Research at Salford

Excellence in research, impact & partnerships

University of Salford MANCHESTER

2014 THE AWARDS
AWARD WINNER
BUSINESS SCHOOL OF THE YEAR

2014 THE AWARDS
AWARD WINNER
OUTSTANDING CONTRIBUTION TO INNOVATION AND TECHNOLOGY

Research at the University of Salford

With over 800 research-active academics and more than 1,000 PhD students, the University of Salford has a lively and creative research and learning environment. This is reflected in our Times Higher Education (THE) 2014 Awards for Outstanding Contribution to Innovation & Technology and Business School of the Year and in our QS World University Rankings top 50 position for Architecture/Built Environment.

Our research spans areas as diverse as computer security, disaster management and homelessness and we have an international reputation for world-class research. In the 2014 Research Excellence Framework, 50% of our research was shown to be world leading or internationally excellent, with notable research and impact excellence in areas including materials and physics, acoustics, computer science, diagnostic imaging, biomechanics, social work, social policy, business and management, arts and media, environment and health.

Our research is benefiting the environment through the development of a new environmentally friendly aerosol valve which reduces emission of greenhouse gases, and we are pioneering the use of cutting-edge technology to study and monitor wildlife in the Chernobyl exclusion zone. We are improving the built and social environment through pioneering more effective construction processes and improving the resilience of communities to natural and man-made disasters.

We've helped reduce crime and kept communities safer through our plans to re-design areas in Manchester city centre. We've changed lives by improving social inclusion, family cohesion, and health outcomes for disadvantaged families and communities. Our research has pushed the boundaries of knowledge in foot behaviour and biomechanics by developing more effective products using technologies such as 3D printing, and we've improved the quality of life of people with arthritis by developing self-management approaches with health professionals.

Our research is carried out in state-of-the-art facilities that include an immersive virtual reality environment, a robotics lab with human-scale CSR robots, flight simulators, wind tunnels, acoustics labs and a climate-controlled Energy House, and we are the only university with a campus at MediaCityUK. It's little wonder that these world-class facilities, combined with our globally-respected researchers, attract partners including Bentley, Boeing, Airbus, BBC, Dyson, Cisco and BAE Systems, amongst many others.

At the University of Salford, we carry out research which improves the lives of people across the world. Join US, and make a difference.

Professor Nigel Mellors
Pro-Vice Chancellor for Research & Enterprise

Our Impact*

50% of our research was rated as 'world leading' or 'internationally excellent' in terms of its originality, significance and rigour

100% of our impact in Social Work and Social Policy was rated as 'outstanding' or 'very considerable' in terms of its reach and significance

80% of our research output in Electrical and Electronic Engineering, Metallurgy and Materials was rated as 'world leading' or 'internationally excellent'

Over 85% of our Environment was rated as conducive to producing research of 'world leading' and 'internationally excellent' quality in terms of its vitality and sustainability in 5 units of assessment

Our Goals

- To be in the top 50 in REF 2020
- To be the leading Industrial University for Engineering
- To have a close working relationship with industries, businesses and organisations in both the public and private sectors
- To attract and retain the highest quality Post Graduate Research students and maximise their outputs and impact

*In the 2014 Research Excellence Framework (REF), a national initiative that rates the research performance of Higher Education Institutions.

Salford Innovation and Research Centre (SIRC)

The Salford Innovation and Research Centre (SIRC) in the School of Computing, Science and Engineering (CSE) is a dynamic and collaborative interdisciplinary research unit which comprises six 'world leading' and 'internationally excellent' applied and pure research groups:

- Informatics
- Acoustics
- Engineering
- Spray Technology and Petroleum Research
- Autonomous Systems and Advanced Robotics
- Materials and Physics

Our research delivers real-life impacts and innovations, particularly in the thematic areas of media and digital technology, spray and atomisation, energy and infrastructure including transport and environmental systems. SIRC research is integral to the University's mission and vision to pioneer exceptional industry partnerships and collaboration at the heart of our teaching and research.

In the 2014 Research Excellence Framework, the majority of SIRC's research and impact was judged to be world leading or internationally excellent, reflected in our THE 2014 Award for Outstanding Contribution to Innovation and Technology for our ground-breaking research into aerosol spray technology.

The University continues to invest in SIRC research, and we have a range of world class laboratories and research facilities, including:

- The largest collection of specialist and accredited acoustic facilities under one roof anywhere in the world
- Structural and ecological engineering facilities
- Hydrogen storage
- Spray and atomisation laboratories with advanced high class lasers and imaging facilities
- Cutting-edge petroleum laboratories including C.T. Scanner and fracking facilities
- Materials characterisation including electron microscopy and X-ray diffraction facilities
- High performance computing clusters
- Engineering and physics laboratories and
- The multi-modal OCTAVE facility for telepresence and virtual environment research

www.salford.ac.uk/research/sirc

@UoS_SIRC

Biomedical Research Centre (BRC)

The Biomedical Research Centre (BRC) is a vibrant collaborative unit of molecular biologists, biochemists, chemists, clinicians, microbiologists, parasitologists, physiologists, and cell biologists.

Our multidisciplinary research focuses on the analysis of the function of cells and organs in physiological and pathological settings, in both human and animal systems. We conduct high quality research into cancer, inflammation, therapeutics and drug design, infectious diseases, pharmacology, physiology, immunology, molecular diagnostics and cell biology, including the perturbations caused by zoonotic and pathogenic microbes on human and animal health.

Our research sits within a rapidly developing area, which underpins our understanding and treatment of diseases and is developed with our partners in hospitals to generate better therapies. We work with the Kidscan Centre for Children's Cancer Research, which focuses on new and improved cancer treatments, and we have active research programmes in immunological aspects of cancer and infection, tissue and inflammatory response to disease and applications of biotechnology.

Our parasitology research includes aspects of pathology, drug action and diagnostics for malaria, trypanosomiasis and larval cestode infections with implications for both human and animal health. Diagnostics and biomarkers research are also growth areas within the centre and include developing a diagnostic service for human and animal parasitic infections.

We have strong links with national and international universities and research centres, and have several ongoing collaborative clinical studies with hospitals and industry. Work in translational research is supported by the charity GIMe, which funds research in asbestos induced cancer mesothelioma.

www.salford.ac.uk/research/brc

@BRCSalford

Ecosystems and Environment Research Centre (EERC)

The Ecosystems and Environment Research Centre's research programmes are focused on advancing the understanding of key environmental challenges of major economic and societal importance, including biodiversity resource management, climate and environmental change and the spread of infectious diseases. Funding to support our research is received from national and international research councils, businesses and charities. Our researchers study the living and non-living components of the ecosystem and the management and governance of these systems and work globally in habitats ranging from the open ocean to pristine tropical rainforests and the urban core of our major cities.

Our research encompasses areas from ecology, microbiology, parasitology, environmental change, human geography and physical geography.

Our projects involve working in Amazonia on ecological processes, working with captive animals in zoos, investigations into the global seafood supply chain and world class research into human tapeworm parasites, as well as investigating the cause of decline in honeybees and its threat to the global food security.

Our research has also led to the development of the Salford Advanced Laser Canopy Analyser (SALCA), which produces the most accurate 3D measurement of forest biomass dynamics to date, and is being used to better understand how climate change affects forest growth and standard operating procedures for the analysis of seafood authenticity globally. Also, our studies into radiation exposure of large mammals in the Chernobyl Exclusion Zone in Ukraine are being used to advance the international radiation protection system.

Our research aims to positively shape the future of our environment, wildlife and people across the world.

www.salford.ac.uk/research/eerc

@EERCSalford

Centre for Health Sciences Research

Our health sciences research covers a wide range of strengths, with over 60% of our research judged as 'world leading' or 'internationally excellent' in its originality, significance and rigour in the 2014 Research Excellence Framework. Our research has outstanding impact and ongoing, practical value to society and is translated to practice through education and innovation.

Our research groups include:

- Applied Psychology: technology-enabled, social and physical environments
- Clinical Rehabilitation
- Equity, Health and Wellbeing
- Foot and Knee
- Gait Analysis
- Diagnostic Imaging
- Rehabilitation Technologies and Biomedical Engineering
- Measurement and Quantification of Physical Behaviour
- Immersive Displays and Virtual Reality
- Sport, Exercise and Health

We involve users centrally in much of our research. Our research into foot and knee structure and function is advancing the design of a wide range of clinical therapies for patients and athletes, whilst our analysis of walking is providing insights into how orthopaedic surgery and physiotherapy can help people to walk more easily. Our investigations using free-living body-worn devices are helping to explore the relationship between physical behaviour, independence and health. Salford's clinical rehabilitation and rehabilitation technologies and prosthetics research (with Salford Innovation and Research Centre) has led to improved understanding of rehabilitation mechanisms, new interventions and improved device designs. Our emerging virtual reality research is helping to develop more productive interactions between patients and health professionals, including mental health clinicians. Psychology's research with user communities has led to a Research Council award-winning research impact pathway for health promotion in school communities, featuring a smart mobility walking school bus service.

www.salford.ac.uk/research/health-sciences

@HSRC_Research

Centre for Nursing, Midwifery, Social Work and Social Sciences Research

We are known locally, regionally, nationally and internationally for our applied research into the interface between health, wellbeing, housing, criminal justice, culture and social care. We effect change in the socio-cultural economy by research-informed engagement and practice.

Our research is organised into groups that focus on:

- Improving outcomes for children, young people and families
- Mobilities, employment, education and professions
- Improving the lives of people with long-term conditions
- Inclusive places, integrated housing, social care, and housing and sustainable living
- Criminal justice
- Society, culture and digital lives

Our research is increasing our understanding of: an individual's life span, from cradle to grave; the educational preparation of health and social care professionals; the behaviours that impact upon society's response to social need; the changing nature of cultural and social life; and the development and impact of health and social policy. Over the last five years, we have focused our research strategy on reinforcing our widely-acknowledged areas of excellence (the impact of our Social Work and Social Policy research was ranked as 'Outstanding' and 'Very considerable' in the 2014 Research Excellence Framework). During this time, we have attracted over £5 million in external grants, building multiple significant national and international partnerships, while sustaining valuable links with local and regional healthcare providers, businesses and third sector organisations. From our pioneering Salford Institute for Dementia, to clinical placements in Uganda, our work is having an immediate and lasting positive effect and making a real difference to the lives of people locally and across the world.

www.salford.ac.uk/research/nmswss

@NMSWSS_Research

Centre for Urban Processes, Resilient Infrastructures & Sustainable Environments (UPRISE)

UPRISE is a research centre within the School of the Built Environment. We draw our strength from the combined expertise and research excellence within three research groupings: the Centre for Sustainable Urban and Regional Futures (SURF), the Centre for Disaster Resilience (CDR), and SURFACE – Inclusive Design, alongside state-of-the-art facilities, such as the University's innovative ThinkLab.

Our work seeks to champion inclusive, resilient and sustainable spaces and places, with a commitment to people and communities. Our research is theoretically-informed, methodologically innovative and practice-oriented.

UPRISE brings together political scientists, sociologists, anthropologists, geographers, urban planners, designers, architects, environmental gerontologists, surveyors and engineers, ecologists and technologists. We have common interests in generating knowledge and practice around four areas of work:

- Inclusive and accessible urban design and form
- The lived experiences and resilience of people and communities
- Place-based policies, tools and practices
- Spatial infrastructures and urban governance systems

UPRISE researchers receive funding from international agencies, the European Union, the UK Research Councils, British Council, local authorities and the private sector. We work in partnership with local, regional, national and international urban communities and stakeholders. Our research cuts across a number of exciting areas of discovery and application. Examples include urban governance and social innovation, co-producing urban knowledge, creative community engagement, inclusive design and independent living, climate resilience and flooding, urban ecology and sustainable return on investment. We also bring built environment expertise to the Salford Institute for Dementia.

www.salford.ac.uk/research/uprise

@UPRISE_Research

Centre for Built Environment Sustainability and Transformation (BEST)

The Centre for Built Environment Sustainability and Transformation in the School of the Built Environment (SoBE) is a vibrant and prolific centre of research excellence, recognised globally for our research impact and outcomes. The team is multi-disciplinary and is currently engaged in addressing complex socio-technical problems around informatics, innovation and energy consumption in the built environment.

The research centre includes three major research groups:

Built Environment Informatics Research Group
is focused on the development and transformation of the built environment through digital innovation and technologies; facilitated by the combinatory aspects of people, process, technology and information. The team incorporates a range of "state of the art" research areas dealing with visualisation and Building Information Modelling (BIM), Geospatial Information Systems (GIS) and Construction ICT.

Construction and Property Management Research Group
encompasses our research strengths and critical mass in the issues encountered during conception, procurement, project execution, facilities management and end of life activities for built environment.

Applied Buildings and Energy Research Group (ABERG)
is focused on establishing an evidence base to better understand and address the issues of energy consumption in buildings. The team covers a wide range of disciplines including building performance, electrical engineering, construction management, design and social sciences.

Our facilities such as digital design lab, 3-D printing facility and ThinkLab support research for these research groups. Additionally, the University's Energy House provides a unique testing facility containing a typical Salford 1919 terraced house that has been reconstructed in an environmentally controllable chamber, in which climatic conditions can be maintained, varied, repeated and patterns monitored.

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@UoS_BEST

Salford Business School Research

Salford Business School Research achieved the biggest growth in research quality among the business schools in the North West with 140% growth in world leading research and with 40% of its impact judged as outstanding in REF 2014 assessment. Our outstanding impact in Sports Business is highlighted through our development of EA SPORTS Player Performance Index, the official ratings system of the Barclays Premier League.

Our vision is to develop next-generation business, management and law research that is industry-relevant and digitally-informed. We leverage the historical reputation of the University in technology-led, applied innovation by organising resources around three multi-disciplinary sector-based centres: Centre for Sports Business, Centre for Digital Business, Centre for Social Business; and four discipline groups: Finance, Accounting & Economics; Strategy, People Management and Salford Law; Marketing & Services Management and Operations & Information Management.

Our research delivers real business solutions, and we have a compelling record of generating research in partnership, demonstrating significant funding success with: SMEs – we are a top 5 University for SME engagement (Witty Review); city-regions, regional government, and international organisations; international rail operators; rail trades unions; national and international sports and gaming administration agencies; football governing bodies and professional football leagues; the "Class of '92"; gambling regulatory authorities and policy makers.

This activity is enhanced by the awards achieved by the School:

- The 2014 Business School of the Year
- 2014 Small Business Charter Award
- European Search Awards 2014 – best 'Use of Search'
- Digital Entrepreneur Awards 2014 – best 'Large Digital Team of the Year'
- 1st in the UK to receive the Social Enterprise Gold Mark

www.salford.ac.uk/research/sbs

@SBS_Research

Arts, Media and Communication Research Centre

In a world where borders have shrunk and horizons broadened; where media is diffuse, yet immediate and intimate; and where the cultural industries are a crucial part of the economy but the wider significance of practice based research is often overlooked; the Arts, Media and Communications (AMC) Research Centre explores issues of creativity, culture, design and performance, often through the innovative use of digital technology. Based both at MediaCity UK and New Adelphi, our dedicated arts building, AMC has over 90 active researchers and 100 plus post-graduate research students spread across five research groups and three specialist units:

- Art and Design Research and Engagement (AnDRE)
- Communications, Culture and Media Studies
- English Literature, Language and Creative Practice
- Music and Performance
- Politics and Contemporary History

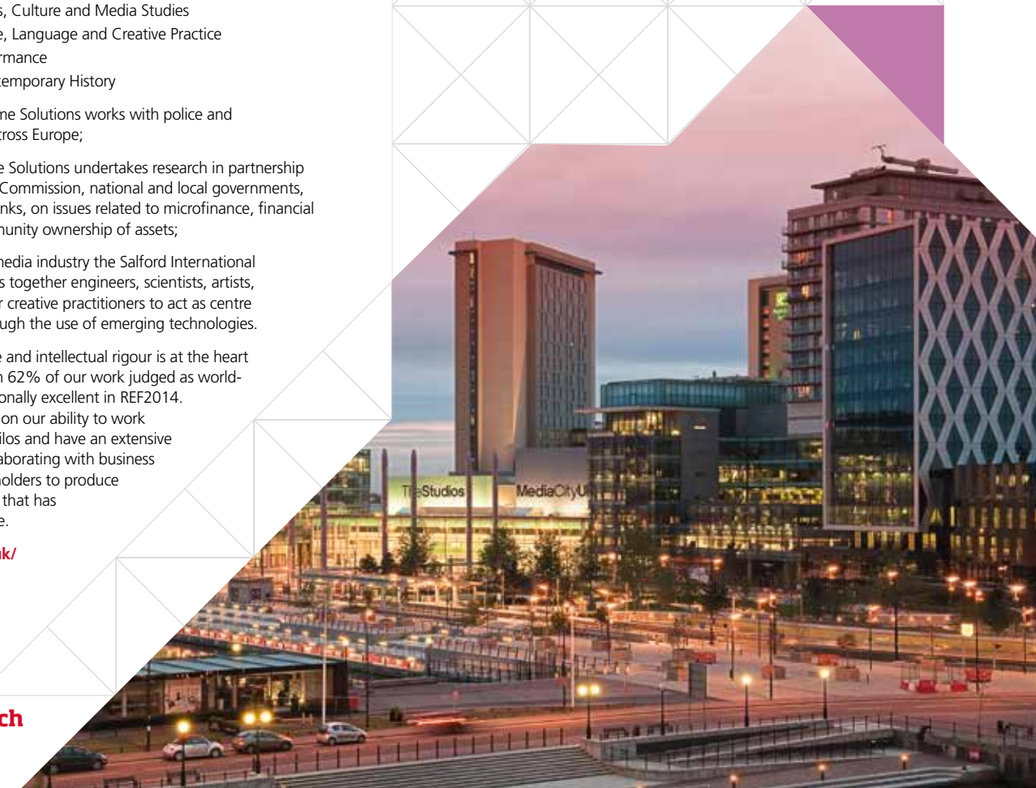
Design Against Crime Solutions works with police and security agencies across Europe;

Community Finance Solutions undertakes research in partnership with the European Commission, national and local governments, and mainstream banks, on issues related to microfinance, financial inclusion and community ownership of assets;

Influenced by the media industry the Salford International Media Studio brings together engineers, scientists, artists, designers and other creative practitioners to act as centre for production through the use of emerging technologies.

Research excellence and intellectual rigour is at the heart of what we do with 62% of our work judged as world-leading or internationally excellent in REF2014. We pride ourselves on our ability to work across disciplinary silos and have an extensive track-record of collaborating with business and external stakeholders to produce innovative research that has real-world relevance.

www.salford.ac.uk/research/amc



@AMC_Research

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