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HELPING US
UNDERSTAND
RESISTANCE TO
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AUTUMN
2023

YOUR UNIVERSITY

LOCAL NEWS AND EVENTS, FROM THE UNIVERSITY OF SURREY, TO YOU.



**CITIZEN SCIENCE BOOSTING
BIODIVERSITY IN SURREY**

**HOW LOVED ONES MIGHT
BE SABOTAGING HEALTHY
WEIGHT LOSS PLANS**



**HOUSEHOLDS WITH
SOLAR PANELS
COULD BREAK-EVEN
SOONER**



**NEW MATHS SCHOOL
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**CLIMATE
WORKSHOPS FOR
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WELCOME TO YOUR UNIVERSITY

Welcome to Your University – sharing our latest research, news and events with our Guildford neighbours.

Our undergraduate students have recently returned to campus after a summer break, but our world-leading research never stops!

Our latest big news is that our work on sustainability, both on-campus and in the impact of our research, has been recognised by Times Higher Education in their Impact Rankings - we're now top 10 in the UK. See [page 3](#) for more.

Professor Bob Nichol, our Dean of the Faculty of Engineering and Physical Sciences made national news with the launch of the Euclid satellite mission.

And we've got plenty more to talk about on the topic of space in this issue - check out [pages 8 and 9](#) for some out-of-this-world research news.

Come along and visit us in Guildford High Street and Tunsgate Quarter on Saturday 7 October for World Space Week activities for all the family ([page 13](#)).

Back down on Earth, we're pleased to be supporting the launch of a specialist maths school right here in Guildford ([page 4](#)) and working with local charity the Prostate Project ([page 10](#)).

A highlight this semester will be BBC Radio 4 Any Questions. Join the audience on campus on Friday 6 October ([page 13](#)).

Don't forget, you can take part in our events and activities too ([page 13](#)), from performances by the Guildford School of Acting to our lecture series, there's something for everyone.

Ross Kelway,
Public Engagement Manager



CONTACT US!

publicengagement@surrey.ac.uk
surrey.ac.uk/community
[@UniOfSurreyCPE](https://www.instagram.com/UniOfSurreyCPE)

Our work with local residents like you is really important to us! Share your thoughts and ideas or why not get involved by attending our events, participating in our research, or studying with us.



WANT TO HEAR MORE STORIES ON OUR RESEARCH, COMMUNITY NEWS AND EVENTS?

Subscribe to our weekly newsletter, Surrey Headlines. surrey.ac.uk/headlines



HELPING TO CREATE A BETTER WORLD

From clean air to reducing our plastic use – just how can we create a sustainable world for future generations, and what are universities doing to help?

In the 2023 Times Higher Education (THE) Impact Rankings, the University of Surrey was placed 9th in the UK and in the top 50 across the world, against the United Nation's 17 Sustainable Development Goals. These Goals range from ending global poverty, providing clean water for all, gender equality, decent work and economic growth while protecting life on Earth.

TOP 10 IN THE UK

THE RANKING ASSESSES 1,591 UNIVERSITIES.

Surrey was judged to be in the top 50 for its work on:



President and Vice-Chancellor, Professor Max Lu, said: "We're pioneering a new way to address sustainability through our newly established Institute for Sustainability, and we're embedding sustainability into our teaching."



TACKLING FLOODING IN SURREY

Surrey hydrology experts are taking inspiration from beavers in a project to tackle local flooding.

PhD student Ben Tonkin is working with civil engineer Dr Belen Marti-Cardona, Professor of Environmental Engineering, Susan Hughes, and the Environment Agency, to investigate nature-based solutions that could prevent Surrey homes and businesses from flooding.

After flooding in 2013, the team are laying logs at a site at Pipp Brook (upstream of Dorking and Westcott), creating a similar effect to when

beavers fell trees. They're looking at how effective these 'leaky barriers' are by closely monitoring what happens when it rains, then using the data to identify the best designs and locations for maximum benefits.

"We've installed over 30 leaky barriers which are giving us the information we need to create accurate computer models," said Ben. "We aim to slow the flow during heavy rain by using the logs to catch excess water in forested areas. The stored water then gradually flows away, reducing the risk of flooding to populated areas downstream."

WHAT HEATS AND COOLS OUR TOWN?

Communities around Guildford have been discovering the effect local heat sources have on climate change through a programme organised by researchers in Surrey's Guildford Living Lab – part of the Global Centre for Clean Air Research (GCARE).

The Heat-Cool initiative has seen children from Guildford County School, Royal Grammar School and Holy Trinity Pewley Down Primary School getting hands-on with thermal imaging technology to find out how heat transfers between physical objects and the environment.

The idea of the programme has been to nurture school students' interest in climate change and empower them to play a part in combatting the problems we face now and in the future. The initiative has been so successful, it's recently been extended to an older audience: Guildford Living Lab researchers organised a climate literacy workshop for adults on 10 June in collaboration with Zero Carbon Guildford.

Professor Prashant Kumar, Founding Director of GCARE, said: "As Guildford continues its journey towards a greener and more sustainable future, events like Heat-Cool can play a crucial role in empowering communities to take meaningful steps in mitigating the urban heat island effect."





Talented 16-19 year old students across Surrey and the South East can apply to join a brand new specialist maths sixth form, opening in September 2024.

Located just minutes from Guildford station, Surrey Maths School will be one of only 11 government-backed schools to open across the country.

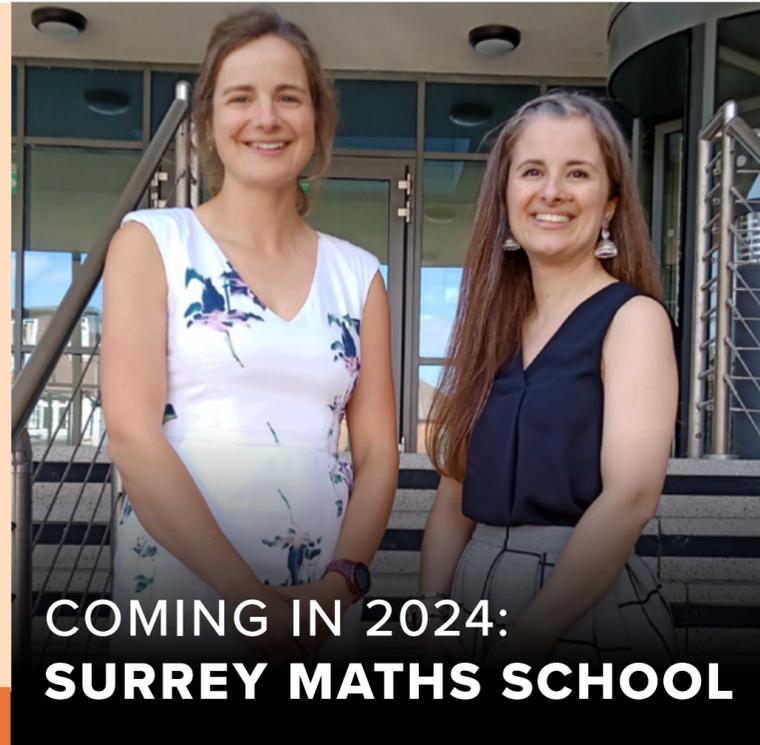
The school is a partnership between Learning Partners Academy Trust and the University of Surrey, for students to study A-levels in maths, as well as physics, chemistry, computer science and economics. They'll also complete the Surrey Maths Certificate, a bespoke qualification developed by the University of Surrey and Science, Technology, Engineering, and Mathematics (STEM) industry partners, focused on employer-ready skills such as problem solving and team building.

Co-Heads of Surrey Maths School, Sahar Shillabeer and Nora Kettleborough, join from A-level results table-topping King's College London Maths School – the first of these schools to open.

Andrew Roach, the lead for the Surrey Maths School project says: "Surrey Maths School will be a centre of excellence for the delivery of maths teaching. We'll be setting our students up for the greatest opportunities available to brilliant mathematicians".



To find out more, visit: surreymathsschool.co.uk



COMING IN 2024: SURREY MATHS SCHOOL

SURREY SPORTS STAR COACHES LOCAL SCHOOL CHILDREN



Surrey student and sports star Ayo Amolegbe is in his second year studying Accounting and Finance. He also plays professionally for Surrey Scorchers in the British Basketball League. Ayo joined the Scorchers Academy after sixth form before applying to study at Surrey the following year.

Ayo coaches local school children as part of the Scorchers' community

programme. He and his fellow sports stars are part of Surrey's Dual Career Programme, a support service and financial package for students who are pursuing a sporting career alongside their studies.

Ayo said: "Playing basketball here and coaching the local kids, I feel like there is a real community vibe. It's been great playing every day and learning as well."

ELECTRIC VEHICLE CHARGING UNDER INCREASING DEMAND

With electric cars now accounting for 15 per cent of UK market share, issues with their infrastructure face growing concern.

Dr Yinglong He, Lecturer in Resilient Transport Systems, Electric Vehicles, and Autonomous Systems at the University of Surrey, explains the way forward:

"Firstly, we need to expand and upgrade the charging infrastructure. We can do this by collaborating with private sector companies, and the Government can speed this up by streamlining the approval process, providing incentives for businesses and homeowners to install charging points, and establishing partnerships with charging network operators for widespread coverage. Simultaneously, investment should be made to upgrade existing infrastructure.

"Secondly, we need to encourage innovation. This could involve funding initiatives focused on wireless charging, ultra-fast charging, vehicle-to-grid (V2G) integration, and the development of next-generation batteries with higher energy density.

"Lastly, public awareness campaigns can play a vital role in encouraging the adoption of electric vehicles and educating people about the available charging infrastructure. By providing accurate information on charging options, benefits, and the overall sustainability of electric vehicles, more consumers can make informed decisions."



MILTON MERMIKIDES APPOINTED TO GRESHAM COLLEGE

University of Surrey Associate Professor, Milton Mermikides, has been appointed as the 37th Professor of Music at Gresham College, London's oldest Higher Education Institution.

As part of this his role, Milton will continue the College's 426-year-old tradition of delivering free public lectures each year, with over eight million views of lectures online last year alone.

His six lectures per year will focus on music-related topics, with the first entitled 'The Nature of Music', examining the universal building blocks of music and the limits of music's potential.

Milton said: "It's an enormous privilege to take on this role and continue in Gresham's tradition of music professors who are also composers and practitioners. After four centuries, there is still so much to share – and so much yet to discover – about this ancient, universal, and profound human endeavour of music."

Dr Martin Elliott, Provost of Gresham College, said: "Milton is a jazz guitarist with a difference. Apart from being a brilliant musician, he's also a great collaborator with other artists and disciplines, from mathematicians to neuroscientists."



SURREY STUDENTS' UNION LOOKS AT THE YEAR AHEAD

Surrey Students' Union has an exciting year ahead! Taking the helm for the Union's Community Zone this academic year will be David Idowu, who aims to address student safety, promote sustainability and celebrate the diverse and multicultural student community we share at Surrey.



We will also see the launch of our Community Hub this autumn, providing a swap shop, food co-operative, book swap and community fridge, for the benefit of students. We began collecting donations at the end of the last academic year and the shop is due to launch in September 2023.

This year we also plan to revive the University's on-campus garden, providing students with a space to grow their own produce. We're also very excited to team up with a Surrey researcher to help cultivate a hive of bees on campus, to help increase biodiversity in Surrey.

DOMESTIC ABUSE STUDY



A randomised control trial conducted by the University of Surrey in partnership with Leicestershire Police revealed that access to non-police support services reduced the amount of witness statements given by victims of domestic violence, but also reduced future victimisation among repeat domestic abuse sufferers.

The study's six-month intervention provided dedicated caseworkers to facilitate access to 24 different non-police support services for victims of police-reported domestic violence. The study found a 22 per cent decrease in victims providing witness statements to the police. However, conviction rates and sentencing of perpetrators in the treatment group were not affected.

Dr Martin Foureaux Koppensteiner, lead researcher and co-author of the study said: "The intervention reduced ineffective statements, decreased the workload for officers, and lowered the risk of future victimisation. Interestingly, it didn't lead to an increase in the number of repeated cases reported to the police within two years. However, victims in the treatment group utilised non-police services more, indicating improved access to help and support. Our study emphasises the need for easy accessibility to existing services for victims of police-reported domestic violence."



SURREY READY TO TRAIN MORE DOCTORS FOR NHS

On 30 June, NHS England announced the long-awaited NHS long-term workforce plan. The University of Surrey is a key delivery partner, providing training in nursing, midwifery, and paramedic sciences. And in 2024 we'll welcome our first cohort of students to our new medical school programme.

Professor Juliet Wright, Dean of the Surrey School of Medicine, said: "New medical schools are essential

for tackling the shortages of doctors that the NHS is currently facing. The University of Surrey has developed a new graduate-entry medical programme - we're one of a small number of new medical schools currently able to accept international, independently funded students, and a small number of scholarship-funded UK students. With new public funding we're well placed to scale up rapidly to provide the places needed to train more UK medical students, working with Government to ensure the NHS gets the doctors it needs, at the earliest possible date."



IMPACT OF COVID-19 ON OUR NURSES AND MIDWIVES

A study completed by the University of Surrey has revealed that there is an urgent need to tackle stigma to create a psychologically safe working environment for nurses and midwives, following the Covid-19 pandemic.

The Impact of Covid on Nurses (ICON) study, which began in 2020, examines the effects of the traumatic work practices experienced by frontline nursing staff during the second wave of the pandemic. Many nurses experienced burnout, high levels of stress and post-traumatic stress disorder (PTSD). In some cases, nurses lost their lives.

Jill Maben, Professor of Health Services Research and Nursing at the

University of Surrey, said: "To prevent a mass exodus of our nursing and midwifery workforce, it's important they're offered the care and support that they need. A new national strategy focusing on their wellbeing is essential. The support currently offered is a good start in improving wellbeing, however, more needs to be done at organisational levels as a 'one size fits all' approach does not work."



DENGUE FEVER IMPACTING BIRTH OUTCOMES

Dengue poses a grave threat to half of the world's population, with over 3 million cases registered in the Americas in 2019.

New research from the University of Surrey and the University of Birmingham has discovered compelling evidence that maternal dengue fever, even in mild cases, has detrimental effects on birth outcomes. The study found a negative impact on birth weight, particularly for infants with already lower birth weights. It also highlighted long-term consequences, with significant increases in child hospitalisations up to three years after birth.

Dr Martin Foureaux Koppensteiner, co-author of the study at the University of Surrey

said: "Urgent action is needed to increase awareness, prevention, and targeted interventions to mitigate the widespread impact of dengue on maternal and child health.

"This study emphasises the need to include dengue fever in the list of infections to manage during pregnancy. With the expanding reach of dengue due to climate change, policymakers, healthcare professionals, and global communities must prioritise preventive measures and support affected families."



VOICE LOSS IN THE MENOPAUSE

Effects of menopause on health and wellbeing are the subject of increasing media focus. Books, TV shows and news outlets highlight the physical and psychological symptoms.

Chris Palmer

A lesser-known symptom is loss of voice, with few studies exploring vocal issues for menopausal women. Chris Palmer, Head of Voice at Guildford School of Acting (GSA), has carried out a research study with perimenopausal, menopausal and post-menopausal women.

Alongside her teaching, Chris delivers voice-training for University staff. Chris explains: "I look back at those sessions, the delegates are primarily women sharing similar vocal complaints: loss of vocal power, loss of confidence, loss of status. Potentially, the loss of their career. Over a million women in the UK who are in their mid-50s left the workforce in 2020-2022, partly due to the menopause."

Participants in Chris's study reported vocal fatigue, sore throats, jaw tension, swollen or

sore gums, dry mouth, as well as feeling that they were not being effective or heard in the workplace.

"From this," Chris explains, "I concluded that the menopause has a distinct and negative impact on confidence because of vocal issues, forcing many women to leave their jobs much earlier than their male counterparts. Voice-training in the workplace can really help. Women can use simple voice exercises to keep the voice supple, flexible and powerful to use for the rest of their working lives. With training, they can once again have a voice, be heard and have confidence to continue their careers."

Find out more about Chris:
surrey.ac.uk/people/chris-palmer



RESEARCHERS INVESTIGATE IMPACT OF HRT ON BRAIN CHEMISTRY

Hormone replacement therapy (HRT) and its impact on brain chemistry in post-menopausal women is being investigated in a new study by researchers at the University of Surrey. The study will provide insights into whether HRT can promote healthy brain function and structure as women continue to age.

HRT replaces hormones that are reduced due to the menopause and helps to relieve symptoms, such as hot flushes and mood swings. However, the effects of HRT on brain health in women post-menopause remains uncertain. The research being conducted includes both MRI scans to examine brain chemistry and an at-home blood test to measure oestradiol levels. Daniella Jones, PhD student, is spearheading this project alongside Dr Ines Violante and Dr Kathrin Cohen Kadosh.

Dr Violante, Senior Lecturer in Psychological Neuroscience, said: "Menopause undoubtedly affects a woman's brain chemistry, with the decline of oestrogen linked to cognitive impairment and memory loss. However, what we don't know is what the brain chemistry of women looks like post-menopause, how it has been affected using HRT and if this treatment has improved cognitive wellbeing. The valuable insight we get from this study will help us learn more about the potential benefits of HRT."

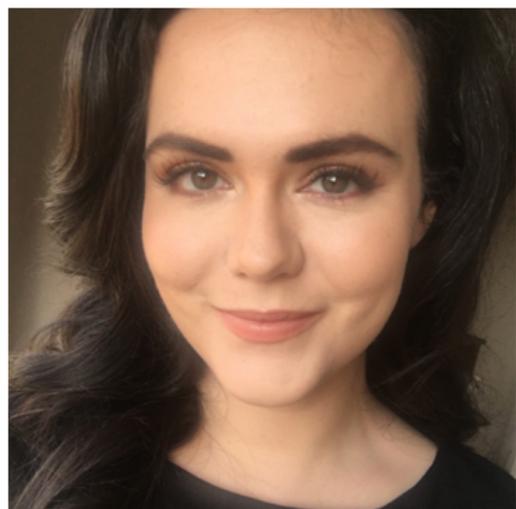
LOVED ONES CAN BE GUILTY OF SABOTAGING HEALTHY WEIGHT LOSS PLANS

A new study led by a renowned psychologist from the University of Surrey has found that not all social support is positive for people who are looking to lose weight.

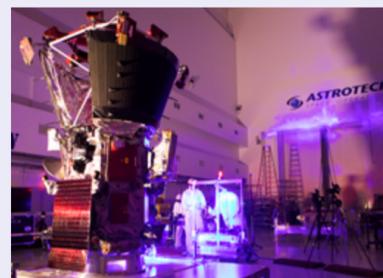
Professor Jane Ogden and her team discovered that some acts of social support were actually acts of sabotage, undermining individuals' attempts to lose weight. Sabotage involved discouraging healthy eating and creating obstacles to attending support groups, leading to decreased confidence and self-esteem.

"Weight loss often results in change, from giving a person more confidence to a change in social dynamics in their relationships," said Professor Ogden. "Many do not welcome such changes and may, consciously or subconsciously, try to derail a person's attempts to lose weight in order to keep things the way they are."





SURREY GRADUATE'S STELLAR ROLE AT NASA



Dr Nicola Fox graduated from Surrey with a masters in 1991.

After completing her PhD in 1995, Nicola left the UK to work at NASA's Goddard Space Flight Centre.

She then accepted a new job at the Applied Physics Lab at John Hopkins University in 1998. She stayed there for 20 years and worked on many space missions. Her favourite role was as the Chief Project Scientist on the Parker Solar Probe. This will travel to within four million miles of the surface of the Sun in 2024.

Nicola was lured back to NASA in 2018. She explains: "I became Head of NASA's Heliophysics Division, which explores the behaviour of the Sun and how it influences the Earth and the other planets in our Solar System."

Star role

In February 2023, Nicola accepted her biggest challenge when she became Associate Administrator for NASA's Science Mission Directorate.

"In every previous role, I thought I had the best job on the planet," says Nicola. "I now have the best job on – and off – the planet."

Managing an \$8 billion budget and 140+ space missions may be a daunting prospect. But Nicola relishes the challenge. "I get in early every morning and the security guard says, 'have a great day!' and I think, 'I absolutely will!' Most days, I still have a moment where I realise, 'This is amazing. I'm working at NASA! It's so cool!'"

WHAT DO DISNEY PRINCESSES TELL US ABOUT FEMININITY?

Disney Princesses are known and loved across the globe and have been ever since Snow White first graced our screens in 1937.

Dr Robyn Muir, Lecturer in Media and Communication in the Department of Sociology, has published *The Disney Princess: A Feminist Analysis*. In it she delves into how we view Disney princesses and how they have evolved over time. She explores how femininity is represented in films, merchandising, marketing and theme park experiences, as well as what this means for an audience's understanding around gender and other societal issues.

Robyn explains: "We can see how femininity is being constructed in spheres that are often seen as trivial, yet may have a significant impact on young people's development and their understanding of gender."

Robyn's book includes an in-depth examination of each princess film from the last 83 years, providing a lens through which to view and understand how Disney princesses have contributed to the depiction of femininity within popular culture.

The Disney Princess: A Feminist Analysis was published by Bristol University Press on 27 June 2023.

AWARD FOR CLEAN AIR PROFESSOR

Professor Lidia Morawska, Vice Chancellor Fellow at the University of Surrey's Global Centre for Clean Air Research (GCARE), is a renowned expert in air quality

Lidia has been awarded the prestigious L'Oréal-UNESCO Women in Science International Award. This recognises her exceptional contributions to research on air pollution and its impact on human health and the environment – particularly in raising awareness about the airborne transmission of Covid-19.

Her efforts prompted global experts to highlight the significance of indoor air quality in tackling Covid, leading to her recognition as one of Time Magazine's most influential people worldwide.



SERVICING SATELLITES IN SPACE



A new type of electric space propulsion system is being developed by the Surrey Space Centre in partnership with the University of Leicester. The new thruster would be used to service and reposition satellites via agile space tugs.

The PLASMA TORCH Rocket (PLATOR) project has been awarded £250,000 from the UK Space Agency's Enabling Technologies programme. PLATOR could be used to:

- deliver satellites to specific orbits
- refuel spacecraft
- clear space debris.

"Our new system will increase the options available to mission planners and could be particularly useful when the UK develops its own launch capability," said Dr Nicola Baresi, an expert in astrodynamics at the University of Surrey who is helping lead the project. "UK launches will only be able

to reach high-inclination orbits, but our proposed space tugs could hopefully expand their reach, opening the door to new and exciting mission opportunities from UK soil."

The project will make the most of the advanced vacuum facilities and instrumentation in the Space Propulsion Laboratory at Surrey Space Centre. These are some of the many facilities which are being made available to small businesses, reducing the barriers to accessing the space industry.

To find out more, visit: surrey.ac.uk/spacecraft

EUCLID SATELLITE LAUNCHES

The University of Surrey's Professor Bob Nichol was in Florida in July to watch the successful launch of Euclid, a European Space Agency satellite which will transform how we view the 'dark universe' and test alternative theories of gravity.

Euclid was blasted into space from Cape Canaveral. It then spent a month travelling to the same part of the sky as the James Webb Space Telescope, five times further from Earth than the Moon.

After several months of commissioning to check the instruments, Euclid will undertake a five-year mission to scan about a third of the sky, probing both 'dark matter' and 'dark energy' – unknown substances thought to make up 95 per cent of the energy density of the Universe.

Having worked on Euclid since its inception, the launch was a big day for Professor Nichol, a cosmologist and astrophysicist and Executive Dean of the Faculty of Engineering and Physical Sciences at the University of Surrey. "I'm a Manchester City fan," he said, "and I would put this up there with winning the treble."

Euclid carries two scientific instruments which measure different things. "When we combine the data from Euclid with data from ground-based telescopes, we will optimise the information scientists can glean about both dark matter and dark energy," Professor Nichol explained.

"We'll use measurement techniques which have been deployed in the local Universe but Euclid will do it for the first time in the distant Universe, closer in time to the Big Bang. We're continuing to map the expansion history of the Universe in greater detail."



BOOSTING BIODIVERSITY IN SURREY

Families, walkers and budding conservationists visiting Painshill, Cobham, are helping research to boost biodiversity in Surrey.

Information about the 300 species they found will be combined with satellite images and machine learning (a type of artificial intelligence). This will help ecologists identify the best way to target their conservation work, and improve biodiversity.

The Space4Nature project involves the University of Surrey, Surrey Wildlife Trust, Buglife, and Painshill Park Trust. Funded by the Dream Fund thanks to money raised by players of People's Postcode Lottery, and by the Garfield Weston Trust, Space4Nature will help conservationists create, protect and connect spaces for wildlife across the county, and create at least 30 hectares of habitat for pollinators.



MENTAL ILLNESS LINKED TO LOWER CANCER SCREENING ATTENDANCE

Individuals with severe mental illness are less likely to attend cancer screening compared to those without such conditions, according to new research from the University of Surrey.

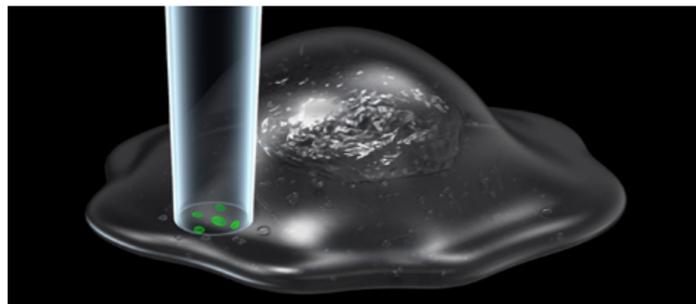
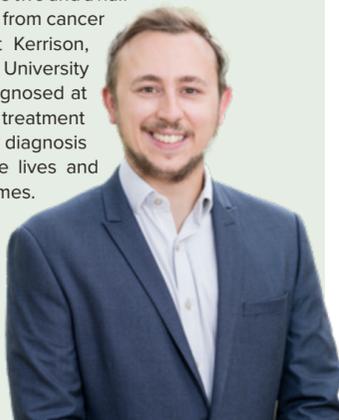
The study, funded by the Office for Health and Improvement and Disparities, and NHS England, with support from Cancer Research UK, found significant disparities in cancer screening attendance among people with severe mental illness, particularly those diagnosed with schizophrenia, other psychoses, and bipolar disorder.

Data from over one million people shows that the widest inequalities are in attendance for bowel, breast and cervical cancer screening.

The study also indicates that people from certain global majority backgrounds, including Black adults, are less likely to attend cancer screening appointments.

"People with severe mental illness are two and a half times more likely to die prematurely from cancer than their peers," says Dr Robert Kerrison, lead author of the study from the University of Surrey. "Their cancer is often diagnosed at an advanced stage, which limits the treatment options available. Increasing early diagnosis through screening could help save lives and reduce inequalities in cancer outcomes.

"We now need to learn more about why participation rates are lower for these individuals, so that medical professionals can tailor support and make it easier for people with severe mental conditions to attend."



NATIONAL RESEARCH FACILITY HELPS FIGHT CANCER AND INFECTIOUS DISEASES

A new national research facility – known as SEISMIC - has opened at the University of Surrey, thanks to £2.8 million of funding from the government's Biotechnology and Biological Sciences Research Council and industry. SEISMIC could significantly improve our understanding of infectious diseases, ageing and cancers. That could lead to novel treatments and vaccines.

SEISMIC offers scientists access to an advanced type of microscope that enables them to pick up single cells or even parts of cells and conduct particular measurements.

"Thanks to SEISMIC, we've made a breakthrough in measuring lipids in individual mammalian cells," said Professor Melanie Bailey, Director of the SEISMIC facility.

"This new technology is a game changer because it allows scientists to measure important biomarkers while keeping track of where they

are in the cell. This is important for understanding how healthy cells work and how infections or cancer can affect them.

"We're really excited about this because it will help us better understand how cells communicate with each other, and this knowledge could lead to new ways to fight diseases."

SEISMIC is the University of Surrey's third national research facility, along with the Ion Beam Centre and the Environmental Flow Laboratory.



FUNDRAISING TO FIGHT PROSTATE CANCER

Surrey's long-standing relationship with the Prostate Project, a local charity helping to fight prostate cancer, experienced a boost this year with two fundraising events.

An online charity art auction of local artists' work raised £3,000. This will help Dr Nicola Annels and the cancer team at Surrey in developing new targeted drugs to treat advanced prostate cancer. A new PhD student position will also be created to research tumour microbiome and the increased incidence of prostate cancer in Black men.

And a gruelling 50km walk - the Cotswold Way Ultra Challenge - was undertaken by a team of 10 research scientists from the Targeted Cancer Therapy Research Group at Surrey, to raise money for the Prostate Project. Over £3,700 was raised for the charity which has contributed so much to Surrey over the years.

Alf Turner, Chair of the Prostate Project, sees the relationship with the University of Surrey as key to the charity's work: "We fundraise throughout the year, and while sometimes we have specific initiatives such as the soon-to-be-launched Mobile PSA Blood Testing Clinic, we never lose sight of the ground-breaking research work that we help to support. Our supporters are justifiably proud of the fact that their efforts sponsor PhD students, lab technicians and clinical trial nurses, and purchase significant lab equipment."

Read our profile on Dr Nicola Annels on page 14.



Antimicrobial resistance is an urgent global threat to health, livelihood, economies and environment, according to the World Health Organization. In 2019, 1.27 million deaths were attributed to antimicrobial resistance, a number predicted to rise substantially without effective intervention.

The University of Surrey is working with researchers in Canada to help tackle this problem.

"Antibiotics are used in veterinary medicine to treat infections in farm and companion animals," said Dr Jennifer Ritchie, an expert in microbial pathogenesis from Surrey's School of Biosciences. "Following treatment, antibiotic residues and antibiotic resistant bacteria can be shed in animal faeces."

The manure isn't always confined to farms where animals are reared and is often spread on land as fertiliser without proper treatment. Therefore, antimicrobial resistance genes can be cycled back to animals through their food, direct contact, airborne particles, and runoff to water. These last three factors also pose a threat to humans, over and above the risks associated with food chain transmission.

"We're investigating how resistance can be affected and controlled by microbial ecological interactions," said Dr Bing Guo, a biotechnology and microbiology expert in Surrey's School of Sustainability, Civil and Environmental Engineering.

The team is taking field samples from dairy farms in the UK and Canada, then working to better understand how antibiotic resistance emerges.

A groundbreaking study conducted at the University of Surrey has found an innovative treatment for Avian Pathogenic Escherichia coli (APEC), a serious respiratory infection of chickens which is becoming increasingly resistant to antibiotics. A growing body of evidence indicates that APEC could potentially spread to humans. The research found that a novel metal-derived complex, manganese carbonyl, showed a protective effect in treating APEC, reducing the infection's severity.

Dr Jonathan Betts, a Research Fellow in the School of Veterinary Medicine at the University of Surrey, said: "The development of alternatives to antibiotics is vital to safeguard our future health.

Metal complexes such as manganese carbonyl could do this, as we have shown not only are they effective, but they are much cheaper to produce than antibiotics. It is a significant step forward in tackling antimicrobial resistance as it shows that we don't necessarily need more antibiotics; we just need to think more innovatively in developing treatments."

The international research team also included the Animal and Plant Health Agency, the University of Connecticut, the University of Sheffield and Institut für Anorganische Chemie - Julius-Maximilians-Universität Würzburg. The study was funded by a Biotechnology and Biological Sciences Research Council (BBSRC) grant awarded to Professor Roberto La Ragione at the University of Surrey and Professor Robert Poole at the University of Sheffield.



IS AI THE KEY TO UNLOCKING HIGHER BIOGAS PRODUCTION?

Researchers are using artificial intelligence (AI) to develop better microorganism-led processes that efficiently 'eat' products such as food waste, wastewater and animal manure to help boost the UK's green economy.

The £1.4 million project, funded by UK Research and Innovation, will investigate the impact of using different types of waste to feed anaerobic digestors. These are where microorganisms break down waste without oxygen – they're used to treat waste, reduce landfill emissions, and generate renewable energy through biogas.

Using sensors and information from microbe samples, the team will create virtual copies of the digestors, which

will enable AI systems to learn about the impacts of different feedstocks.

Surrey's project aims to increase biogas yields by 20 per cent.

"We hope this research will help us optimise the feedstock use in our anaerobic digestors and improve predictability of how the reactors will behave," said Denise Cysneiros from Surrey Research Park's Future Biogas, which is working with the University of Surrey on the project.



SURREY ACADEMICS TALK RESEARCH OVER A PINT

In May and June, the University delivered its annual Pint of Science Festival in four local pubs. Nearly 500 members of the local community came along to hear Surrey academics talk about their research.

And for the Guildford Fringe Festival in July, Bright Club Guildford took over the Zero Carbon venue for an evening of research-based comedy. The audience was treated to six academics turning their serious science into comedy, supported by a professional comedian and musician to deliver a truly unique night out.

Pint of Science will return 13-15 May 2024.

Check out the website for details: pintofscience.co.uk/events/guildford

Future Bright Club gigs are planned and to find out more, follow them on Twitter and Facebook @BrightClubGLD



CRY BABY PERFORMANCE IN RACKS CLOSE, GUILDFORD

This June, the Guildford School of Acting (GSA) gave a special outdoor performance of the jumping, jiving, rebellious comedy, Cry Baby, based on the cult classic John Waters film.

Featuring BA Musical Theatre final year students, in collaboration with BA Theatre Production and MA Stage and Production Management students, this rock and roll musical showcased our students' spectacular talents!

For more GSA performances and tickets please visit: gsauk.org/events



SURREY SHOWCASE AND SURREY WEEKENDER BRING COMMUNITY TOGETHER

Stag Hill campus hosted an epic weekend as Surrey Showcase and Surrey Weekender shone a spotlight on the Surrey community.

Around 600 students, staff, alumni and members of the community attended the 'Back to the Future' themed Surrey Showcase event on Saturday 17 June. The event featured an array of interactive demonstrations and 28 talks from incredible academics and representatives from Surrey Research Park.

Watch the Surrey Showcase talks at surrey.ac.uk/about/strategy/surrey-showcase

DEVELOPER OF COVID VACCINE SPEAKS AT SURREY



Professor Paul Townsend hands Professor Dame Sarah Gilbert an Adams-Sweeting Lecture award

Celebrated scientist Professor Dame Sarah Gilbert helped co-develop the Oxford–AstraZeneca Covid-19 vaccine with the Oxford Vaccine Group in 2020.

She received a standing ovation from an enthralled audience after delivering her Adams-Sweeting Lecture in May. The lecture focused on the evolution of best practice in combatting infectious disease outbreaks. In part, this is drawn from the lessons learned in the lack of preparedness for the 2014 outbreak of Ebola virus disease in West Africa, and the Covid-19 pandemic.

To watch the lecture back please visit: [youtube](https://youtube.com).

And To find out more about our Adams Sweeting lecture series please visit: surrey.ac.uk/adams-sweeting-lecture-series



OPEN DAYS AT THE UNIVERSITY OF SURREY

7 and 14 October, 4 November

The best way to get to know the University of Surrey is to experience it. Our Open Days give you the chance to chat with current students and academics, to gain an insight into what studying at Surrey is really like.

Where: **University of Surrey**

Visit surrey.ac.uk/undergraduate-study/undergraduate-open-days

GUILDFORD SCHOOL OF ACTING (GSA) AUTUMN SEASON

8 November – 9 December

Everyone is welcome to come along to GSA's fantastic array of performances.

Where: **University of Surrey**

Visit gsauk.org/events or email boxoffice@surrey.ac.uk



WORLD SPACE WEEK

7 October, 10am-4pm

Join an eclectic mix of researchers, scientists and industry players in the space sector. There will be free interactive exhibits and activities for all the family, alongside engaging talks, and the opportunity to ask a space scientist your questions!

Where: **Guildford High Street and Tunsgate Quarter**

For more information, email publicengagement@surrey.ac.uk



ANY QUESTIONS



6 October

BBC Radio 4's flagship topical-debate programme Any Questions? will be coming to the University of Surrey. The event is free to attend and is suitable for all ages (children under 18 must be accompanied by an adult). Entry is by ticket only.

Where: **University of Surrey**

Visit www.surrey.ac.uk/any-questions

ADAMS-SWEETING LECTURE WITH PROFESSOR SHEILA ROWAN

1 November

Sheila Rowan is Professor of Physics and Astronomy at the University of Glasgow and director of its Institute for Gravitational Research. She was also chief scientific advisor for Scotland until 2021. Sheila will be speaking about her fascinating work, including advancing the detection of gravitation waves.

Where: **University of Surrey**

Visit surrey.ac.uk/adams-sweeting-lecture-series

ESRC FESTIVAL OF SOCIAL SCIENCE

21 October - 17 November

The Economic and Social Research Council (ESRC) Festival of Social Science is an annual celebration and promotion of the social sciences and new research.

Where: **University of Surrey**

Visit festivalofsocialscience.com or email esrc-iaa@surrey.ac.uk

SURREY HILLS SYMPOSIUM 'WOODLAND WONDER'

29 November

This event focuses on the amazing natural landscape of the Surrey hills and the people and businesses who bring it to life. This year's event focuses on the Woodlands right on our doorsteps.

Where: **University of Surrey**

Visit surreyhills.org/events

MUSIC AND MEDIA AUTUMN PROGRAMME

The Department of Music and Media hosts an exciting programme of events during term-time, ranging from electronic music and film-based performances, through to pop and classical lunchtime concerts and piano competitions. Twice yearly we host our community orchestra day (next event 1 October) which welcomes local musicians to join students and staff to rehearse and perform large scale orchestral works in one day.

Where: **University of Surrey**

Visit surrey.ac.uk/department-music-and-media/events or email dmm@surrey.ac.uk

FREE EVENT: SURREY COMMUNITY ORCHESTRA DAY

Sunday 1 October 2023, 11am

University Hall, Stag Hill campus, Guildford, GU2 7XH.

Ralph Vaughan Williams - A London Symphony

The University of Surrey invites local musicians grade 7+ to join staff, students and alumni for a day of fun and friendly rehearsals under the baton of Head of Conducting, Russell Keable.

Whether you're a professional player, rusty, or just no longer have a chance to play very often, join us on campus to rehearse 11am-5pm, before a final performance at 5.30pm.

Please email orchestra@surrey.ac.uk to book your place to play (stating your instrument and grade), or if you'd like to register to watch the performance.





PARAMEDIC STUDENT RUNS MARATHON TO HELP OTHERS

Surrey student Ella Collins ran this year's London Marathon to raise vital funds for mental health charity Mind.

A third-year paramedic student, Ella has undertaken several placements with ambulance trusts and healthcare providers across the Southeast.

Ella said: "Being on placement and meeting people who suffer with their mental health really struck a chord with me. I'm delighted to support Mind, who do fantastic work in supporting people with mental health difficulties, but who also run the invaluable 'Blue Light' programme for emergency workers who are struggling."

Professor Melaine Coward, Deputy Dean of the Faculty of Health and Medical Sciences, and Head of the School of Health Sciences at the University of Surrey said: "Words cannot even describe how proud I am of Ella and the work she is doing around mental health. Training for the London Marathon whilst juggling her placements and dissertation shows her dedication and incredible work ethic. It's students like Ella who make Surrey what it is and I am honoured to be a part of their journey."



To donate, visit:
[justgiving.com/fundraising/ellarachelcollins](https://www.justgiving.com/fundraising/ellarachelcollins)

JOEL FRANCIS WINS FRESHFIELDS STEPHEN LAWRENCE SCHOLARSHIP



Congratulations to law student Joel Francis who has been awarded a prestigious scholarship with Freshfields Bruckhaus Deringer ('Freshfields') and will join the firm's Stephen Lawrence Scholarship Scheme.

Established by Freshfields in 2013, the scheme is designed to address the disproportionate under-representation in large commercial law firms and other City institutions of black and mixed-race men from less socially mobile backgrounds. It's aimed at exceptionally talented first-year students at UK universities.

Places are allocated to individuals across UK universities who undertake a rigorous selection process each year. Dr Katy Peters, the School of Law's Director of Employability says: "We were delighted to nominate Joel for this acclaimed scholarship and are thrilled at his success. Here at Surrey,

we work hard to create opportunities for young people from diverse backgrounds to support them in their career aspirations".

As a scholar, Joel will receive a range of benefits and support including a 15-month development and mentoring programme with activities led by Freshfields colleagues.

Joel says: "I am so excited to be given this opportunity to launch my career in the legal profession. Stephen Lawrence's murder 30 years ago was a tragedy and cut short a life brimming with talent and creativity. I am honoured to be part of this scheme which remembers him and his legacy".

DR NICOLA ANNELS

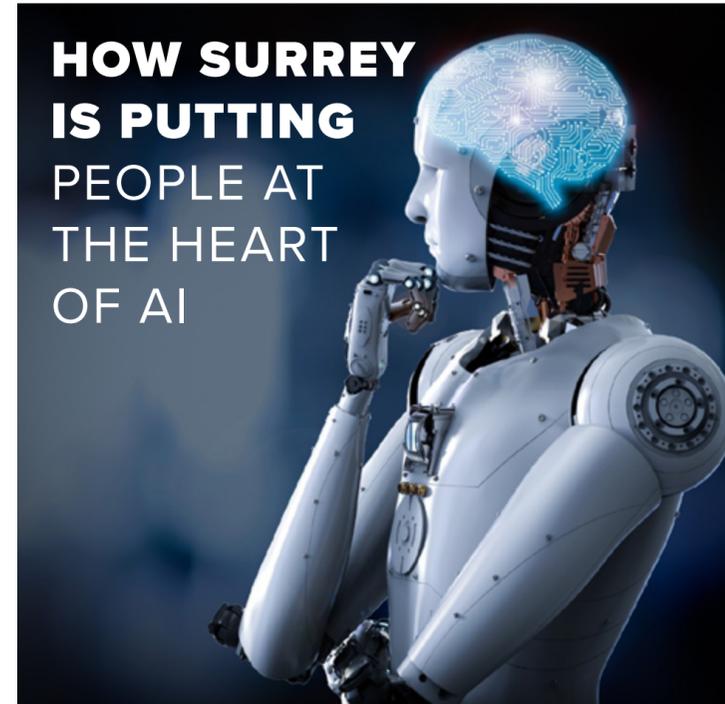
"I'm a Senior Research Fellow at Surrey and have been here for nearly 16 years. My research focuses on cancer immunotherapy, which is an approach aimed at boosting a patient's immune system to eliminate malignant cells. It's one of the most exciting and monumental breakthroughs for cancer treatment and has revolutionised the field of oncology.

"I've been involved with the Prostate Project, a local charity fighting prostate cancer, from the beginning of my career at Surrey as they funded my first position here. Since then, I've seen and experienced first-hand the amazing contribution that the charity makes, not only in raising awareness of prostate cancer to the general public, and jointly funding a world-class NHS Urology Centre at the Royal Surrey County Hospital, but also supporting the research activities within the Targeted Cancer Therapy Research Group here at Surrey. They have also funded vital, state-of-the-art technologies in the lab.

"The best thing about working at Surrey is the camaraderie within our research group. We all have a dedicated attitude to translating basic science discoveries more quickly and efficiently into clinical practice. We're all highly supportive of each other, which provides an excellent environment for our PhD students to thrive and develop into the next generation of cancer scientists."



HOW SURREY IS PUTTING PEOPLE AT THE HEART OF AI



The Surrey Institute for People-Centred Artificial Intelligence (AI) focuses on a new approach putting people at the heart of AI. Working with industry, the public sector, government and national AI organisations, the Institute aims to ensure UK leadership of an inclusive and responsible AI-driven economy.

A recent example of the Institute's work is an innovative AI system that identifies the exact location of proteins in individual cells with world-leading speed and accuracy. This offers the prospect of faster diagnosis and treatment for cancer and other diseases.

In April, the Institute was delighted to join the new Turing University Network, launched by the Alan Turing Institute (the national Institute for data science and artificial intelligence) to work with universities leading in AI across the UK.

Professor Adrian Hilton, Director of the Institute, said: "AI research is advancing rapidly, and it's crucial to ensure that this technology benefits society as a whole. Collaborative efforts, such as the Turing University Network, are vital to achieving this goal."

SURREY HOSTS INFLUENTIAL MP GROUP TO DISCUSS AI

The House of Commons Science, Innovation and Technology Committee is conducting an inquiry into Artificial Intelligence (AI) governance. Making sure that AI remains centred around people and that regulation keeps pace with the blistering speed at which technologies are developing, was the focus of a discussion at the University of Surrey this April.

Attendees included the Chair of the Committee, Rt Hon Greg Clark MP, Stephen Metcalfe MP (who is also Chair of the AI All-Party Parliamentary Group), and Aaron Bell MP.

The MPs were given a series of demonstrations highlighting practical applications of AI and research that is shaping the future development of 5G and 6G technology.

A panel of experts from Surrey's Institute for People-Centred AI recently

participated in a roundtable discussion on the governance of AI. This is a topic that the Select Committee is currently conducting an inquiry into. They focused on issues with the regulation of AI (in particular, AI's role in decision-making), the need for an approach to regulation that is both pro-innovation and people-centred, and how large AI models are validated.

The Committee will now produce a report with recommendations for the government, which is bringing forward policies to regulate AI.

SURREY SPEAKS PODCAST



NEW SURREY PODCAST

Dr Caroline Shenton-Taylor, Senior Lecturer in Applied Nuclear Physics, hosts Surrey's innovative podcast series.

Surrey Speaks will delve into the fascinating world of artificial intelligence. Each 15 minute episode of Will AI...? will unveil a different AI story, shared by leading researchers at the forefront of technological advancements.

Explore the remarkable applications of AI across diverse disciplines, including mental health, fuel, money and childcare. From finding cures for cancer to identifying new drugs to treat bacterium, AI is shaping our world in astounding ways.

SUBSCRIBE NOW

Find the Surrey Speaks podcast on Apple Podcasts and Spotify.





HOUSEHOLDS INVESTING IN SOLAR PANELS COULD REACH BREAK-EVEN POINT SOONER THAN EXPECTED

The Advanced Technology Institute (ATI) at Surrey has published a study which suggests that households investing in solar panels could break even on their investments as early as 2027.

The study explains that the cost of solar panel systems has been declining over the last decade, with large-scale photovoltaic systems becoming cheaper than wholesale electricity in 2021.

"This is good news for those looking to invest in renewable energy sources, as not only will it deliver greener energy, but it will also be at a lower cost," according to Professor Ravi Silva, Director of the ATI and author of the study. "We hope that this research will help the UK's focus on reaching its net-zero targets by 2050, benefiting homeowners, solar developers, and the construction industry."

"As well as leading research in the field, the University of Surrey is also taking action. A new 12MW solar farm will provide green and clean electricity to the campus - and the grid. This will contribute to the University's net-zero by 2030 goal."



Professor Ravi Silva



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Expect **MORE**

At our undergraduate Open Days 2023

Saturday 7 October • Saturday 14 October • Saturday 4 November

What's the best way to get to know the University of Surrey? Experience it.

Current students will show you around, answer your questions and tell you why Surrey was the best choice for them. You can chat to academics to get an insight into studying here. You can stroll through our campus, visit our many eateries, listen to sample lectures and maybe catch a game at our Sports Park.

Visit: surrey.ac.uk/open-days

