DISCOVERY DAYS 2014

Thursday 9 January • 10.45am – 4.20pm
Friday 10 January • 9.30am – 4.30pm
“It is ultimately right that the public that funds this great institution should see University projects that impact the community, the wellbeing, the hopes, the quality of life and the benefit of the whole world.”

Stephen Fry
At the inaugural University of Dundee Stephen Fry Award for Public Engagement, January 2012

dundee.ac.uk/transform
Welcome to the University of Dundee’s eleventh annual Discovery Day

The annual Discovery Days began in 2004, and since that time they have brought the work of 185 new professors at the University of Dundee to the attention of a wide non-specialist audience, including members of the public, schools, students, support staff and academics.

These presentations have, over the years, given us the rare privilege of observing the process and the impact of discoveries across a breath-taking array of topics and issues from the latest educational theory, through innovations in construction, critical thinking and law to nursing, drug discovery and healthcare.

At Discovery Days 2014, we will be welcoming a further eighteen new professors, talking on subjects as rich and varied as Scotland’s weather, urban regeneration, the arts & theatre, diabetes, cancer and tropical medicine.

The event also hosts three talks from our leading learning and teaching practitioners, who will also give us insight into new and innovative teaching methodologies and technology. We will also hear from a team of undergraduates who achieved international success with their innovative and enterprising iGEM project.

The achievements of our staff and students in communicating their research to a public audience will be recognised by the presentation of the third Stephen Fry Award for Excellence in Public Engagement with Research.

Discovery Days 2014 promises to be a fascinating whirlwind tour through the outstanding achievements and future plans of our staff, and I hope very much that you will join me on what will be a voyage of discovery for us all. I look forward to seeing you there.

Prof Pete Downes
Principal and Vice-Chancellor
Thursday 9 January 2014

Coffee 10.45 - 11.15am

Welcome from the Principal 11.15 - 11.50am

Session 1 11.15am - 12.50pm
Chair • Professor Pete Downes • Principal and Vice-Chancellor

Prof Karl Leydecker • Vice-Principal (Learning and Teaching) and Chair of German and Comparative Literature

A Vision for Excellence in Learning and Teaching at Dundee

The University already has many examples of outstanding teaching, and offers an exceptional student experience. This talk will explore the next steps in achieving our goal of becoming Scotland’s leading University, celebrated internationally for the quality of our graduates as well as the impact of our research.
When is a House not a House?

We all have an idea of what makes a house, what’s in it and what it should look like. These ideas are conditioned by both our personal experience and the place in which the house is situated. When buildings are planned on sensitive sites it requires us to test new models to preserve the character of our rural landscapes.

Making Light Work

From eyeglasses to fibre-optic cables and lasers, the interaction of light with matter forms the basis for much of the technology around us. This presentation demonstrates how to manufacture with light in order to manipulate light.

Shedding Light on Skin Cancer

Sunlight is a powerful carcinogen that is driving our current skin cancer epidemic and is especially concerning for the susceptible Celt. Our immune system plays an important role in reducing the risk of skin cancer. This talk will focus on what happens when the immune system goes wrong. Charlotte will also discuss how identifying ‘drivers’ of skin cancer will benefit prevention, detection and treatment.
Prof John Rowan • Personal Chair of Physical Geography

Soil Erosion and its Significance to Global Food Security

Making sure the World has enough food is being made more difficult by increasingly high rates of soil erosion. Prof Rowan discusses why rates of soil erosion continue to increase and the growing seriousness of the problem on the security of food supplies. This talk will showcase our recent work linking erosion to biodiversity losses in farming ecosystems before considering options for more sustainable living.
Prof Bruce Burton • Personal Chair of Finance

*Elastic Bands and Oil Tankers – The UK’s Approach to Regulatory Change in the Corporate Sector*

Over the past 30 years, UK regulators have paid extensive attention to the need for improvement in the governance of large corporations, but progress has been painstaking at best. Many of the changes appear to be reactionary, but such an outcome is inevitable if these moves continue to be characterised as a necessary evil.

Prof David Horn • Chair of Parasite Molecular Biology

*Decoding a Deadly Parasite*

One of the causes of devastating tropical diseases in humans and livestock is the African trypanosome. This parasite is capable of evading the host’s immune system and can also become resistant to potent drugs. Our work has been able to explain the parasite’s resistance to an arsenic-based drug in patients from Sudan and the Democratic Republic of the Congo. We have now also identified the proteins controlling immune evasion.
Patients with diabetes are traditionally classified into two types – type 1 and type 2. Patients with type 1 diabetes are treated with insulin; and patients with type 2 diabetes are treated with a stepwise introduction of therapies. Prof Pearson will highlight how simple medical and genetic testing can be used to target treatment to a specific patient, sometimes allowing them to stop their insulin treatment.
Ruth O’Riordan • Honorary Graduates’ Award for Inclusive Practice

*Future Proofing our Graduates - Careers Education in the Curriculum*

Future proofing our graduates to ensure they have the necessary graduate attributes and skills required to compete in a diverse, changing career landscape is a necessity. This talk will focus on the key aspects of employability in the curriculum and the importance of providing valuable and inspiring careers interactions and feedback to a diverse student cohort.

Prof Graeme Morton • Chair in Modern History

*Wind, Rain and Scottish Emigration*

Scotland’s weather always comes second hand, never being simply ours. But do weather patterns influence the decision to emigrate? Speculative in tone, and with some passing comment on national identity, Graeme Morton examines historical evidence that might point us towards an answer.
The number of cancer survivors is steadily increasing and by 2030 there will be over 4 million people living with cancer. This talk will explain why staying active after a cancer diagnosis can help reduce or prevent side effects such as tiredness and can improve the quality of life of those living with and beyond cancer.
I asked a group of artist-teachers: “Can we undo the Mona Lisa?” Someone said: “What would that look like?” I replied: “I don’t know.” Yet I am convinced that works of art must go undone. It’s an educational prerogative for art to teach us nothing and for us to unlearn everything.

Sixty years after Watson and Crick first described the structure of DNA, we still have much to learn about how our genetic blueprint is preserved from one generation to the next. The answers turn out to be important for our understanding of the origins and treatment of human cancer.
Problem solving is the essence of engineering but is given lip service in today’s league tables driven education system. As an engineer, rather than an academic, I teach students to solve problems mainly through the use of spreadsheets to make models of structures that take account of many parameters, so that “best” solutions can be determined.
Prof Ioannis Anastasopoulos • Chair in Civil Engineering

Rocking Isolation: Protecting Buildings from Earthquakes

Designing buildings to withstand earthquakes and other seismic events is a challenge to civil engineers across the World. In this talk Prof Anastasopoulos describes an entirely new approach to seismic design, called rocking isolation. Compared to current designs this new technique offers buildings better protection against damage from the strongest earthquakes.

Prof Deborah Peel • Chair in Architecture & Planning

Urban Regeneration: A Titanic Task?

Dundee is currently experiencing a period of active regeneration, which involves a range of professionals collaborating strategically to implement planned change. This presentation takes a look at the Titanic Quarter masterplan in Belfast to illustrate ways in which planning and architecture support longer term initiatives. It will reflect on practical insights for Dundee.

Dundee’s 2013 iGEM Team • Winners of the European iGEM Competition

ToxiMop: Stopping Harmful Algae in its Tracks

Algal blooms are local and international problems in watercourses. Some algae produce a deadly toxin and we took a modern synthetic biology approach to tackle this problem. We generated a ‘molecular mop’, made from protein and held inside a bacterium, which can remove toxins. We also developed an electronic device to monitor environmental conditions to help predict future blooms.
There is no doubt that human activity is changing our planet. New ways of thinking about how we live in this new era of rapid change are required. Research from the Solomon Islands on how communities have responded to change provides useful insights. This highlights that global social change is needed, including re-orientation of values, beliefs and norms.
Prof Graham Chadwick • Personal Chair of Operative Dentistry & Dental Materials Science

*Dental Erosion – A Lifestyle Window*

Many have heard of dental decay but less of dental erosion. Erosion brings with it discomfort and deterioration of the smile. It is often a manifestation of lifestyle choices. An understanding of these can provide opportunities for individuals to prevent the condition and enhance the success of treatments.

Prof James Livesey • Chair in Global History

*Did Reason Sleep? The French Revolution, Terror and the History of Reason*

What does it mean to be reasonable? We depend on people to be reasonable in order to cooperate with them, but assumptions about rationality radically changed in the era of the French Revolution. When we recognise how and why a new idea of reason emerged, we throw light on the difficulties we have in acting reasonably in the modern age.
Professor Mark Robson • Chair in English and Theatre Studies

What Do We Want Theatre To (Want To) Be?

Theatre has never just been ‘entertainment’. It has always been demanding and it has always had demands placed upon it. But what do we want theatre to be today? What are the limits of the role or roles that it can play in modern society?
Prof Rory McCrimmon • Chair of Experimental Diabetes and Metabolism

*When Too Little Sugar is Not Good for You*

A “Hypo” is when blood sugar levels drops below the normal range, which in severe cases can lead to unconsciousness. This is rare for most people but very common in people with type 1 diabetes. The question we are trying to answer in Dundee is, why?

Winners of the third annual Stephen Fry Award for Excellence in Public Engagement with Research
Previous Discovery Days Publications

2004

2005

2006

2007

2008

2009

2010

2011

2012

2013
Discovery Days 2014 will be hosted in the Main Lecture Theatre
Dalhousie Building | Old Hawkhill | Dundee | DD1 5EN

The Dalhousie Building is located on the city campus of the University, on the corner of Old Hawkhill and Hunter Street. There is a pay and display car park opposite, which is open to the public, just behind The Globe Bar.

Overflow theatres may be in use if lectures are heavily subscribed. Please arrive early if you would prefer to be seated in the main lecture theatre, as seating in the main theatre will be filled on a first come-first served basis.

You are welcome to attend the whole event, a session or a number of sessions.

Coffee and lunch will be provided and the event closes with a wine reception.

Free tickets are available
online at www.dundee.ac.uk/tickets
by emailing revealingresearch@dundee.ac.uk or on 01382 386660
Tickets are also available at the receptions of Tower and Dalhousie Buildings

http://www.dundee.ac.uk/discoverydays