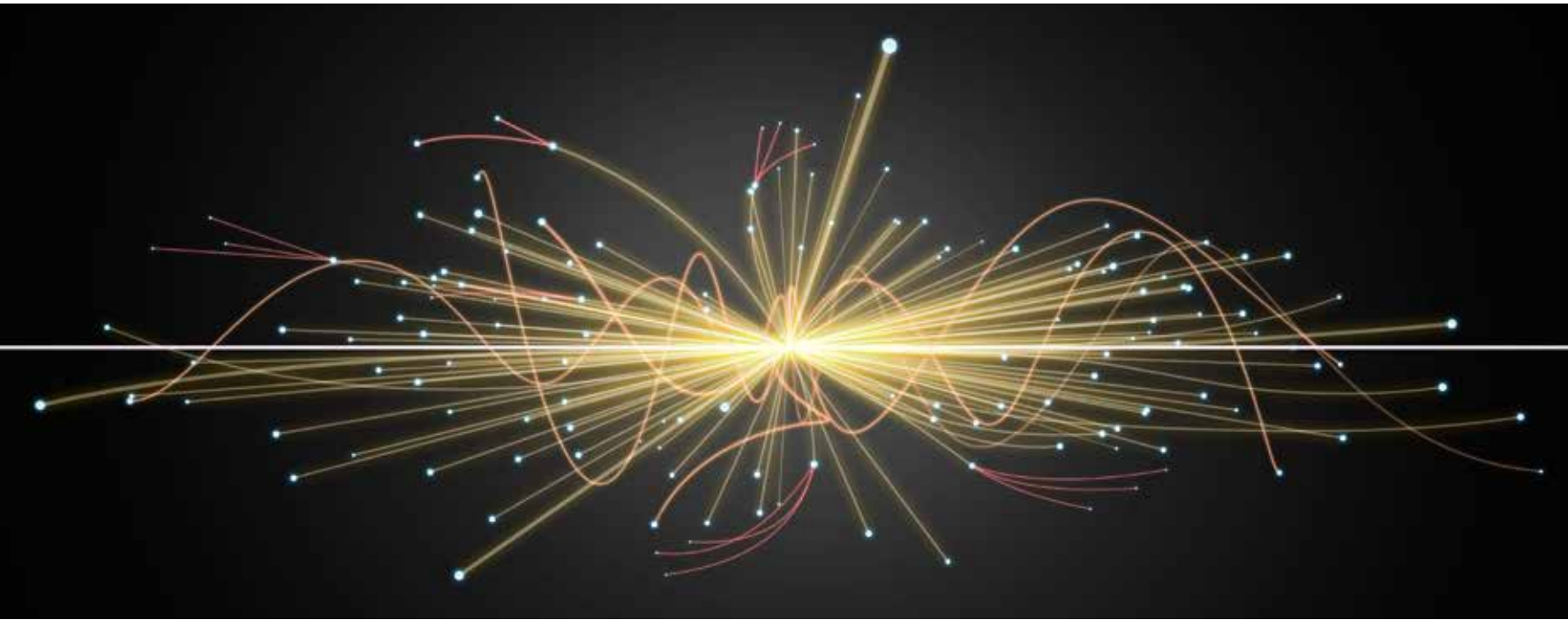
### 14. University of Hyderabad

Researchers from the University of Surrey have been awarded funding by the UK government and the government in India for two projects which will explore how nanotechnology will impact the future of renewable energy.

**1,500+**  
INTERNATIONAL  
CO-AUTHORSHIPS

50% OF OUR 3,005  
PUBLICATIONS OVER  
THE TIME PERIOD  
2012-2015 FEATURED  
AN INTERNATIONAL  
CO-AUTHOR





## The researchers' year



**Professor Paddy Regan**  
NPL Professor of  
Radionuclide Metrology,  
Faculty of Engineering  
and Physical Sciences

Paddy's research looks at how atomic nuclei behave when you force their particles into unstable formations, and the radioactive decay that happens as the atoms release energy to get back to their stable states.

"My Surrey colleagues and I try to make some of the most unusual forms of proton and neutron combinations that we can," says Paddy. "In 2015, our group was involved in creating the rarest isotopes of three strange elements (samarium, gadolinium and dysprosium) at the RIKEN facility in Japan. We discovered several isotopes that had never been created before. That's a big deal."

Since 2013, Paddy has held a joint position as National Physical Laboratory (NPL) Professor of Radionuclide Metrology. One of the radioisotopes his team looked at in 2015 was radium-223, which is used for radiotherapy in more than 3,000 clinics worldwide to extend the life of those with metastasized bone tumours (which can occur following prostate cancer).

Of course, it's vital to measure the radium isotope's radioactivity accurately: too little leaves the tumour unaffected, but too much could kill the patient. Using NPL's sophisticated gamma-ray sensors, members of Paddy's group discovered that the existing literature values were wrong by about 10%.

"10% maybe doesn't sound very much, but if you're treating hundreds of thousands of patients, you've got to get your dose right," Paddy points out. "If you're using the wrong numbers before you start, that's a big problem. The cost of redoing all these measurements and dose profiles runs into tens of millions of pounds, but the outcome should be better treatments."

Paddy's work in 2015 illustrates the importance of supporting abstract fundamental scientific research, whose publication may only be read and understood in detail by a few hundred experts in the world but which underpins advances in a broad range of practical, 'real-life' applications.



**Professor Stephen Woods**  
Head, Department of People and Organizations  
Surrey Business School

"My personal research highlight was publication of two-high-impact papers. The first represented the culmination of a five-year project to investigate the structure of personality, and construct a 'Periodic Table of Personality Traits', the results of which will appear in the *Journal of Applied Psychology*.

"The second was a meta-analysis showing (for the first time scientifically) the positive benefits of workplace coaching for performance and learning at work (published in *Journal of Occupational and Organizational Psychology*). Both these papers have important implications for research and practice in the field of work and organizational psychology.

"In my role as Head of the People and Organizations Department in Surrey Business School, the highlight has undoubtedly been working with all staff in the Department to establish three research clusters as part of our five-year strategy: Leadership and Decision Making, Quality of Working Life, and Organizational and HRM Assessment. These research-themed groups will be the foundations of our research culture in future years, enabling us to focus on key strengths, and ensure that our research drives our teaching and learning and our external and business-engagement activities."



**Professor Susan Lanham-New**  
Head, Nutritional Sciences Department  
Faculty of Health and Medical Sciences

"The highlight of my research activities in 2015 has been two-fold.

"Firstly, the Vitamin D2-D3 Study, funded by the Biotechnology and Biological Sciences Research Council (BBSRC), was highlighted as an example of a very successful research project in the 2015 BBSRC's Strategy Document for Research in Diet, Food and Health. The project also received a commendation from the Diet and Health Research Industry Club (DRINC) Panel at my Group's closing presentation at the BBSRC DRINC 2015 Dissemination Event held in Oxford in July.

"This study is the largest randomised controlled trial (RCT) ever conducted looking at fundamental differences between vitamin D2 and vitamin D3. We have shown, conclusively, that vitamin D3 is the far more effective form.

"Secondly, the Ministry of Defence (MoD) have given Surrey (in collaboration with the Institute of Naval Medicine, Gosport) the green light to commence two key vitamin D studies: One will involve 4,800 Royal Marines in an RCT of vitamin D to prevent stress fracture occurrence. The other will examine the extent of vitamin D deficiency among 200 submariners during deployment and the concomitant effects on health outcomes.

"Both studies will be the first of their kind in the British military and the results of each are likely to change current MoD policy and practice."

“Both studies will be the first of their kind in the British military and the results of each are likely to change current MoD policy and practice.”



# A partner for business

2015 was a bumper year for headline collaborative projects such as the 5G Innovation Centre and the new School of Veterinary Science, but the University also gives a huge boost to the regional and national economy in many other ways.



James Cobb (centre) of Crowd Connected with Keith Dixon and Celia Gaffney at Surrey Incubation

## Contribution to local economy

In February 2015, an independent report found that the presence and activities of the University and its Research Park generated £1.1bn gross value added impact in the county of Surrey during the academic year 2013-14, and directly or indirectly supported nearly 13,000 jobs. The study also found evidence that the University and the Research Park generated almost £7 economic impact for every £1 earned and supported 7.1 jobs throughout the UK economy for each person directly employed by the University. The report also noted significant unquantifiable impacts, such as benefits to the local community, diversification of the local economy, and contributions to knowledge transfer.

# £1.5bn

IMPACT ON THE UK ECONOMY

## Professional Training year

Over 2,000 partner organisations offer Professional Training periods to our undergraduate students, with many more hosting postgraduate and research students as part of our innovative non-traditional programmes and knowledge-transfer initiatives. As well as being a huge boost for the students, these collaborations put fresh new talent into the organisations and help our staff stay abreast of the very latest developments outside the academic world.

## Surrey Incubation

The University has been incubating technology businesses since 2002 as a founding partner of SETSquared, which is ranked Global No 1 University Business Incubator in the 2015 UBI Index assessment.

Located on the University's Research Park, our Incubator has accelerated over 165 early-stage, high-growth, space-related businesses. Companies supported by the Surrey Incubator have gone on to raise over £119m from various sources, including the University-run Surrey 100 Club (the Southeast's leading 'angel' investment group).

Here is a brief insight into the work of two young Incubator businesses that we support:

### iNOVA Design

iNOVA joined the Incubator in 2013 and have since raised over £1.3m to accelerate development of their body sensing solutions. They have won several contracts with the motor industry and government.

### Fourth State Medicine

Fourth State began life on campus at the Surrey Space Centre. Applying expertise and techniques honed within the space sector, they've developed a new system to treat a variety of problems including bacteria control, wound healing and cosmetic health.



Surrey Research Park

## Surrey Research Park

Surrey Research Park celebrates its 30th anniversary this year. One of the eight original founders of the UK Science Park Association, it is one of the most successful science and technology parks in Europe and one of the few in the UK still owned and operated by the university that founded it.

New occupiers for the Park include MTS (a multi-national company involved in developing Kinetic Energy Recapture Systems), while existing companies such as IDBS, Gold-i and Medpharm continue to grow and provide a solid base of innovation for the region. The Park has also delivered a new £10m state-of-the-art veterinary clinic for the highly acclaimed 'Supervet' Professor Noel Fitzpatrick that will link with the University's new Vet School.

This drive to grow innovation delivers over £500m of economic activity to the region annually, and today the Park is worth over £106m as an asset. Having seen capital growth of 16% in the year, it has now contributed nearly £100m of free funds to the University and produced a £6.2m surplus before interest this year alone.

## Collaborative innovation

Six new Knowledge Transfer Partnerships (KTP) were awarded in 2015, bringing the total number of live projects to ten. KTPs are funded jointly by Innovate UK and the KTP-partner organisations, and a recent graduate is employed for the duration of the project. Our two-year KTP with the Royal Mail has drawn upon expertise in logistics and business analytics to drive significant improvements in their sorting operations, while our three-year KTP with The Whiteley Clinic will develop a new medical device to treat truncal and pelvic varicose veins.

💡 This drive to grow innovation delivers over £500m of economic activity to the region annually 💡

## Surrey Clinical Research Centre

Surrey Clinical Research Centre (CRC) facilitates the growth of medical and drug-development research in a range of therapeutic areas. This year, Surrey CRC was re-accredited by the Medicines & Healthcare products Regulatory Agency (one of only 16 accredited UK research centres), confirming the high quality and safety of our clinical research.

Surrey CRC was also one of four centres awarded provisional registration as a Clinical Trials Unit. Registration will allow the Centre to support and manage multi-centre trials and provide a much-needed service supporting Principal Investigators.

## Business Insights Lab

Thanks in part to a substantial philanthropic donation, Surrey Business School has created a Business Insights Lab to bring academic researchers together with business and industry to put the latest ideas into practice, for everyone's benefit.



# Financial review

## Income increased by 10% in 2014/15 to £240.7m.

The University achieved its highest ever undergraduate intake in October 2014, with the University's stronger league-table position and more focused marketing campaigns the main drivers of growth.

Research income was also at record levels. Core research income grew by 8% to £32m, higher than in any previous year. A further £7.3m of research income was generated through in-kind contributions from industrial and commercial partners to the 5G Innovation Centre Programme, and there was a one-off gross tax credit for research and development expenditure of £3m.

Recent strategic investments in academic staffing and the new Vet School, together with an increase in student quality through higher entry tariffs, will deliver longer term benefit. In the short term, and in line with plan, these investments and strategies have reduced surpluses as expenditure on staff and facilities is made in advance of the planned increase in student numbers and further growth in research income. Expenditure increased by 10% in 2014/15 to £237m and the University returned a consolidated surplus for 2014/15 of £3.7m (2013/14: £4.1m). This represented 1.5% of income (2013/14: 1.9% of income).

The University has continued to invest in its facilities to ensure that it delivers a first-class student experience and has the infrastructure needed to deliver high-quality research. Capital expenditure doubled in 2014/15 to £57m. This reflected the significant spend on construction of the new School of Veterinary Medicine and the 5GIC building.

The University continues to face significant external challenges, not least those arising from the continuing downward pressure on public funding. However, the University is well positioned in terms of both its student recruitment and the research pipeline. October 2015 has seen further increases in both the undergraduate and postgraduate intakes, whilst record levels of research bids and awards in 2014/15 will feed through to higher research income in 2015/16 and later years. The University is confident that these factors, together with its continuing programme of investment and clearly defined strategies for growth, will lead to further enhancement of its national and international reputation and provide long-term sustainability.

The University's full financial statements for 2014/15 are available online at :

[surrey.ac.uk/about/management-and-strategy/financial-statements](http://surrey.ac.uk/about/management-and-strategy/financial-statements)

“ We are building capacity for the future. Our capital investment doubled last year to £57m. ”



**David Sharkey**  
Interim Chief  
Operating Officer

