



How universities are helping fight Covid-19

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Introduction

The Covid-19 pandemic has disrupted public life in ways never before seen in peacetime. The implications of the outbreak on the UK's university sector stretch far beyond the short-term impact on teaching and research and the sector faces challenges that could take many months to overcome.

Despite this, almost immediately, universities and their communities began responding to the crisis. Numerous examples from across the country show that universities are doing all they can to contribute to the national effort against the outbreak.

Together, the university sector is carrying out vital medical research into a possible vaccine; providing much-needed equipment, facilities and extra staff to frontline NHS services; and is exploring ways to support the people's health and wellbeing through this difficult time.

This collection of case studies forms part of the **#WeAreTogether** campaign and shows how everyone in our society benefits from universities. Through their research, teaching and role in local communities, universities make an untold contribution to the nation's prosperity, and as 2020 has shown, are prepared to redouble their efforts during a crisis.

Themes

1. **Research, vaccines, and testing**
2. **Resources and people power**
3. **Helping people get through the crisis**
4. **Supporting students**

1.

Research, vaccines, and testing



Many universities are involved in research to understand more about the virus:

Mathematical modelling work from **Imperial College London** is informing both the UK and US government's response to the pandemic and providing vital insights into the nature of the outbreak, its spread, and risk.

The University of Glasgow and the **University of Edinburgh** are collaborating on a £4.9 million government-funded project to understand the impact of the virus on the human body. Using samples and data from 1,300 patients in the UK, the team hope to provide information to help control the outbreak and improve treatments.

The **University of Manchester** is using maths to combat coronavirus. Mathematicians from the university have been using their computer modelling expertise to advise the government on how to best protect the UK population during the coronavirus emergency.

A **University of Westminster** review by Dr David Gaze has raised awareness that some cardiovascular values in blood tests that are typically high in heart attack patients are elevated in COVID-19 cases. The review is helping to inform clinicians.

Together with drug development company Synairgen, researchers at the **University of Southampton** are trialling an inhaled drug that could prevent Covid-19 worsening in those most at risk.

Experts at the **University of Southampton** are also modelling the effectiveness and timing of Covid-19 interventions for different regions of the world. The research is helping the World Health Organization and the European Centre for Disease Prevention and Control with response efforts.

Queen's University Belfast have been awarded government funding to find a treatment for coronavirus.

A research unit at the **University of Dundee** has identified 38 separate proteins in the Covid-19 virus. The team will manufacture these proteins to develop antibodies that can fight the virus.

Prof Nic Locker from the **University of Surrey** is studying possible viral targets for intervention. He is using both human and bat cell lines to try and understand how the virus adapts from its host to humans.

Students from the **University of Roehampton** have joined the Folding@Home project. The students are using their personal gaming machines and high-spec computers to calculate protein folding to aid coronavirus research.

University of Bristol scientists are carrying out research to understand how Covid-19 interacts with our bodies and causes disease. As one of the first labs in the UK to obtain and work on the virus, the team recently published a paper on the genetic changes that occur when Covid-19 is cultured.

SOAS University of London experts have been sharing their expertise, skills and knowledge to make sense of what's happening on a global scale and contribute towards the response.

Leeds University are mapping the spread of Covid-19 to identify patterns across towns and cities, helping identify what local measures help prevent the spread of the virus.

Oncologists from **University of Leeds**, **University of Birmingham** and **University of Oxford** have launched the first cancer coronavirus registry in the world.

Staff at **Harper Adams University** are working together to see if drones could be deployed to fight the coronavirus by disinfecting key areas from above.

Nnenna Nkata, a **Cranfield University** student has created a dashboard giving information on the spread of Covid-19 in Nigeria which is now in public use.



One of the keys to tackling the pandemic is the successful mapping of the Covid-19 genome:

Scientists from the **University of Sheffield** have worked with the Sheffield Teaching Hospitals virology team to sequence the first two genomes of Covid-19. This evidence helps to understand how the virus is spreading and changing and help to develop a vaccine.

The **University of Cambridge** is coordinating a major national effort to control Covid-19. Bringing together the NHS, Public Health Agencies, the Wellcome Sanger Institute, and universities across the country the genetic code of the coronavirus will be analysed to provide hospitals, regional NHS centres and the government with a cutting-edge tool to combat the virus.

Cardiff University, the **University of Sheffield**, the **University of Liverpool**, **University College London**, **University of Glasgow**, and the **University of East Anglia** are also part of this national effort.

The **University of Birmingham** has deployed a facility capable of sequencing genomes of Covid-19 from local patients in less than 24 hours.





With significant demand for virus testing, universities are at the forefront of efforts to improve technology in this area:

Scientists from the **University of Oxford** have developed rapid testing technology specifically for coronavirus.

The University of Leicester is part of an effort to discover whether someone is carrying the virus before symptoms are present, which could simplify large scale screening for the virus and curb the spread.

Researchers at **Brunel University London, Lancaster University** and the **University of Surrey** have developed an innovative device to detect Covid-19 in 30 minutes using an intelligent smartphone application. It would cost £25 to run six samples and can be used by health care workers.

King's College London has launched a new app to try and slow the spread of coronavirus. The app tracks symptoms related to novel coronavirus and allows anyone to self-report daily.

Northumbria University have developed a breath collector that could revolutionise Covid-19 diagnosis, and confirm if transmission happens through breath.

The **University of East Anglia** are developing portable COVID-19 test that could be rolled out in weeks.

The world's ability to withstand future outbreaks will depend on the development of a vaccine against Covid-19. UK universities are spearheading these efforts:

A team from **Imperial College London** has developed a vaccine candidate that will soon be ready for human trials.

Professor S.S. Vasan from the **University of York** is to be the principal investigator in research to help determine the characteristics of coronavirus and to test new potential vaccines.

Researchers at the **University of Plymouth** are working in partnership with Shanghai Veterinary Research Institute and Kansas State University to develop ways to vaccinate animal populations to tackle any future outbreaks before they reach humans.

Scientists at the **University of Reading** are analysing synthetic Covid-19 virus proteins to help develop and trial a vaccine.



2.

Resources and people power



Universities from across the UK have donated or developed personal protective equipment (PPE)

Swansea University students and staff are producing 3D printed face shields to help the NHS and frontline workers.

Technicians at **Cardiff Metropolitan University** have been working to produce protective equipment for NHS staff at the front line.

Maker Space, an engineering facility at the **University of Salford**, has developed a prototype protective visor for NHS staff.

University of Bath engineers have manufactured hundreds of face shields to Bath's Royal United Hospital. They developed them from the hospital's limited stock and will continue manufacturing the face shields in the coming weeks.

The **University of East Anglia** launched a project to 3D print PPE.

The **University of Hull** has now switched from 3D-printing face shields for healthcare workers to laser cutting. Initially, the team now aims to produce more than 20,000 face shields per week.

University of Cambridge has created a 'pop-up' processing centre to help collect PPE from its labs and departments. Supplies are being sorted using technology from university spin-out RedBite, and equipment is being donated by alumni, partners and local businesses.

Solent University has also donated over 4,000 pairs of disposable gloves to the London Ambulance Service.

Bucks New University has donated around 13,500 items to the NHS including face masks, visors, gowns, aprons and surgical gloves.

Donations of PPE

**Aston University,
University of York,
Durham University,
Queen's University Belfast
University of Warwick
University of South Wales
University of Bedfordshire
Portsmouth University
University of Derby**

**Kingston University
University of Salford
University of Huddersfield
University of Hull
University of Manchester
University of Wolverhampton
University of Surrey
University of Westminster**

Other universities are donating specialist equipment and resources to the NHS:

The **University of Dundee** has provided two highly specialised robots to help with the creation of the UK's first national diagnostic centre in Milton Keynes. The machines have been described as 'gold dust' by Downing Street officials.

University of Leeds is offering volunteers and equipment for screening initiatives.

Teesside University has supplied tens of thousands of pounds of specialist scientific equipment to local hospitals to help scale-up testing.

The **University of York** has donated food, waste disposal items, disposable gloves and sterile needles.

The **University of Worcester** has donated supplies including 20 hospital beds, screens, tables and paramedic backpacks from their skills centre to the local hospital trust.

Engineers, anaesthetists and surgeons from the **University of Oxford** and **King's College London** are building and testing prototypes that can be manufactured using techniques and tools available in well-equipped universities and business workshops.



Donations of specialist virus detecting machines:

University College London
University of Nottingham
University of Wolverhampton
Nottingham Trent University
University of Salford
Newcastle University
University of Westminster

Other universities have made laboratories and facilities available for further research and resources for the NHS:

The **University of Warwick** has made laboratory space available, and the **University of Manchester** has handed the management of its PET-MR scanner suite to the local NHS trust, along with four beds, and its spare stock of alcohol gel.

Scientists at the **University of Sheffield** are using their skills, laboratories and equipment to help with clinical testing, as are colleagues at the **University of Liverpool**.

The **University of East Anglia's** bioscience institutes have been reconfigured to provide testing for local NHS services.

Imperial College London has converted a laboratory into a testing suite able to handle 1,500 samples per day.

University of the West of England Bristol (UWE Bristol) has provided labs for testing and labs to be used as wards to treat patients.

At the **University of East Anglia**, accommodation blocks have been offered to NHS staff to be used as ward space.

The **University of Leeds** has opened up pathology and microbiology labs, contributed staff and equipment to give additional capacity for testing in support of Leeds Teaching Hospitals Trust, and has sent seven major pieces of laboratory equipment to the NHS and the testing centre in Milton Keynes.

Aberystwyth University is providing full use of a former nursery building to provide increased capacity at Bronglais General Hospital.

Bangor University has made available facilities for blood donation and specialist laboratory equipment for sample analysis.

Cardiff Metropolitan University's estates team have set up a temporary blood centre in partnership with the Welsh Blood Service after donations dropped by 20% and the service must be distanced from hospital sites where the infection is being treated.

The staff car park at the **University of Derby** has become Derbyshire's first temporary Primary Care Hub.

Solent University is offering the use of its staff car parks and sports halls for vital equipment storage.

University of Glasgow is hosting a major Covid-19 testing facility in Glasgow.

A number of universities are helping to meet demand for essential items, such as hand sanitiser:

Technicians at the **University of Birmingham** are working to produce hand sanitiser for Birmingham's social care workers, in response to an urgent request from Public Health England.

Scientists at **University of the West of England Bristol** are working around the clock to produce thousands of litres of disinfectant for South Western Ambulance Service, GP surgeries and police stations to use on surfaces.

The **University of East Anglia** is sourcing ethanol from local breweries and has worked with local MPs to have 30% HMRC duties lifted, meaning they are able to produce 170 litres of hand sanitiser gel a day.

The **University of Hertfordshire** is producing hand sanitiser to bolster NHS and social care supplies.

The University of West England, Bristol's Exhibition and Conference Centre will be used as a temporary NHS hospital treating Covid-19 patients.

The University of Warwick is manufacturing additional hand sanitiser for Midlands NHS.

Staff from the **Open University** are using their expertise to produce hand sanitiser for healthcare professionals in Milton Keynes.

The **University of Bradford** has shipped large amounts of ethanol to local health services to use as hand sanitiser.

The **University of Wolverhampton** has also begun large scale production of hand sanitiser.

Edge Hill University has provided emergency supplies ensuring a local NHS Trust can continue to sanitise and test surgical masks.

Ventilators are crucial to treating patients. Universities are helping to meet the increased demand:

Researchers at the **University of East Anglia** are 3D printing ventilator parts, masks and other critical equipment.

The University of Huddersfield has been talking to local manufacturers about manufacturing requirements for ventilators. As a result, four companies have switched manufacturing to respond to the government specification.

Scientists at **King's College London** are developing a prototype for a rapidly deployable ventilator, and a team of engineers and medics is addressing ways to increase the UK's capacity for ventilator manufacture.

The **University of Leeds** is providing hardware for the production of ventilator parts.

The **University of Sheffield** has been involved in discussions about how the UK can quickly manufacture ventilators and other vital medical equipment.

Edinburgh Napier University has transferred a ventilator to the intensive care ward at the Royal Infirmary of Edinburgh.

Newcastle University staff have offered their knowledge and resources to help the government produce 5,000 ventilators over the next few weeks and 30,000 over the next few months.

The **University of Wales Trinity Saint David** is supporting NHS Wales by developing a non-invasive ventilation mask and creating an emergency pandemic ventilator that can be manufactured locally.



Free parking, rides and rooms:

The **University of Northampton**, the **University of the West of England Bristol**, **Leeds University**, the **University of Hull** and **Aberystwyth University** have offered student halls and hotel rooms to healthcare staff and patients.

The **University of Sheffield**, **University of Reading**, and **University of Leeds**, and **Bucks New University** have made car parking available and free of charge for NHS staff.

Newcastle University is providing free on-site car parking and accommodation close to the hospital for NHS staff, and keeping their on-site supermarket open for them.

Students and academic staff are stepping up:

Students and clinical academic staff from the **University of East Anglia**, **University College London**, the **University of Sunderland**, and the **University of Nottingham** are all supporting local hospitals, NHS staff and researchers in response to requests from the national government.

Discussions are underway to fast-track more than 1,000 final year medical and nursing students from the **University of Leeds** into the NHS.

Medical and nursing students from **Queen's University Belfast** are stepping up to the call to work on the front line to help tackle coronavirus.

Around 1,500 **Middlesex University** nursing and midwifery students and nursing apprentices are being mobilised to help with coronavirus response.

Newcastle University final year medical students are graduating and going straight into working on hospital wards.

A team of fourth and final year medical students at **Newcastle University** have set up the North East group of Medical Students Helping Hands. The national initiative gives health workers free, practical help with childcare, shopping, and animal care during this difficult time.

Cardiff University is fast-tracking final-year medical and healthcare students to be available to support front-line NHS teams. 300 Year 3 and Year 4 medical students have also signed up for volunteering in support of the NHS.

280 final year medical students at **Imperial College London** took their final exams entirely remotely for the first time at any medical school in the world. The students can now qualify as doctors at this critical time.

The **University of Sheffield's** final-year medical students will graduate earlier than usual. Medical students in earlier years are volunteering to help doctors, nurses and healthcare workers – from childcare to prescription collections.

500 second and third year undergraduate and postgraduate pre-registration nursing students from the **University of Derby** are being deployed.

More than 400 dedicated nursing and midwifery students and health tutors at the **University of Huddersfield** are joining the frontline of the NHS.

Leicester School of Pharmacy, based at **De Montfort University**, have volunteered to support the NHS at this critical time.

Final year health students at the **University of Suffolk** are supporting the health and social care system during the coronavirus crisis.

An honorary graduate of the **University of Suffolk**, Dr Ruth May, Chief Nursing Officer for NHS England is among the country's senior health leaders steering the NHS's fight against the Coronavirus pandemic and helping to create the new NHS Nightingale Hospital.

Final-year nursing and midwifery students from the **University of Hull** will be supporting front-line NHS teams. **Hull York Medical School** is fast-tracking final-year medical students to support the NHS.

Over 250 nursing and midwifery students at the **University of Surrey** have opted to undertake extended placements under emergency education standards that will allow them to provide much needed support.

Over 500 **Robert Gordon University (RGU)** student nurses and midwives, 62 final-year social work students are all undertaking placements and entering the workforce early to support the NHS and the social care sector. RGU is also seconding some staff on a part-time basis back into practice.



Universities are helping to train, prepare and skill-up key workers:

City, University of London is supporting the education and training efforts for the field hospital at the London ExCeL Centre, which will initially provide 500 beds, with plans to scale up in response to patient need.

University of Dundee has worked with NHS Tayside to establish a Covid-19 training hub in the Clinical Skills Centre at Ninewells Hospital. The hub has set up a range of training courses to support upskilling healthcare staff.

Medical equipment used for training by **Anglia Ruskin University** students, including ventilators, has been sent to a local NHS Trust.

Middlesex University is delivering professional development to NHS staff and retirees.

Leeds Beckett University is providing teaching spaces and catering facilities for the NHS to train 1,000 new recruits. The university's buildings have been reopened to train non-clinical staff in areas such as cleaning, catering, security, driving, childcare and maintenance.

Bangor University is providing specialist respiratory physiotherapy training and other training for NHS staff.

The University of South Wales is training up to 300 nurses from local health boards to care for people in intensive care.

The University of Chester has offered its simulation facilities to help prepare nurses and frontline health and social care staff.

Training videos have been filmed at the **University of South Wales** to demonstrate how to use ventilators and CPAP (Continuous Positive Airway Pressure).

Staff from **Wrexham Glyndŵr University** are assisting the NHS in urgent training in clinical respiratory care. The university is also in contact with the Maelor Hospital about potential short-term accommodation needs for their key workers.

Teams at **University of Salford** and **Brunel University, London** have been running the Covid education project which has expanded rapidly to be the training platform for Project Nightingale, as well as being rolled out nationally for the NHS.

A team from **St George's, University of London** has produced guidance for GPs dealing with potential coronavirus cases. The guidance has been developed into an online course.

The **University of Plymouth**, delivering clinical skills training for NHS staff.

Northumbria University has launched training in Critical Care Upskilling.

The **University of Greenwich** have made a video for frontline staff at King's College Hospital on how to apply personal protection equipment (PPE), and how to resuscitate a Covid-19 patient and have. District nurses and former NHS staff returning to help in the Covid-19 crisis will undergo additional training and up-skilling at the University of Greenwich.

The **University of Hull** is providing training for former NHS staff who are rejoining the workforce. Staff from the University's Faculty of Health Sciences are delivering training online in order to update their essential skills.

Anna-Marie Madeley, Lecturer in Midwifery at the **University of Bedfordshire** has been offering neonatal training online using baby manikins.

The **University of Surrey** has been working with Surrey Heartlands Health and Care Partnership to develop a training programme to upskill community health care staff and mental health care staff to prevent patients from being admitted to an acute hospital setting.

Robert Gordon University has worked with NHS Grampian to deliver upskilling training to around 180 NHS staff to be redeployed from their existing roles into frontline work and across many different supporting roles.

3.

Helping people get through it



The knock-on effects of the pandemic reach into all areas of life. Several university projects are hoping to help with our wellbeing:

University College London has launched a study into the psychological and social effects of Covid-19 to help understand the effects of social distancing measures on people.

Psychologists from the **University of Sheffield** have launched a survey of 2,000 people to understand the mental health and social impacts of the pandemic on the behaviour of UK citizens.

Anglia Ruskin University has launched new research to investigate the effects of self-isolation on the health and behaviour of UK adults.

Professor Keith Brown from **Bournemouth University** has been producing weekly videos to help NHS and community workers identify and protect vulnerable people at risk from scams while they are self-isolating.

The Royal Central School of Speech and Drama has created a series of dementia-friendly interactive exercises and audio resources aimed at older adults in isolation. They have also produced an e-resource pack of activities for children who are off school.

The University of Bath's creativity hub, The Edge, is live streaming its wellbeing classes for free including yoga, choir and dance. Team Bath is streaming a free work-out timetable bringing together the best fitness advice classes from Team Bath trainers.

The Open University is offering free resources through OpenLearn, including over 950 short courses and thousands of articles, quizzes and interactive games for free. There's even a course specifically on Coronavirus.

Newcastle University is running free online courses for carers of people with dementia to help reduce isolation and help them cope with the limits on social activities.

York St John University's sports and activities team will be providing online wellbeing exercise and nutrition advice to help people through this time.

Supporting the new home school:

The **University of Southampton** has produced a series of videos on how to have conversations with children and teenagers about Covid-19.

The **University of Birmingham** is offering practical support to parents who have suddenly found themselves in a classroom scenario.

30 Postgraduate Certificate in Education (PGCE) students from **Cardiff Metropolitan University** have devised a weekly programme of activities designed for Key Stage 3 learners. From English to Physics, including conducting experiments using household items.

The Open University in Wales is working with Cardiff Council Schools' Service to identify resources that can help teachers to support learners at home online.

Edge Hill University have launched a learning hub to help schools and families through the pandemic.

A unique collaboration from the **University of the West of England Bristol** is letting people in self isolation use robots to remotely access one of Britain's most iconic art galleries.

Universities are providing information and research people can trust:

Medical researchers from **Cardiff University** have set up a website to help members of the public look for tell-tale signs of Covid-19.

University of Northampton is helping people to discuss Covid-19 with children in a factual way to reduce their stress and anxiety.

Experts from **Cranfield University** have been commenting in the media on stockpiling, supply chains, toilet paper shortages and food waste.

Queen's University Belfast academics are working to understand the implications of the virus and its impact on wider society. The range of experts span science, ethics, legal and society.

The **University of Bath** is helping those working through policy challenges by matching them with their academics with expertise across a range of areas. The Policy Fellowship Programme is a free pairing scheme, coordinated via the Institute for Policy Research (IPR) to support the government, industry and charities.

Volunteering and helping local communities:

Liverpool Hope University has set up a volunteering hub for staff and students to volunteer to support vulnerable people. Tasks include delivering free school meals, food shopping, dog walking and picking up medication, while student social workers are offering one-to-one support.

Newcastle University researchers have been working with Newcastle City Council on CityLife Line. The brand-new service harnesses the goodwill of the Newcastle community, allowing people to sign up as a volunteer.

The Raising and Giving Society at **Newcastle University** volunteered with FareShare North East by helping sort and pack up items for delivery to low income families in the area.

More than 450 medical and social care students at the **University of Manchester** have stepped forward to support NHS workers. The students are providing help to NHS workers – such as collecting groceries, babysitting children, pet walking and manning receptions at GP surgeries.

Nottingham Trent University has donated all the produce from its vertical farm to help feed the homeless during the Covid-19 pandemic. Boxes of vegetables and herbs were given to Tracy's Street Kitchen, a small team of chefs who make and give out meals for people living on the streets.

The **University of Portsmouth** has been helping feed the local community.

De Montfort University, established a volunteering register to help with the outbreak.

Robert Gordon University has offered 400 fully-funded places on online short courses focused on strengthening businesses and providing individuals with skills development opportunities in response to current economic challenges.

Newcastle University has set up a driving service so laboratory screening staff at the Freeman Hospital can get to and from work after long shifts without public transport. They are also donating unused food to local homeless charities and Food Banks.

Kingston University is working with Kingston Chamber of Commerce to explore creative ways to help local businesses tackle the challenges they are facing as a result of the coronavirus outbreak.

The **University of Bradford** has issued an open invitation to businesses requiring help to tackle the Covid-19 outbreak.

When outlets closed in March, the FoodOnCampus team at the **University of Manchester** switched their focus to vulnerable members of the community. Volunteers sanitised vans and fridges, and shared leftover food between a local foodbank, a homeless charity and teams looking after students still in residences.



4.

Supporting students



Universities are doing all they can to ensure their students are supported through the pandemic:

The University of York has launched an Emergency Student Support Fund in response to the pandemic. The fund is being supported through donations from alumni, friends, and supporters of the university, and provides bursaries of up to £500 for students facing unanticipated financial challenges due to Covid-19.

A professor at the **University of Brighton** has found a novel way to continue teaching from home – by using his patio windows as a whiteboard while livestreaming classes.

Solent University is providing Asda vouchers to any students in need. They have teamed up with the students' union to ensure there are always student support and peer advisors available to keep in contact with self-isolating students and those who need wellbeing support.

Solent University is running a food bank and working with a catering supplier to deliver parcels of grocery essentials to students remaining in their halls and to those who have been self-isolating.

The University of London is providing fact-checked news updates for students. They are also giving guidance on wellbeing, from helping students reframe the situation to boredom busting and fitness guides.

Portsmouth University have been sending food parcels to self-isolating students.

JISC has collaborated with, Kortext, the UK's leading digital textbook platform on a nationwide programme to ensure university students and academic staff can access key learning resources online during this crucial revision and exam period. 120 UK universities are now being set up to enable access to critical textbook content for upwards of 1.4 million students.

The **University of Surrey** has extended its student financial hardship fund, with additional support for widening participation students. It has also run the Emergency Student Support Appeal, designed to support students adversely affected by Covid-19, and which has raised £240,000 to date.

Universities UK is the collective voice of 137 universities in England, Scotland, Wales and Northern Ireland.

Our mission is to create the conditions for UK universities to be the best in the world; maximising their positive impact locally, nationally and globally.

Universities UK acts on behalf of universities, represented by their heads of institution.



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