As the world has become more interconnected, the urgent problems we face have become larger and more systemic. If future generations are to be provided with the chance to flourish, the world’s most creative, insightful and inventive minds must bring their expertise to bear on these global problems.

However, the intellectual, cultural, scientific, economic, environmental and medical challenges we face today are so significant and complex that we cannot solve them through the application of any single discipline. Rather, we need to intensify the integration, synthesis and outreach of research across the breadth of our disciplines.

Knowledge drawn from and tensioned between different disciplines – from neuroscience to urban planning, from security to linguistics, from computer modelling to environmental law – provokes cross-disciplinary debate that invariably reveals more of the true complexity of an issue and allows more a nuanced consideration of all aspects of a problem.

Wisdom – here defined as the judicious application of knowledge for the good of humanity – is the key to providing solutions to aspects of these global problems. Wisdom can arise through bringing together different expert perspectives to address issues in their full complexity.

Through the UCL Grand Challenges, we have set ourselves the ambitious goal of developing wise and timely counsel to address aspects of the world’s major problems. We also are intent on making that counsel compelling to policymakers and practitioners. This report presents highlights of our recent progress toward those goals.

Success will require both the courage to tackle questions with a global reach and the collective wisdom to produce radical and rigorous answers. In our commitment to addressing the Grand Challenges we are not only being true to UCL’s radical and socially reformative history, but also provoking other great universities to consider what their role should be in the 21st century.
**UCL Grand Challenges**

As part of the *UCL Research Strategy*, we have identified areas in which UCL's critical mass can deliver novel achievements.

Overarching our cross-disciplinary collaboration are UCL Grand Challenges, the mechanism through which concentrations of specialist expertise across and beyond UCL are brought together to address aspects of the world's key problems. UCL Grand Challenges draws on our expertise right across the arts and humanities, biomedical sciences, the built environment, laws, life sciences, mathematical and physical sciences, and social and historical sciences.

By enabling our 4,000 researchers to engage in novel debate across their disciplines, we make our collective expertise and knowledge greater than the sum of its parts. Our work is then best placed to yield wise solutions to be adopted by policymakers and practitioners.

The UCL Grand Challenges – of Global Health, Sustainable Cities, Intercultural Interaction and Human Wellbeing – aim to:

- **create networking opportunities** – connecting academics across UCL's disciplines and fostering networks of experts (eg through roundtables, town meetings, and centrally seed-funded cross-disciplinary institutes)
- **provide spaces for debate** – bringing together different expertise, perspectives and methodologies in order to provoke new understanding (eg through symposia, workshops, and public events)
- **facilitate novel research** – stimulating cross-disciplinary activity to generate wisdom and societal debate
- **maximise impact on policy and practice** – enhancing economic performance, public service, policy, quality of life, and social justice and equity.

Through these mechanisms, UCL Grand Challenges acts as a synthesis for our talented researchers to work together across disciplines, harnessing their research, expertise, and enthusiasm to provide new, multifaceted, cross-disciplinary considerations of global challenges.

**The UCL Grand Challenge of Human Wellbeing (GCHW)**

Our quality of life – actual and perceived – is diminishing despite technological advances. UCL's Grand Challenge of Human Wellbeing (GCHW) considers both the nature of being human and the nature of wellbeing.

GCHW encompasses: the nature of humanity; what constitutes human wellbeing; how to achieve lifelong wellbeing for individuals and for society, including physical, mental, social, and environmental wellbeing; how to achieve wellbeing in the context of different social and economic goals and priorities; and topics relating to happiness, cultural wellbeing, health, and social justice.

Our programme harnesses UCL's research expertise from across our academic community, including everything from philosophy, law, economics, psychology, art and architecture, through to medicine, neuroscience and engineering – and many other disciplines.

We address pressing questions for humanity, such as: What do humans require for their wellbeing? How can we achieve sustainable wellbeing for all? How does wellbeing relate to other aspects of life or existence? What are the tensions around wellbeing and can these be resolved?

**The UCL Grand Challenge of Global Health (GCMD)**

Solutions to a range of health problems around the world are within our grasp, yet societal and natural forces conspire to prolong and extend the disease burdens of billions of our fellow humans.

The UCL Grand Challenge of Global Health (GCMD) draws on UCL's collective intellectual resources: the understanding of these societal and natural forces, in partnership with biomedical expertise.

Within and beyond those disciplines perceived as central to the issue of global health are thousands of UCL experts, working at the very forefront of their disciplines – such as those in philosophy, transport studies, computer science, history, materials research and gender studies – in order to provide innovative, workable solutions at scale.

The ultimate results are the delivery, in partnership with local communities and organisations, of effective and efficient capacity-building to improve the health of people in the developing world.

**Academics at UCL, London's research powerhouse, have breadth and depth of expertise across the range of academic disciplines. Individually, they expand our understanding of the world; collectively and collaboratively, they deliver analysis addressing humanity's major challenges**
The UCL Grand Challenge of Sustainable Cities (GCSC)

By the end of the 21st century 80% of humans will live in cities. This rapid growth will further stress the urban environment, posing complex and systemic problems in areas such as food security, energy, water, waste, transport, economy, trade, manufacture, wealth creation and quality of life.

The UCL Grand Challenge of Sustainable Cities (GCSC) rallies the university’s breadth of expertise in service of urban sustainability. UCL is concerned with contributing to urban sustainability in spheres including, for example, ecology, aesthetics, health, economics, culture, equity and intellect.

GCSC’s great strength is the variety of prisms through which we can examine the sustainability of cities and the range of methodologies with which we can bring about change. Across our disciplines members of the UCL community all have significant contributions to make. We seek to build on existing work, to enhance and integrate it, and to maximise its impact.

Selected highlights of recent outcomes and current initiatives

Population Footprints

This 2011 UCL–Leverhulme Trust symposium, on human population growth and global carrying capacity, was held in London with a satellite meeting in Kenya. The symposium brought together cross-sector academics, NGOs and activists from the global South and North to debate and address practical policy concerns on a range of complex and often contentious issues: consumption, reproductive health and rights, climate change, sustainable growth, ageing, migration and other population dynamics.

London 2062

This project is gathering evidence about the forces and factors that shape London, identifying decision points, and debating how the city will change over the next five decades. It will synthesise the diverse expertise within the academic community at UCL and elsewhere, together with London’s citizens, government, professions, artists, media and other public institutions.

UCL Migration Week

UCL Migration Week comprised a series of lectures, panel discussions, conferences and exhibitions in 2011. It culminated in Economic Change, Social Challenge, a major cross-disciplinary conference bringing together 300 scholars from economics, sociology, psychology, demography, anthropology, education, geography, political science and development studies.

The Future of Healthcare in Europe

This 2011 one-day conference was convened with the UCL European Institute and the Finnish Institute in London. Bringing together expertise from academia, government, public policy institutes, think-tanks and the third sector from across Europe, the conference sought to define the major health challenges that Europe faces and explore the ways in which different European countries are responding to these to find potential solutions.

UCL Grand Challenges Small Grants

Up to £5,000 per project was awarded to 20 proposals through the 2012 scheme, which funds projects that lead to, or support, innovative cross-disciplinary collaboration between staff based in different UCL departments, aimed at generating impact. Funding available to the scheme was generously augmented by UCL alumni Dr Carol Bell (Institute of Archaeology) and Dany Farha (BSc SCORE 1992).

Transformative Education for Global Health

In 2012 UCL hosted more than 100 global health academics at the conference Transformative Education for Global Health: Preparing professionals for an interdependent world, organised by UCL, the London School of Hygiene & Tropical Medicine, the London International Development Centre and the Institute of Education, with support from The Lancet.

Urban Water Poverty

To mark the mid-point of the international decade of ‘Water for Life’ and the last five years of the Millennium Development Goals, a public panel discussion and an expert symposium were held on the topic of urban water poverty, including sustainable resource management, water pollution, water, access and equity, and water, power and society. A special issue of the International Journal of Urban Sustainable Development on the topic was published in 2011.
around the world.

through reshaping the urban fabric of cities

play in delivering health improvements

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will then work to maximise its impact

environments in the 21st century

, in 2012.

Commission will publish its

of the world's big issues. Grants

bright ideas for tackling some

support to students with

of up to £750 are offered, plus training by

UCL’s distinctive opportunity

Taken together, the following qualities position UCL, London’s Global University, uniquely well to adopt a culture of wisdom and to ensure that those insights are applied to the world’s major problems:

• principles – inspired by the utilitarian Jeremy Bentham, our radical founders committed our university to innovation, accessibility and relevance. Almost two centuries later, that commitment remains at the heart of our activity and purpose

• pioneering tradition – UCL introduced to England several important disciplines now viewed as core academic activities, established the UK’s first professorial chairs in many subjects, founded academic departments that were the UK’s first and engaged in groundbreaking research that has helped to shape the modern world

• research leadership – across a wide spectrum of disciplines, as the bedrock upon which effective cross-disciplinary interaction is achieved

• flexibility – intellectual agility, in the context of strategic planning, that enables our researchers to respond rapidly and imaginatively to emerging priorities and initiatives

• London – our home in the heart of a global capital, with a remarkably diverse population, offering close interaction with Bloomsbury’s cultural, economic, political and intellectual vibrancy, as well as Westminster and Whitehall, the City, the media, courts, galleries, museums, libraries and our world-class hospital partners

• perspective – a commitment to enhancing the circumstances of the people of the capital and the UK, complemented by a global perspective that recognises the interconnectedness and interdependence of people around the world.

Culture & Health

The third UCL–Lancet Commission, to address the challenges of healthcare provision in multicultural settings, will begin its work in 2012. It will be led by the UCL Science, Medicine & Society Network in collaboration with UCL Partners, the North Middlesex University Hospital and other partners.

Literature, Welfare & Wellbeing

This 2010 conference, addressing the poetics of the Scandinavian welfare state, considered the claim that post-War Scandinavian fiction cannot be understood without understanding its close and multifarious connections to the welfare state.

Carbon Governance

This cross-disciplinary project aims to provide new insights into the approaches necessary to address human-induced climate change. It explores the governance actions necessary to limit future human carbon emissions, while recognising that the use of carbon must meet the Millennium Development Goals, maintain global social and economic stability and achieve a transition to a low-carbon economy and a sustainable energy supply for the long-term future. It encompasses three sub-projects – Human Behaviour, Multi-Level Governance and Policy Instruments – and involves experts from earth sciences, geography, laws, energy, development planning, public policy, geography and psychology.

UCL Wellbeing Week

These events in 2012 challenged researchers to think about wellbeing questions, some of them controversial, in a new light and to develop innovative research projects. A £10,000 research grant was awarded to Windows to Wellbeing, to investigate whether interventions at times of environmental and cultural change, such as when starting university or retiring, can boost wellbeing.

UCL Grand Challenges Student Fund

This scheme was established to provide funding and support to students with bright ideas for tackling some of the world’s big issues. Grants of up to £750 are offered, plus training by UCL Union’s Volunteering Services Unit.

Health & Climate Change

Following the report of the first UCL–Lancet Commission, Managing the Health Effects of Climate Change, in 2009 the Commonwealth Secretariat commissioned a series of policy papers from the UCL Institute for Global Health. These were presented at the Commonwealth Health Ministers Meeting on Health & Climate Change and at the World Health Assembly meeting, which sets priorities for the World Health Organization.

Shaping Cities for Health

The second UCL–Lancet Commission will publish its report, Shaping Cities for Health: The complexity of planning urban environments in the 21st century, in 2012. It will then work to maximise its impact through workshops and briefings with key policymakers and practitioners. Drawing on expertise from 11 UCL departments and other universities, the report highlights the role that urban planning can and should play in delivering health improvements through reshaping the urban fabric of cities around the world.

Cultivating cross-disciplinary research

The following cross-disciplinary bodies have been created in order to inculcate a culture of collaboration and contribution to the UCL Grand Challenges.

UCL Energy Institute

UCL Environment Institute

UCL European Institute

UCL Institute for Risk & Disaster Reduction

UCL Science, Medicine & Society Network

UCL Institute for Global Health

UCL Institute of Health Equity

UCL Centre for Philosophy, Justice & Health

UCL Centre for Sustainable Heritage

UCL Institute for Sustainable Resources

UCL Urban Laboratory

UCL Centre for Digital Humanities

UCL Institute for Human Rights

UCL Centre for Transnational History

UCL Centre for Early Modern Exchanges

UCL Institute of Biomedical Engineering

UCL Computational Life & Medical Sciences Network

UCL Crucible Centre for Lifelong Health & Wellbeing

Sexuate Subjects: Politics, poetics, ethics

This 2010 cross-disciplinary international conference aimed to generate a new theory and practice of subjectivity – ‘sexuate subjects’ – and new poetic and political research in the visual arts, humanities and social sciences. It explored how positive ethical subjectivities for women and men are constructed through spatial, material and textual feminist poetics and politics.