



## Research Strategy: University of Edinburgh

### Introduction

The University of Edinburgh is one of the world's leading research-intensive universities. Our researchers continuously challenge the boundaries of knowledge. We provide the highest quality learning opportunities for our students embellished by the new knowledge we discover. We have a glorious history of startling discovery and advancement of knowledge for public good. From our foundation in 1583, through our leadership of the intellectual and scientific advances in the 18<sup>th</sup> Century Enlightenment, to the present day, Edinburgh has been at the forefront of research and innovation. Twenty-one Nobel laureates have trained or worked at the University of Edinburgh. The breadth and depth of our scholarship, learning and teaching, our open interdisciplinary approach and our entrepreneurial culture enable Edinburgh to make substantial positive differences to people's lives locally and globally.

We have a continuing track record of the highest levels of research excellence. Edinburgh is a global university, consistently ranked one of the best 50 universities in the world.<sup>1</sup> We are 4th in the UK for research power in both main league tables based on REF2014, the most recent research assessment (Research Fortnight<sup>2</sup> and Times Higher Education<sup>3</sup>). Our REF performance was strong across the board, with all three of our Colleges having disciplines placed first for power in both league tables, and more than half of subjects submitted in the UK top five for power in both tables.

### Strategy

*We aim to deliver the highest attainable excellence in research and innovation to transform understanding of humanity, the world we live in and the universe around us. We will discover new knowledge and develop solutions to address the great global challenges. Our exceptional research staff and our outstanding students will engage with the local community and global collaborators to deliver this strategy.*

### Our Values

#### Leadership in Research

The University of Edinburgh is driven by the pursuit of knowledge, a commitment to the highest attainable excellence in our research and to translating our discoveries into transformative social, cultural, health and wealth benefits for people everywhere.

We have a 430 year legacy of developing hugely influential thought leaders including David Hume,

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<sup>1</sup> The University of Edinburgh is ranked 23<sup>rd</sup> in the 2018 QS World University Rankings

<sup>2</sup> Tables of rankings can be accessed here:

[http://exquisitelife.researchresearch.com/exquisite\\_life/2014/12/ref-2014-full-results-and-analysis.html](http://exquisitelife.researchresearch.com/exquisite_life/2014/12/ref-2014-full-results-and-analysis.html)

<sup>3</sup> Tables of rankings can be accessed here <https://www.timeshighereducation.com/news/ref-2014-results-table-of-excellence/2017590.article>

James Clerk Maxwell, Charles Darwin, Alexander Graham Bell, Robert Louis Stevenson and Sir Arthur Conan Doyle. We maintain this reputation by continuing to deliver exceptional discoveries. Recent extraordinary researchers who have worked here include 'physiology or medicine' Nobel laureates Sir Robert Edwards, Sir Paul Nurse and Professors May-Britt and Edvard Moser, physics Nobel laureates Professor Max Born and Professor Peter Higgs, chemistry Nobel laureate Sir Fraser Stoddart, economics Nobel laureate Professor James Mirrlees, chemists Christina Miller and Charlotte Auerbach, and biologists Sir Kenneth and Lady Noreen Murray. Contemporary excellence is exemplified in the research of chemist Professor Lesley Yellowlees, epigenetic biologist Sir Adrian Bird (winner of both Canada Gairdner and Shaw prizes), cloning pioneer Sir Ian Wilmut (who created Dolly the Sheep and also won the Shaw Prize), Li-Fi inventor Professor Harald Haas and theologian Professor Mona Siddiqui.

Edinburgh has a talent to initiate new areas of enquiry. We started the study of Geology and English Literature and, recently, the new field of epigenetics.

### **Interdisciplinarity**

Our ethos of '*research without boundaries*' ensures that interdisciplinary research is at our core. Our open structure, with cross-cutting research institutes and centres addressing major themes, facilitates interactions between colleagues and students from all disciplines. We incentivise our researchers to break down disciplinary preconceptions and expand knowledge horizons. Thus our outstanding science, arts, humanities, social sciences and clinical researchers readily work together to deliver solutions to the great global challenges of the 21st century.

Edinburgh has won many large, externally-funded centres for training doctoral students. These are typically multidisciplinary and are co-located in clusters across our campuses, further expanding the breadth of experience available to our exceptional postgraduate students. These prestigious centres are based on areas of outstanding research strength in the University and ensure we help to shape the next generation of interdisciplinary research leaders and practitioners.

### **Internationalisation**

We are very international in our outlook: 43% of our students and 30% of our staff are non-UK nationals from over 140 countries. More than 50% of our outputs are co-authored with colleagues from other countries. We encourage secondments, collaborations and deep partnerships globally.

The majority of our research outputs in the last decade are in collaboration with an international partner, 30% with European countries and 20% with the USA over the last decade. In every research field the University of Edinburgh's international co-publication has increased in the last 7 years. International collaboration adds visibility and citations to our research. These links are often supported by strategic alliances including our membership of the League of European Research Universities (LERU), Universitas 21 and other alliances of the world's top research-intensive institutions. Such links assist our staff and students to partner and gain skills and resources from the best research peers globally. We will continue to build our international collaborations at institutional and individual levels.

## **Inclusivity**

The University of Edinburgh aims to attract the world's most talented students and remarkable staff. We continuously develop a nurturing environment where everyone can reach their full potential. Students will increasingly be enabled to gain world-class research experience. We plan that all students, including undergraduates, will have the opportunity to engage in and experience research and contribute to knowledge generation.

We continually promote equality and diversity among our students and staff. As an institution we have attained Athena SWAN silver, as have many of our Schools individually, with the School of Chemistry attaining gold. We are also proud members of the Equality Challenge Unit's Race Equality Charter scheme and have developed an ambitious action plan to embed race equality across our institution. This commitment to human values has a vital role to play in ensuring our success as a world-class research institution, proud of our staff and students and their fine achievements irrespective of their background, orientation or belief.

Given the key importance of talent and the high value we place on the people we recruit and retain, we are committed to providing excellent career support through protected research time, mentoring, development opportunities and removal of the disadvantages to progression that can arise from career breaks. We work with our staff to ensure they feel supported and that they can realise their potential, creating an excellent working environment. All our researchers are supported by the Institute for Academic Development, who work in partnership with schools, colleges and support services to enhance researcher career development and leadership opportunities

## **Early Career Development**

Our research ambitions and values will be brought to fruition by our early career colleagues, whose potential we enrich through training, culture and opportunities. The prestigious tenure-track Chancellor's Fellowship scheme has attracted more than 250 outstanding early career researchers who share our commitments to collaboration, excellence and inclusivity. As their careers develop along a supported path, this highly international cohort will become our research leaders of the future. Additional prestigious schemes will be developed to strengthen our links with external partners in industry and other sectors and to establish coherent pathways, exemplified by the outstanding Edinburgh Clinical Academic Training scheme.

## **Integrity**

Research integrity is embedded in our ethos and culture. The University of Edinburgh has a firm commitment to promoting excellent research practice and has robust governance to ensure the high standards of the UK Concordat to Support Research Integrity are met. Our Institute for Academic Development is weaving the principles of integrity into researcher development opportunities at all levels to support a culture of scrutiny and honesty. A focused group of researchers, professional services and University leaders have responsibility for ensuring that integrity and governance have a strong and highly visible profile and that our excellent practices in data governance, trustworthiness and security are widely applied.

## Impact

We are the largest and most successful university in Scotland and one of the largest and most successful in Europe. We are an anchor of the Edinburgh economy and a major global economic force. With more than 35,000 students, 2.5 million learners online, 13,000 staff and a turnover of nearly £1 billion, the University of Edinburgh generates £2 billion for the Scottish economy, £4 billion to the global economy and supports 37,000 jobs outside direct employees. Our staff and students start 35-45 companies each year, with 63% still trading a decade later. We will continue to use the investments of our research funders productively, grow and increase our economic impact, and provide further benefits to society.

## Partnerships

We recognise that strategic institutional partnerships benefit students, staff and the university as a whole. Our highly successful REF2014 submission included units of assessment that were jointly submitted between ourselves and a partner institution, the greatest number of partnerships of all UK Universities. Deep partnerships are becoming ever more important for research, allowing access to and sharing of unique facilities and leveraging funding. We will therefore build a small number of further deep partnerships with key research-intensive organisations.

## Our vision for the future

We will address and resolve the world's greatest challenges through research of the highest quality. We will develop existing research themes and build on our distinguished tradition of starting new areas of enquiry. International challenge, interdisciplinary themes are key foci for Edinburgh researchers, for example:

<i>Global health and wellbeing</i>	<i>Ageing and regeneration</i>	<i>Agriculture and food security</i>	<i>Climate change and its moderation</i>
<i>Robotics</i>	<i>Data science</i>	<i>Digital transformation</i>	<i>Clean energy and technologies</i>
<i>Global Justice</i>	<i>City living and smart cities</i>	<i>Social impacts of globalisation</i>	<i>Changing cultures and demographics</i>

With our commitment to developing the next generation of research leaders we will continue to recruit and support the world's most promising students and outstanding staff. We will have a culture of positive inclusivity for all, which encourages talent migration from across the world to join us in Edinburgh.

We will continue to invest substantially in our research and teaching estate. We will develop our campuses to be ideal for purpose, with the highest standards of researcher accommodation, equipment, data handling and storage facilities. We will develop open, interactive research spaces where disciplinary and interdisciplinary researchers can work shoulder to shoulder on the major challenges.

**Our University open to the world:** We will make our university even more accessible to colleagues in other universities and in industry, facilitating free exchange of ideas, staff and sharing facilities. We will work more closely with such partners to co-create research and training for mutual benefit.

## Delivering our vision

### Influencing Globally and Contributing Locally

The University of Edinburgh is changing the world through the quality and power of our research. We make extraordinary impacts on societies, the economy and policy across the continents. We will address global challenges and commit to a culture of improving quality of life and sustainable development. The globalisation of our research will continue, with our Research Support Office developing their offering to researchers to include international funds and resources. This will ensure that there are no geographical limitations on opportunities for our researchers. We will continue to work with global partners to further advance mutual research interests and collaborative funding.

Locally, the University is driving a major development of its estate so the staff and students can feel equally part of the university and part of the city. Our buildings will reflect the needs of the 21<sup>st</sup> century, with infrastructure and modern connectivity. We will be part of a regional endeavour to bring 'Internet of Things' to the local area. Our capital investment will revolutionise University space in the area and build a series of hubs for knowledge exchange. With campuses such as BioQuarter we will progress co-location of research with industry, public sector and other organisations to facilitate knowledge exchange, so that the innovative ideas of our staff and students can be developed and delivered to the people who will benefit.

We will do more to work with our communities to embed the University into the cultural heart of the region. We have lasting partnerships with local authorities, the NHS, Scottish Enterprise, the National Galleries, the National Library, the National Museums of Scotland, the Royal Zoological Society of Scotland, the Royal Botanic Gardens and Edinburgh's famous International Festivals. Our research staff and students participate and volunteer in every festival hosted here, engaging with local residents and international visitors alike, embellishing our region and making our research public on the world's largest stage.

### Partnering with Industry

Research is translational. We will embed knowledge exchange and knowledge transfer practices in our research from inception, part of a wider culture change to make the University a more open institution.

Universities are an ideal conduit for innovation, taking our research and teaching and delivering it to communities near and far. To do this we need to work with industry, public organisations and third sector bodies more extensively. Our philosophy is to have a university with doors open to all who wish to engage. Our industry engagement approaches are open, interdisciplinary and market-led, with arts, humanities and social sciences complementing our science and medicine expertise.

Industry needs the skills that the University of Edinburgh produces. We will enhance industry-ready skills in our students and researchers. We will achieve this by encouraging more researcher and student placements, so they can gain deep experience outside traditional academic disciplines, and by co-creating courses with partners in industry and the public sector. We will increasingly make our institution 'porous' to industry-based colleagues to work collaboratively within our centres, institutes and schools, and share knowledge with our leading academics.

We will encourage academic careers involving periods in industry and support industry staff seeking to access and work within the University. We will also initiate industry-academic research fellowships at postgraduate and postdoctoral levels to ensure that our talented staff and students have the skills and experience to thrive in careers outside academia.

To support the openness of the university we will establish major interdisciplinary centres where researchers, students, industry and the public sector interact and derive knowledge and understanding by working together in a flexible and responsible manner. These will include the Bayes Centre for Data Science and Technology, and the Usher Institute of Population Health Sciences and Informatics.

### **Digital Transformation**

Curating and manipulating vast data sets to generate new knowledge is the crucial next challenge in many areas of research. The University of Edinburgh will revolutionise our already strong digital practises in the next five years, providing a world-leading, trend-setting experience for staff and students. Our research data strategy ensures our capacity to handle, in a trusted manner, large data sets on a scale that was unheard of just a few years ago. We already house the £100 million UK National Supercomputer and Research Data Facilities to enable this ambition. We will lead on data curation, maximising opportunity with the Digital Curation Centre, another national facility housed at the University. We will ensure that the digital research support available to our academic staff and research students is optimal at any scale of project.

We will lead in digital education, developing revolutionary online learning and Continuing Professional Development (CPD) for our research staff and students. The University is committed to CPD for all its staff. Data skills development is a critical part of that development and courses will be available to all research students and staff so that they have the skills needed to adapt and innovate in the data-driven world.

### **Participate, collaborate, contribute**

We always welcome participants in our research. Data collectors are encouraged to engage in Citizen Science, as are students and colleagues who would like to become a researcher here at the university. We are eager to work with new people from around the world, learn from them, improve research and advance global understanding. If you are a company or private or public-sector organisation and would like to collaborate with a research group or centre at the University we would be delighted to engage with you. Be part of our vision by contributing either as a researcher, a participant, a funder or a donor to our unique interdisciplinary and open research facilities.

The University is creating a sense of place for its staff and students, based in our wonderful city but

looking out globally. We are building communities of researchers who move freely between disciplines inside and outside the university, engage with new ideas and find innovative ways to improve the future. The University of Edinburgh is and will remain at the forefront of global thinking and research for the next century and beyond.