UCL prides itself on its rich history of innovation and atmosphere conducive to cross-disciplinary collaboration. Professor David Price describes some of the initiatives UCL is running which are aimed at providing comprehensive and high-quality research across a breadth of disciplines.

Professor David Price
Vice-Provost (Research), University College London
What are your responsibilities as Vice-Provost (Research) at University College London (UCL)?

Broadly, I promote, support and facilitate UCL’s research performance, including securing the highest-quality research outputs across the University. As well as developing and implementing the UCL Research Strategy, I try to position us to take advantage of emerging opportunities, lead UCL’s preparation for external research assessment and provide external representation of research issues.

Working with our senior management team, I try to ensure that UCL provides a research environment in which we cherish individuals’ research excellence and leadership. I am particularly keen on interaction between disciplinary experts; for example, through our Grand Challenges programme. This can make our collective subject-specific knowledge greater than the sum of its parts and help us to address some of the most challenging global problems that we face.

Alongside all this, I try to maintain a research portfolio in geophysics, which is currently focused on the inter-relation between the evolution of the planet and the evolution of life.

Could you provide a brief history of UCL and describe its research power as a global university?

Almost 200 years ago, inspired by the utilitarian philosopher Jeremy Bentham, our founders committed UCL to innovation, accessibility, and relevance. At that time, university admission in England was restricted to male members of the Church of England. UCL did away with such religious criteria (and, eventually, was the first to admit women on equal terms with men).

UCL introduced to England several important disciplines now viewed as core academic activities – such as architecture, civil engineering and economics – and founded the UK’s first departments and professorial chairs in subjects such as statistics, geography, chemical engineering, and the history and philosophy of science.

Today, we describe ourselves as ‘London’s Global University’. Taking those elements in reverse order: we are a comprehensive university, with leading research across a range of disciplines; we adopt a global perspective, marshalling the breadth of our intellectual expertise in order to address the major problems facing humanity worldwide; and we are in London, of London and for London – drawing on and contributing to a global capital’s dynamism and diversity.

In figures, we’ve around 5,000 staff and postdoctoral researchers (up by a third over five years). Last year, they attracted £334 million in research grant income (up nearly 60 per cent over five years), produced more than 9,000 research publications and oversaw about 5,000 postgraduate research students.

The 2011 UCL Research Strategy was titled ‘Delivering a Culture of Wisdom’. What is meant by wisdom in this context? Could you outline the key objectives of the strategy and discuss what progress has been made thus far?

We define ‘wisdom’ as the judicious application of knowledge for the good of humanity, with three aims underpinning our efforts to develop a ‘culture of wisdom’. First, to foster leadership grounded in the good of humanity, with three aims underpinning our efforts to develop a ‘culture of wisdom’. First, to foster leadership grounded in the good of humanity, with three aims underpinning our efforts to develop a ‘culture of wisdom’. First, to foster leadership grounded in the good of humanity, with three aims underpinning our efforts to develop a ‘culture of wisdom’. First, to foster leadership grounded in the good of humanity, with three aims underpinning our efforts to develop a ‘culture of wisdom’. First, to foster leadership grounded in the good of humanity, with three aims underpinning our efforts to develop a ‘culture of wisdom’. First, to foster leadership grounded in the good of humanity, with three aims underpinning our efforts to develop a ‘culture of wisdom’. First, to foster leadership grounded in the good of humanity, with three aims underpinning our efforts to develop a ‘culture of wisdom’. First, to foster leadership grounded in the good of humanity, with three aims underpinning our efforts to develop a ‘culture of wisdom’. First, to foster leadership grounded in the good of humanity, with three aims underpinning our efforts to develop a ‘culture of wisdom'.

Second, to expand the distinctive cross-disciplinarity of our research, collaboration and partnerships, so that experts in different disciplines transcend subject boundaries. We have had outstanding success in large, cross-disciplinary funding calls, including those funding cross-disciplinary PhD programmes, and it is no coincidence that the vast majority of our new research centres are at cross-disciplinary interfaces; for example, the UCL Energy Institute, the UCL Institute for Risk & Disaster Reduction and the UCL European Institute.

Third, to increase the impact of our research; that is, the beneficial application of expertise, knowledge, analysis, discovery or insight, at local, regional, national and international levels. Independent analysis suggests that our current academic staff generate more publications than any US university (6,700 per year between 2008 and 2011) and received in that time more citations than any US university except Harvard. But we value impact beyond the academy: in public engagement, translational research, commercial and social enterprise activity, and informing public policy and professional practice.

What strategies does UCL use to promote cross-disciplinary research? Are there any examples within UCL where this kind of collaboration has generated unique research outcomes?

There are two key points to make. First, we are not talking about interdisciplinary generalism, but drawing on different expert perspectives to address issues in their full complexity. Second, the odds are stacked against us. By that I mean academics can be deterred from working across boundaries by conventional models of academic structures, career progression and measures of prestige based overly on specialisation. Establishing a culture of wisdom therefore requires transformative action: respecting specialist knowledge, while dismantling the barriers to its cross-fertilisation; supporting the synthesis of new knowledge; facilitating collective, collaborative working practices in order to gain fresh perspectives; and informing policy and practice based upon these insights.

I sometimes say that the major obstacle is getting people from different disciplines in the same room for long enough. There are obstacles to do with differences in terminology, methodology and evidence bases, and – crucially – experts needs to develop enough trust in each other that they can admit the extent of their ignorance in a particular area. In part, this is addressed by forming cross-disciplinary communities, usually focused on a complex problem that defies resolution by any discipline on its own.

A report by one such group is in press as we speak. Through UCL Public Policy, we formed the UCL Green Economy Policy Commission, bringing together academics from disciplines including economics, the built environment, engineering, political science, innovation and resource efficiency. The report draws on their diverse expertise to provide a synthesis of recent research and evidence; consider what a green economy would look like; and propose specific actions by the UK Government. That sort of process provides insights well beyond the capacity of any single academic discipline, or even a single government department.

What role should universities play in society? Do you think researchers have a responsibility to participate in public debate?

The role of universities is too often defined by narrow, short-term, cost-benefit analysis. Applicable and applied knowledge is valuable – and we have grown accustomed to justifying public investment in socioeconomic terms – but a critical aspect of universities is their role as settings in which curiosity, valued for its own sake, is the fundamental motivation. We are uniquely well-equipped to expand the potential of human thought and action. It is curiosity that drives the kind of research leaders UCL seeks to empower; and we recognise that the timescales for the impact they deliver will vary from hours to centuries.
That said, wherever research is revealing relevant new knowledge or interpretations, we consider dialogue and sharing our discoveries with the public (and beyond) as part of the value that universities should add to society. While we have many researchers who are exceptionally skilled at such engagement, it doesn’t come naturally to everyone. There are certainly differences in cultures, languages and timescales that need to be considered. At UCL, we have developed some support units to facilitate such interaction where appropriate, including: the UCL Public Engagement Unit, which encourages a culture of two-way conversation between the discoverers and the public; UCL Public Policy, which can help researchers formulate robust, evidence-based recommendations in ways that are meaningful to policy makers; and UCL Enterprise, which provides structures for engaging with business for commercial and societal benefit.

How important are partnerships with those outside the academic community?

Such partnerships are crucial not only to widen and deepen the impact of our research, but also to inform the questions we ask in the first place. I would highlight three initiatives out of a broad portfolio of partnerships. First, UCLPartners is our academic health science partnership with over 40 higher education and UK National Health Service (NHS) members. It links medical discovery, healthcare innovation and medical education to a patient base of more than 6 million people, and draws on biomedicine, social and physical sciences, humanities and other disciplines to solve healthcare challenges.

Second, in partnership with Elsevier, we are establishing the UCL Big Data Institute to explore innovative ways to better serve the needs of researchers through the exploration of new technologies and analytics as applied to scholarly content and data. It complements our development of a UCL Research Domain for ‘e-Research’, to address pressing issues around the storage of big data, curation of scientific information, and production, disclosure and consumption of research information.

Third, we have a partnership with last year’s UCL Corporate Enterprise Partner of the Year, Cisco, which is a relationship with its roots in three decades of engineering research collaboration. Alongside a range of research collaborations, Cisco now provides a set of high-level internships for UCL Engineering students, collaborates on the innovative ‘Future Cities Centre’ and – along with media company DC Thompson – is developing IDEALondon, an innovation hothouse in London’s Tech City.

How do you envision UCL half a century from now?

We’re currently undertaking an institution-wide consultation on our long-term strategies. Doubtless many of the factors influencing our progress will have changed over that timescale, but I know that our core values – of innovation, accessibility and relevance – are timeless, and that our greatest asset will remain the ability to attract and nurture the most promising staff and students to come to work and study in the heart of one of the most exciting and vibrant cities in the world – London. Those strengths make us approach the future with optimism.
We’ve seen significant progress with the formation of communities and research projects in the first three programmes – Origins of Life, Human Evolution and the Dynamics of Civilisation – and we are seeking to expand into further subject areas.

Regarding curiosity-driven research, there is simply no excellent research that isn’t driven by curiosity. Typically, the major paradigm-shifting developments that have changed humanity’s circumstances can be traced back to research that wasn’t motivated by application but by discovery. That’s the work that underpins the subsequent applied research that delivers short-, medium- and long-term benefits to humanity. So it would be grossly shortsighted of governments and funding bodies to focus only on research which promises immediate payback.

In the UK, we have an enviable track record of funding the best and brightest, regardless of their specific interests. It is understandable that large chunks of government funding are directed toward national strategic priorities, but this should not be at the expense of sustaining the wider research base. Likewise, we applaud the focus of the European Research Council, which has ‘excellence’ as its sole criterion for funding.

Put another way, at UCL we are intent on improving the world through applied research, but we are equally committed to fostering, enabling and celebrating curiosity-driven research – both because it is inherently valuable and because that is where the great breakthroughs of the future will germinate. We are lucky enough to have colleagues at UCL who excel in the entire spectrum of discovery, scholarship and impact.

Two sides of the same coin

UCL’s Grand Challenges and Research Frontiers cross-disciplinary programmes counterbalance one another in providing support for both application-orientated enquiry and curiosity-driven research. Here, Professor David Price introduces both programmes.

UCL Grand Challenges

The UCL Grand Challenges provide a framework, organisational support and relatively modest institutional funding for cross-disciplinary activity addressing major issues in four broad subject areas:

- **UCL Grand Challenge of Global Health** – recognises that billions of people suffer and die as a result of preventable or treatable conditions. We seek solutions through uniting our biomedical expertise with our understanding of the social, historical and natural forces at work, in order to contribute to the achievement of global health equity.
  
  **Recent projects:** population growth and global carrying capacity; managing the health effects of climate change; socioeconomic inequalities and the MDGs; and participatory women’s groups

- **UCL Grand Challenge of Sustainable Cities** – around 80 per cent of the world’s population will live in urban environments by 2020 and will face a diverse set of problems including demand for resources as well as planning for economy, industry and transport. This UCL Grand Challenge aims to contribute to urban sustainability in the spheres of ecology, aesthetics, health, economics, culture, equity and intellect, among others.
  
  **Recent projects:** Shaping Cities for Health – Complexity and the planning of urban environments in the 21st Century; Glass Half Empty – Urban water poverty; and Imagining the Future City: London 2062

- **UCL Grand Challenge of Intercultural Interaction** – considers how people, communities and societies relate to each other and how that can be improved.
  
  **Recent projects:** Beyond the Ghetto (migration); Divided Cities (urban conflict); Negotiating Religion; and the digital humanities programme

- **UCL Grand Challenge of Human Wellbeing** – looks at the physical, emotional, cultural and societal factors which affect our health and the role of research in understanding and influencing them.
  
  **Recent projects:** events series addressing Wellbeing, Behaviour Change and Ageing; and a Future of Healthcare in Europe conference