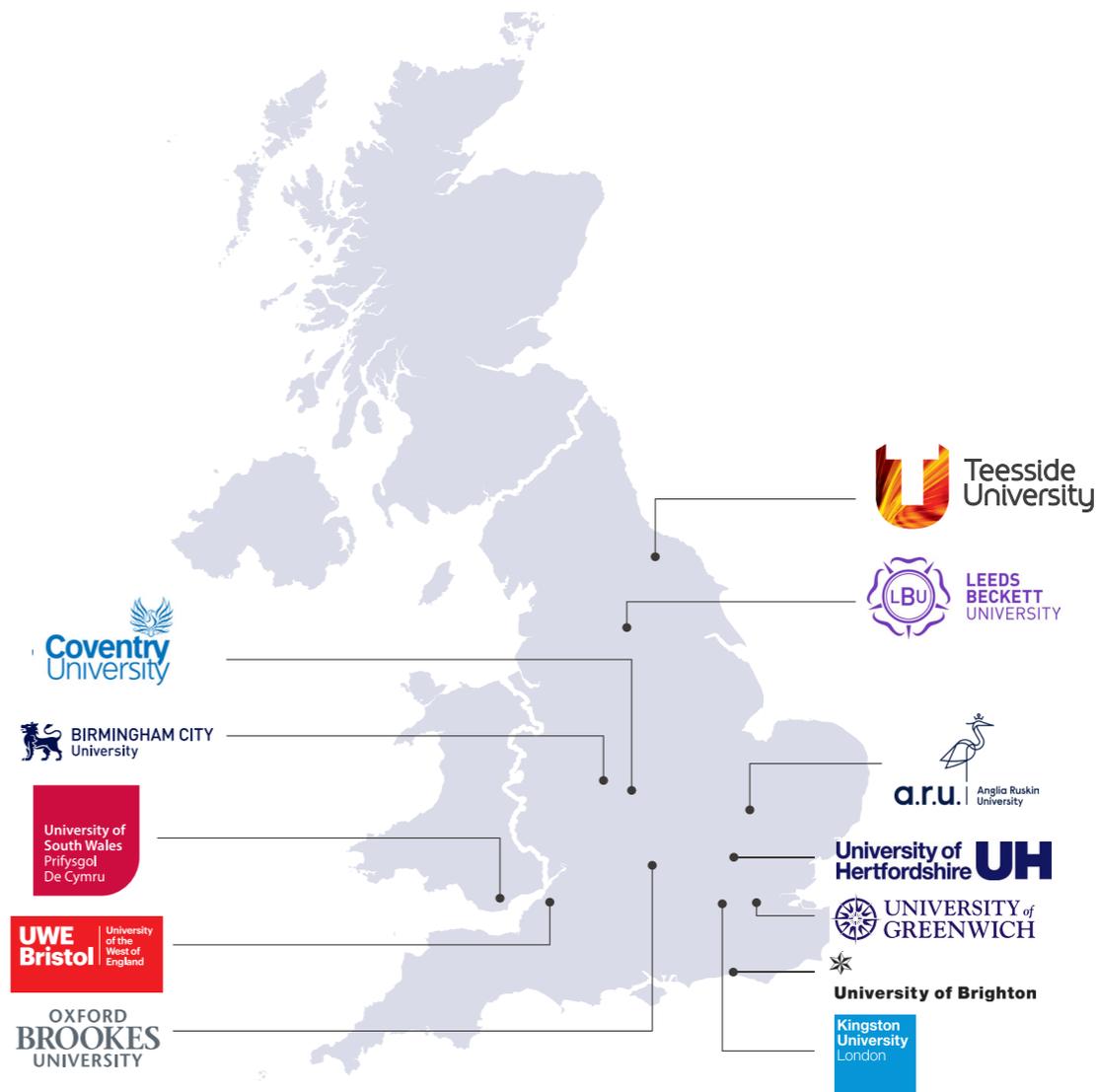


Research and Innovation

*Meeting challenges,
Making a difference,
Shaping the future.*



University Alliance (UA) is the voice of professional and technical universities. We represent large to mid-sized universities working at the heart of their communities. Alliance Universities partner with industry and the professions to deliver the workforce of today and tomorrow through practical, skills-based learning and applied research.

About the Alliance



14,000

Across the Alliance, there are **5,115** postgraduate (research) students, and **13,560** research staff working.



£100m

In 2018/19 Alliance universities received over **£100m worth** of research grants and contracts from Research Councils, governments, charities, and commercial businesses

World-leading research at the heart of civic universities, making an impact on people, communities, business, society and the economy.



Globally connected and locally rooted, Alliance universities are central to the hope that this country's future will be driven by cutting-edge research and innovation.

As institutions truly embedded in their regions, Alliance universities transform lives and economies, playing a significant role in producing highly-skilled graduates, undertaking research and galvanising the economy.

Central to this mission is a commitment to expand the diversity of R&D talent pipelines and addressing barriers faced by students and staff.

All members are committed to increase the quality and quantity of their research and will significantly help contribute towards the UK achieving the 2.4% share of GDP on R&D expenditure by 2027.

Alliance universities are supporting a diverse academic pipeline

People are key to successful research. As institutions with diverse student bodies, we have an important role to play in expanding the diversity of R&D talent pipelines, tackling inequalities, and addressing barriers faced by students and staff. We have made some progress (all our members are part of the Athena Swan Charter, many of our members have been awarded “HR Excellence in Research” and three out of the fifteen Race Equality Charter award holders are UA members) but there is still work to be done, and our members are committed to doing more.

The best start for Early Career Researchers

Enabling researchers to get an excellent start to their research career is essential to develop the next generation of researchers. Alliance universities are committed to nurturing and supporting our Early Career Researchers (ECRs) to provide them with the skills and confidence they need to succeed. We established our flagship Doctoral Training Alliance (DTA), a cross-Alliance PhD programme to feed into the ECR pipeline and our members are running innovative schemes across the country to support and develop their ECRs.

Alliance universities also draw on their connections with industry to develop initiatives for early career researchers to assess the range of career opportunities, particularly in the interaction with industry. The overlap between industry and academia is becoming more prominent, but students and early career researchers need more support to understand and exploit available opportunities. Universities, working closely with industry partners, can play an important role in creating an inclusive innovation ecosystem by providing support for career opportunities and ensuring this is underpinned by EDI approaches.



University Alliance’s Doctoral Training Alliance (DTA) is a structured PhD training programme run across 19 Alliance universities and partner institutions; one of the largest nationwide doctoral training initiatives across the UK.

Building on the research strengths and industry-focus of our universities, the DTA is focused on producing independent, highly-employable researchers with expertise and skills in strategically-important research areas. DTA supports three interdisciplinary research programmes in Applied Biosciences for Health, Energy and Social Policy, and receives co-funding through the European Commission. As well as financial support, DTA researchers benefit from an inclusive and collaborative support community, enhanced employer co-designed training programme and access to expertise and facilities from across the network; helping equip our students with key skills for future employment.



UWE, Bristol has invested more than £2m since 2008 in Vice-Chancellor’s Early Career Researcher (ECR) Awards to promising staff.

These one-year awards are worth up to £20,000 to support projects designed to accelerate their research trajectory and position them to bid for significant external funds. Projects are expected to involve external collaborators, lead to peer reviewed publications and are assigned a senior researcher to oversee progress. As a result of the scheme many staff have gone on to successful research careers at UWE and elsewhere, securing major grants, gaining promotion to Associate Professor and even Professor.

Since 2014, the University of Brighton have established a university-wide Early Career Researcher ambassador role.

The ECR ambassador has a dedicated 1day/week workload for this role, reports directly to the PVC Research and Enterprise. They liaise closely with ECR representatives in each of the school and meet regularly as a group. The ECR ambassador is a member of the University’s Research and Enterprise Committee and provides a report at each meeting and raises any issues identified by the ECRs. ECR ambassador also provides peer support and organises bespoke training and networking events.

Future’s Bright Conference: This event held every other year is a conference organised by ECRs for ECRs. They are supported through a central budget and cover aspects which is important to career progression of the ECRs. The feedback from these events has always been very positive.

Diversity and representation

Inclusivity is part of UA member's core values. It is championed at all levels with members recognising the value it has to enhance the student and staff experience. Underrepresentation of individuals with protected characteristics such as women and Black, Asian and Minority Ethnic groups is well known across UK research.

Alliance universities are working hard to address inequalities and are committed to embedding equality, diversity and inclusion across their research programmes. As well as protected groups, our members are focused on attracting economically disadvantaged individuals into research, by drawing on their very diverse student populations which have been developed through a whole raft of initiatives in some cases going all the way back to primary school.



Alongside the more traditional routes to a higher degree, Leeds Beckett University offers an increasing range of professional doctorates, co-created with the relevant sector, aimed at supporting practitioners to advance their knowledge. Co-creation means these doctorates deliver the higher-level skills needed for future growth and, as they can be completed alongside current roles, they remove many of the traditional barriers to studying for a higher degree for all students, but particularly underrepresented groups. LBU's Carnegie School of Education runs a cutting-edge practice research leading Professional Doctorate in Education/EdD where students are locally and globally connected through the School's nationally and globally leading Research and Enterprise Centres in Coaching and Mentoring, Race Education and Decoloniality, LGBTQ+ Inclusion in Education, Mental Health in Schools, Creativity and Storytelling, and Montessori. The programme also has strong links to LBU's social justice work. The students' work truly enhances the life chances and educational engagement for all in our local, national, and global education landscape.

The University of South Wales runs a number of networks to support women in academia, both within the institution and across Wales. The nationwide Wales Women in STEM network was launched in 2019 using funding from the Higher Education Funding Council for Wales and aims to expose and address the barriers that face women working in STEM. It brings together women working within education institutions and policy makers to help support each other and create a positive environment where women and girls can thrive throughout their careers. The network features a website with a collaborative platform so that women can ask questions, share experiences, and find mentors who can make a real difference to their STEM ambitions.

Oxford Brookes University are leading a project funded by EPSRC under their Inclusion Matters programme to increase participation of female researchers as founders and co-founders of spinout companies; an area where women are significantly underrepresented.

The pandemic has brought under the spotlight the importance of commercialization of research and the creation of spinout companies is an important vehicle to achieve this. Women only represent 13% of female founders or co-founders in the whole of the UK. This represents an untapped source of talent and has highlighted the need to better support female researchers with the commercialisation of their research and spinout leadership. Younger women in particular are concerned about going down the commercialisation route and therefore producing less publications.

This project aims to develop tools and interventions to help institutions to achieve a step change in institutional capabilities to develop a more inclusive ecosystem around spinouts and commercialisation of research across the whole sector. This project has also identified some early learning on the importance of sufficient initiatives for early career researchers to assess the range of career opportunities, particularly in the interaction with industry.

For the last two years Kingston University has included targeted BAME Studentships within PhD Studentship competition; one of a few institutions to do this. These awards are ringfenced for talented BAME PhD applicants and they aim to award one per faculty each year. Four were awarded for 2020-21 entry, three for 2019-20. BAME applicants have reported that this clear declaration of inclusivity at Kingston was important in encouraging them to apply. Award holders receive additional support through the BAME mentoring scheme run by the Graduate Research School, and sponsorship to attend national events that support BAME career development in academia. This work forms part of Kingston's wider commitment to support BAME staff with professional development as a route to get more BAME into senior positions within the university.



The ambition at University Alliance is to power impactful research and innovation which is both world leading, cutting edge, but also practical.



Research and innovation at Alliance universities is focused on real-world issues and using it to make a concrete change in local communities; improving the quality of life in local areas.

As anchor institutions, Alliance universities have particular strengths and experience in bridging and partnering to ensure that ideas generate impact; working closely with industry and other partners to develop locally responsive solutions to the challenges faced by businesses, charities, and governments.

Alliance universities combine high quality research with connectivity with businesses of all sizes - from new spin outs grown directly from university research, to strategic partnerships with international corporations. The results are inward investment, job creation and increased revenues across the country.

Our universities lead locally and engage globally, undertaking research of the highest quality that has impact beyond academia and which yields economic, social and cultural benefits.

Alliance universities have significant strengths across a broad range of disciplines, which are contributing to the challenges posed by governments and funding bodies to today's research community.



Leeds Beckett University- Addressing the obesity crisis

Research at Leeds Beckett University is directly benefiting the health of more than 14,000 children and adults per annum through improved obesity treatment delivered primarily via the NHS and local authorities by LBU's subsidiary company, More Life.

Co-created work with Public Health England (PHE) on a Whole Systems Approach to obesity, it has impacted obesity and other health policy and action in local authorities across England and beyond. Policy-makers and practitioners were involved in the co-development of the guide and accompanying resources outlining a "how to" process, which can enable local authorities, and their partners, to start creating their own local whole systems approaches to tackling obesity and promoting a healthy weight.

The research has informed changes in UK Government policy, influenced related strategies (e.g., the development of the NHS Diabetes Prevention Programme) and impacted practice and challenged policies beyond the UK (e.g., treatment for Qatari children and the EU childhood obesity plan). Public awareness has also been raised of the risks of obesity and the benefits to health of lifestyle change.

Everyday impact

As well as grounding research and innovation in solving everyday problems, Alliance members ensure that their work is intrinsically linked to local businesses, local people, and local areas, such that it makes a real and practical difference on people's lives. A significant proportion of this research is healthcare related - producing new treatments, constantly improving care, and saving lives.

Oxford Brookes University - Improving the accuracy of pre-natal screening

Diagnostic and screening tests produced by Oxford Brookes University have been received in routine clinical practice by tens of millions of women worldwide. One such test developed a method to measure the two forms of the reproductive hormone, inhibin: A and B. Inhibin A measurement has been used in prenatal screening for Down's Syndrome, and the higher accuracy of screening has meant that fewer women required amniocentesis, an invasive procedure which risks causing a miscarriage. The test for inhibin B, made in men, is in use as a marker of sperm count. Both of these tests are used in fertility studies and diagnosis of inter sex disorders.

This research later led to the current clinical tests for another reproductive hormone known as AMH (anti-mullerian hormone). This is widely used in IVF clinics to measure how many eggs women have remaining, thus allowing clinicians to identify which women would most benefit from IVF treatments.

The current group of inhibin A, inhibin B and AMH tests used in hospitals, and much of the research about understanding these molecules, has depended on the antibodies made at Oxford Brookes University.

Kingston University pain rehabilitation programme.

The ESCAPE-pain rehabilitation programme – developed by a Kingston University and St George's, University of London professor to help people with chronic hip and knee pain- has been heralded in the 10-year long term plan by the NHS as a solution to cut waiting times in hospitals and GP surgeries and reduce waiting lists. The six-week scheme was designed for people with osteoarthritis – the most common form of arthritis – and aims to help them to understand their condition better, realise that exercise is a safe and effective self-management strategy to reduce hip and knee pain and recognise the physical and psychosocial effects of joint pain. The scheme is delivered in some 220 sites across the United Kingdom including community centres, leisure centres and schools. It has treated more than 13,000 people to date, saving the NHS an estimated £22 million by reducing the amount of healthcare needed by patients.

Alliance Universities generate and transfer commercially useable knowledge to support local business and industry to innovate; generating local jobs and economic growth and contributing to national innovation efforts.

The University of South Wales (USW) offering tech support to local SME's.

The Centre of Excellence in Mobile and Emerging Technologies (CEMET) project was launched in March 2017 and has been led by the University of South Wales (USW) to help small businesses across Wales develop cutting-edge technologies and boost productivity. Receiving over £8.9m of funding from the European Regional Development Fund (ERDF) through the Welsh Government, and Welsh European Funding Office (WEFO), the project supports SME's to design and test new mobile and emerging technologies to create products and services for commercial success. Based at the University of South Wales, within the Faculty of Computing, Engineering and Science, the project has seen a number of businesses develop products through road-mapping and knowledge transfer. These have included companies that have developed iPad software to detect sight problems in young children, a virtual system that improves safety for both children and workers on railways, and the development of augmented reality CPR training.



The University of Brighton's Green Growth Platform

The Green Growth Platform is an award-winning green business-innovation network which supports businesses developing clean and green products, services and processes to scale-up. The platform provides access to university facilities and expertise, commercialisation advice, coaching and workshops and an investment readiness programme. It has over 1000 members that has created 300 green economy jobs and 70 new products and services. The Platform is the South East Regional Hub of Clean Growth UK, a national business-innovation network, that have collectively supported thousands of businesses across the UK to innovate and grow.



Local impact

As anchor institutions, Alliance universities can draw on their local roots and involvement with regional administrators to align research and innovation activity to local sector strengths and growth areas, whilst leveraging inward investment globally to fix local challenges.

Birmingham City University STEAMhouse embedding the arts with STEM subjects to support businesses and economic growth.

STEAMhouse is Birmingham City University's innovation centre aimed at encouraging co-working, collaboration and knowledge exchange between the arts, science, technology, engineering and maths (STEAM) sectors as a platform for supporting long-term sustainable economic growth, productivity and job creation.

Created in collaboration with local arts organisation Eastside Projects, and supported by the ERDF and Arts Council England, STEAMhouse comprises 15,000 sq ft of space for new state-of-the-art facilities which people can access for free, dedicated to coworking, experimentation and production; with its comprehensive package of business support having already helped a range of innovators take their products to market.

In December 2019 more than £3 million was invested to create a new virtual reality and cutting edge technology hub at the University's STEAMhouse facility. It is anticipated STEAMhouse will help create up to 10,000 jobs across the West Midlands region and help support the growth of the Midlands Engine.

Anglia Ruskin University (ARU) research supports those living locally with dementia and influences national policy.

The Cambridge Institute for Music Therapy Research (CIMTR) is a research institute dedicated to advancing the understanding of music therapy and its ability to affect positive change on health and wellbeing in both policy and practice. Based in Anglia Ruskin University's state of the art music therapy centre, CIMTR launched a partnership, Together in Sound, providing group music therapy to dementia sufferers.

Led by researchers and music therapists within the institute, and the Saffron Hall Trust, the initiative focuses on the impact that music therapy has on health and wellbeing, prioritising research into managing the symptoms of dementia. It was created for people living with dementia and their care companions, to attend interactive music therapy groups. The sessions centre on music-making and listening in order to aid in communication, relationships and increasing quality of life through group work.

The sessions provide vital services for those living with dementia, and the collaboration with CIMTR means that research into the area remains ongoing, alongside other non-pharmacological approaches. CIMTR also contributes to national policy making, adding music therapy to the NICE guidelines for dementia.

UWE, Bristol- Eliminating malaria by strengthening health programme management in South-East Asia and Southern Africa

Every year some half a million people die from malaria, a disease which exists in nearly 100 countries. Focus for enhanced malaria programme performance is often placed on the technical challenges, while human and organizational factors are often overlooked. Research conducted by Peter Case, Professor of Organization Studies at the University of the West of England, Bristol, has focused on improving programme management and service delivery at the operational level of malaria healthcare.

Funded by the Bill and Melinda Gates Foundation and the US Navy Malaria Research Centre the research demonstrated how organisational systems in malaria zones can more effectively manage transitions from malaria control to elimination. The research has culminated in the Organization Development for Malaria Elimination tool that uses a new participatory approach for tackling malaria. The tool has been implemented in Vietnam, Zimbabwe, Eswatini and Namibia, leading to significant improvements in programme delivery, including data quality and communication, as well as fewer drug stock-out events. These programme delivery improvements have subsequently led to improved detection, testing and treatment of more than 3 million people with malaria in Zimbabwe alone. Additional benefits, such as capacity building of healthcare professionals and development of accredited training of National Malaria Control Programme staff, have also accrued, creating sustainable impacts in these regions.

University of Hertfordshire- informing global responses to chemical weapons incidents

The work of the University of Hertfordshire's Toxicology research group has directly protected civilians from the effects of chemical weapons incidents.

Amid rising terror threat levels in the UK and the US, the research group was asked by the US Department of Health and Human Services to investigate decontamination processes. Hertfordshire invested in large-scale testing facilities to allow researchers to simulate human exposure to hazardous substances and to evaluate mass casualty decontamination outcomes.

The research resulted in the development of new policy guidance for emergency response teams dealing with the event of chemical or biological attacks being adopted by both the US and UK Governments. The guidance was followed as part of the UK emergency services response to the Salisbury attack in March 2018.



Global impact

Alliance Universities are international organisations, operating internationally and forming partnerships with global businesses, charities and Governments. The research carried out offers a significant contribution to solving global challenges and the UN Sustainable Development Goals.

Teesside University- protecting users from counterfeit medicinal products.

Research at Teesside University has led on the fight against fraudulent medicines, preventing harm to users and influencing policy which has directly shaped transnational law enforcement practices.

Research originating from the EU funded FAKECARE project undertaken by Teesside University led to the development of FAST ('FAKECARE Alert System Tool'), a software tool for the automatic identification and classification of illegal pharmacies- online malicious websites that prey on vulnerable people with the promise of cheap medicines.

FAST uses a sophisticated algorithm and rapid method to identify illegal online pharmacies, discouraging visitors from buying pharmaceuticals online and providing valuable information for Interpol and other national bodies in identifying and classifying illegal activity. The research has also given rise to essential guidelines that assist agencies in tackling the online trade of falsified medicinal products.

The international peace-seeking Chirac Foundation now considers FAKECARE – which has yielded game-changing counteractive measures that have reverberated across Europe – to be among the five most important projects of its type in the world.

University of Greenwich Natural Resources Institute (NRI)

The NRI is a specialist research, development and education organisation of the University of Greenwich, with a focus on food, agriculture, environment and sustainable livelihoods. Together with their international partners such as UNESCO and the Gatsby Foundation, they tackle issues including poverty, food and nutrition security, sustainable agriculture, climate change, gender and social equality, responsible production and consumption, exploitation of natural resources and environmental management.

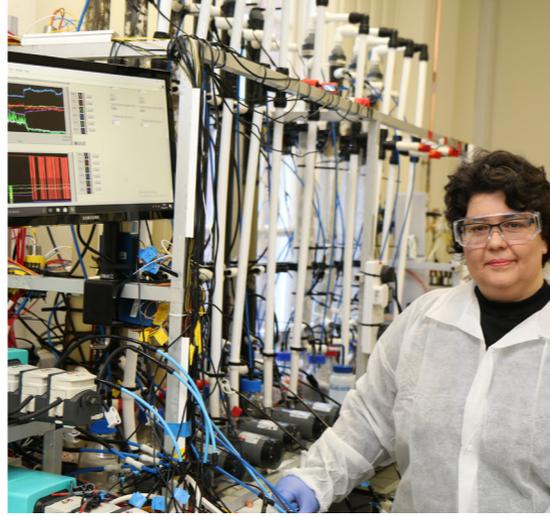
Their work has been highly commended. NRI's recent awards include two Queen's Anniversary Prizes for Further and Higher Education, the Times Higher Award for International Collaboration in 2014, and the Guardian University Award for Research Impact in 2015.



University of South Wales- Working with Tata Steel

The University of South Wales is working with industry giant Tata Steel to help them reduce their energy use and make their business more environmentally and economically sustainable. The University has researched and helped implement a system which takes hydrogen gas produced using electricity and waste carbon dioxide and uses a biological system to create methane gas. This energy can then be put back into the grid, using renewable energy generators. Recycling just 10% of the carbon released by energy and industrial companies each year in this way could represent a saving of £1 billion a year.

Marc Chicuta, Director of Product and Process Development, Tata Steel said “Using the wealth of ability within the University of South Wales, we’re able to more than we could on our own and develop new processes and products much more efficiently.”



Anglia Ruskin University (ARU)- Policing institute of the Eastern Region

Created in 2016, The Policing Institute for the Eastern Region (PIER) at ARU delivers innovative, high quality research, professional development and knowledge exchange for the improvement of priority areas of policing in the Eastern Region and beyond. PIER works collaboratively and flexibly with a wide range of partners nationally and regionally to respond to evolving external challenges. The Policing Institute of the Eastern Region conducted research examining the effectiveness of risk management practices for registered sex offenders in the community, including the first national evaluation of the Active Risk Management System (ARMS). This research has resulted in key changes to policy and practice in all 43 police forces and all seven divisions of the National Probation Service (NPS) in England and Wales; leading to increased efficiency for front-line probation practitioners and savings of approximately £1,218,662 per year for the NPS.

Working with partners

Alliance universities work with industry and local partners to shape their research to maximise impact to support local, regional and national priorities. Their industry partnerships mean much of Alliance universities’ research and discovery has a direct impact on driving innovation in the UK economy, and their close connections to the public services help deliver new innovations in services and care.

Birmingham City University collaborate with local and global partners to solve environmental challenges

Partnering with institutions and businesses around the world, academics from a wide range of disciplines across the university are leading multiple collaborative projects to improve the environment and create more sustainable structures, cities and more.

One project - SATURN- supported by the European Institute of Innovation and Technology’s climate knowledge and innovation community – will involve more than 50 stakeholders from a variety of sectors. The University will create regional design schemes for the West Midlands, ensuring more sustainable planning, better biomass production and more.

The University of Hertfordshire’s Science Partnership is

a unique collaboration between the University and the Local Enterprise Partnership (LEP) with a focus towards supporting small and medium-sized enterprises’ (SMEs). It leverages the state-of-the-art facilities and academic expertise at the University to boost the dynamic agri-technology and life sciences sector in Hertfordshire while providing a strong pipeline of applied scientists for the region through a translational Doctoral Training Centre.

Teesside University (TU) working with regional partners to develop a low carbon economy

In the Tees Valley, the development of the low carbon economy offers a major economic and environmental opportunity. TU, along with its industrial partners, is committed to using the wealth of skills and expertise in the region’s process industries to build a low carbon economy that delivers economic, social and environmental benefits for all.

The Tees Valley South Tees Development Corporation site (STDC), the largest development site outside of London, is a critical component of the region’s economic strategy. Teesside University’s Net Zero Industry Innovation Centre, now under development with industry partners and TVCA, is part of this strategy.

Focused on technological research, development, demonstration and transfer, the Centre will kick-start commercial industrial decarbonisation, hydrogen and circular economy activity in the Tees Valley, providing space for industrial development and R&D activity, helping to attract inward investment into the STDC Site.

Birmingham City University UKRI Newton Fund project to boost emergency nursing provision in the Zambia amidst Covid-19 pandemic

Academics at Birmingham City University were recently awarded £173,000 from the UK Research and Innovation (UKRI) Newton Fund, funding projects across the globe to support communities hit by the coronavirus. The project will see nurse academics and researchers work alongside nurses, local healthcare workers and officials to increase provision for trauma and emergency care within both Zambia's hospitals and communities, to help the country cope with the strain on services caused by the Covid-19 pandemic. Working alongside Zambia's Ministry of Health, Lusaka College of Nursing and Midwifery, Ndola College of Nursing and other local partners, the project will provide the education and training to leave a legacy of growth in trauma and emergency nursing skills and expertise across the country to help enhance service provision. A series of Covid-19 workshops throughout the country will help the nursing workforce gain the knowledge needed to extend their clinical practice, and meet the changing health care needs as funding and resources are urgently diverted to help deal with the pressure of the pandemic. The project will help nurses deal with Covid-19 related health issues such, while continuing to respond to other communicable and non-communicable diseases through their augmented and strengthened competence, while maintaining nursing capacity within the healthcare service.

Anglia Ruskin University (ARU)- New test can detect COVID-19 in 20 minutes

ARU's Professor Stephen Bustin, with colleagues at Chelmsford hospital, have developed a robust, reliable assay, or test, for COVID-19 which returns results in less than 20 minutes. The test, called Cov2-ID, detects three viral targets, making it more reliable than other tests that look at just one, and was 100% accurate in almost 30 patient samples taken. The test also has the potential to detect viral load, which is the amount of the virus present in each patient. The research has been published within the journal Nature Scientific Reports.

The University of Greenwich have developed drug treatments targetting fatal cytokine storm symptom of Covid-19.

Dr Mike Leach has developed compounds, known as UoG-alpha and UoG-beta, that can inhibit the multiple cytokine proteins that can cause death by respiratory collapse, following Covid 19 infection. These compounds can be used within a drug therapy to prevent our immune system from disabling the body's lung function during a cytokine storm; one of the contributing factors in Covid-19 deaths. This treatment could potentially also help protect cancer and organ transplant patients.

Covid-19 research and enterprise

Alliance Universities have been at the forefront of the fight against the pandemic, with innovations in testing, treatments and vaccinations, as well as supporting the NHS with equipment and expertise.

Teesside University will support the manufacture of a Teesside vaccine by building the skills capacity of the region's life science industry. The university's National Horizons Centre will lead the work to develop the skills capacity within the Stockton-on-Tees region, working in partnership with industry delivering expertise, facilities and training potential to upskill the vaccine manufacturing workforce.



Oxford Brookes University develop vaccine Research has been conducted through their spinout company, Oxford Expression Technologies Ltd, to develop a Covid-19 vaccine. Awarded a grant by Innovate UK to work in partnership with Vaxine Pty Ltd. Covax-19® is a vaccine based on production of recombinant spike protein manufactured in insect cells and the Innovate UK grant will enable OET experts to use their technology to help Vaxine to improve the yield and scale of production.

Kingston University research into communicating with BAME communities

The Faculty of Business and Social Science's Dr Tushna Vandrevala, received award funding from the National Institute for Health Research. Her project is studying how to improve health communication strategies to mitigate the risk of Covid-19 among UK black, Asian and minority ethnic communities. Insights will be shared with community leaders and policy makers including NHS England and the National Institute for Health Protection.



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