Discovery Days 2022

Wednesday 12 January
15:00 – 16:30

Thursday 13 January
10:00 – 15:10

Friday 14 January
10:00 – 15:10

University of Dundee
Welcome to the University of Dundee’s nineteenth annual Discovery Days

Wednesday 12 January
Session 01: 15:00 – 16:30
→ Ronnie Bowie, Chair of Court

Thursday 13 January
Session 02: 10:00 – 11:10
→ Professor Iain Gillespie, Principal and Vice-Chancellor

Thursday 13 January
Session 03: 14:00 – 15:10
→ Professor Blair Grubb, Vice-Principal Education

Friday 14 January
Session 04: 10:00 – 11:10
→ Professor John Rowan, Vice-Principal Research, Knowledge Exchange and Wider Impact

Friday 14 January
Session 05: 14:00 – 15:10
→ Professor Iain Gillespie, Principal and Vice-Chancellor

“It is ultimately right that the public that funds this great institute 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 during Discovery Days, January 2012
Discovery Days give us a tremendous opportunity to hear from our new professors, award-winning teachers and communicators as we learn more about their discoveries and the benefits they bring to us all. This is the work that is helping us transform lives around the world, and propelling us towards our goal of becoming Scotland’s leading university.

The annual Discovery Days began in 2004, as a celebration of the work of our newly appointed leaders in research. Since then we have heard and discussed the work of 283 new Professors at the University of Dundee, as they showcase their ideas to the public and our University community. At Discovery Days 2022, we will welcome a further nine new Professors, talking on subjects as rich and varied as health and wellbeing, forensic science, and our ground-breaking scientific research and arts practice.

We will also host presentations from our leading learning and teaching practitioners. They will share with us insights into new and innovative teaching methods and how they support student welfare.

Discovery Days opens with a public session of the University’s Court, with the University of Dundee’s Chair of Court, me as Principal, and the President of DUSA with a unique chance to hear from members of University Court, and ask them your questions.

Discovery Days 2022 promises to be a fascinating tour through the outstanding achievements and future plans of our staff and students, 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.

Professor Iain Gillespie
Principal and Vice-Chancellor
This session will see the University’s Court hold its fourth annual public stakeholder meeting, with representatives of the governing body present to give a review from University Court and answer questions.

Ronnie Bowie, Chair of Court, will give an overview of the role of the Court and its business over the last year, along with an account of the University’s performance and achievements over the same period, and share with you some of our ambitious plans for the future. There will also be related presentations from the University Principal and Vice-Chancellor, Prof Iain Gillespie, and the President of Dundee University Students’ Association, Mr Dimitris Vidakis.
A healthy mouth for a healthy body
Prof Philip Preshaw - Dean of the School of Dentistry

Oral health is an essential component of general health, and we now know that diseases which affect the mouth can contribute to problems elsewhere in the body. For example, research shows that gum disease can make diabetes control more difficult and treatment of gum disease can improve blood sugar levels. In this talk, Philip will give an overview of the School of Dentistry at the University of Dundee and the role it plays in training the oral healthcare providers of the future so they can contribute to improving health across the population.

Colouring in the gaps: Equal opportunities for artists of the future
Dr Helen Gørrill – Winner of the Honorary Graduates Award for Inclusive Practice

Helen Gørrill is Chair of In-GEAR, the Intersectional Gender Equality in the Arts Research group. In-Gear is an empowering staff-student research forum that brings together international experts and industry professionals alongside students within Duncan of Jordanstone College of Art & Design (DJCAD) to explore their practice. This forum was established to address the 90% gender pay/value gaps in artwork sales and the lack of female artist representation across the UK. In this talk, Helen will describe how In-GEAR encourages future collaboration and networks in promoting equal opportunities for art students who graduate in a fiercely competitive world giving our graduates a leading edge which is unique to DJCAD and the University of Dundee.

Microbial warfare: Understanding how and why bacteria compete with their rivals
Prof Sarah Coulthurst - Chair of Microbial Interactions

Bacteria and other micro-organisms live in mixed microbial communities whose members are constantly co-operating or competing with each other. The success of harmful or health-promoting bacteria is dependent on how well they can compete with other micro-organisms, both in the environment and in the human body.

In this talk Sarah will describe her work studying a key weapon that many bacteria use to compete with each other, by firing toxins directly into other bacteria and fungi. By understanding how the firing mechanisms and toxins work, we may help in the fight to develop new anti-microbial therapies.
How academics can influence policy: Shaping women’s enterprise policy in Scotland

Prof Norin Arshed - Chair of Entrepreneurship

Drawing on her previous experience in the UK civil service, Prof Norin Arshed’s research has helped her make a significant impact on women’s enterprise policy and on opportunities for women entrepreneurs to improve their chances of success. Norin’s talk will outline her work, how her government appointments have led to impact, and how these experiences led to her appointment as a REF2021 Impact Assessor.

Using protein missiles to take down disease-causing proteins from cells

Prof Gopal Sapkota - Chair of Disease Signalling

Accumulation of altered (e.g. through mutations) or misfolded proteins cause many human diseases, including cancer and neurodegenerative disorders. We need new strategies to try to get rid of these proteins from diseased cells and tissues. Gopal’s lab has developed a new technique, called the Affinity-directed PROtein Missile (AdPROM) system, which can target specific proteins inside cells for destruction by harnessing the cell’s own waste disposal machinery. Gopal will discuss the use of this technology in studying the role of specific proteins in cells and its potential in therapeutics.

Getting it right for every student

Eddie Valentine – Winner of the Outstanding Contribution to Student Welfare - Student-Led Teaching Awards

Today’s talk is around the importance of pastoral care, and some key elements, which I believe, impact upon how successfully we can offer support to students at the University of Dundee.
Why attacks on sexism are not attacks on men
Prof Karen Petrie - Chair of Algorithms and Education

In this talk Karen will explore how mathematics and computing science can give us insights into Sexism. What can we learn by looking at simple interaction models, and how can we use this knowledge to allow us to have conversations about this important societal issue?

Mashing it up: Chemistry in a biology lab
Prof Satpal Virdee - Chair of Chemical Biology

My lab studies a prevalent regulatory mechanism of the cell known as the ubiquitin system. This system plays a pivotal role in virtually all cellular processes and is becoming associated with a growing number of diseases including cancer, neurodegeneration, and autoimmunity.

My lab focuses on enzymes known as E3 ligases which are key players in the ubiquitin system and medicines that modulate their activity are being actively developed. Studying E3 ligases has been notoriously difficult and over the past 10 years my lab has used chemistry to develop “probe molecules” that help us study these important enzymes. These probes have led to several exciting discoveries that would have been difficult to achieve otherwise leading to a seismic change in how we think about the ubiquitin system.

Robust infrastructure for our future energy requirements
Prof Michael Brown - Chair of Geotechnical Engineering

The rapid need to transition from oil and gas to more sustainable forms of energy requires a step change in our renewable energy infrastructure. For offshore wind and wave energy, one third of the cost is spent on foundations and anchorages. In addition, one of the greatest threats to windfarm operation is disruption associated with interconnecting power cables. Michael will present work ongoing within Civil Engineering to develop new, cost effective and environmentally sustainable means of founding and anchoring existing and future renewable energy generators.
The University as an engine of positive social transformation
Professor Shane O’Neill - Senior Vice-Principal

The core purpose of our institution is to work in partnership with others to deliver economic and social progress for our city and beyond, nationally and internationally. We do so by harnessing global excellence in research and education so as to impact positively on our efforts to confront the most challenging problems we face in contemporary society. As Senior Vice-Principal, Shane has responsibility for academic planning and performance which requires him to work with colleagues across the institution to ensure our university is effective in delivering on the critically important role we have in society. At its heart is the development of a strategy to support and empower colleagues to achieve their full potential as researchers and educators so that the impact of our transformative work can be further enhanced.

Are we communicating?
Communication in forensic sciences
Prof Lucina Hackman - Chair of Forensic Anthropology

Good communication is key to conveying ideas and nowhere is this more important than communication that the forensic scientist has to undertake within the judicial process. At all stages, there are barriers to communication that we need to understand and overcome in order to ensure that we are communicating our increasingly complex science in ways in which other actors within the process such as the police, the judge and importantly the jury can understand. Research is ongoing to understand what these barriers might be and ways in which we can address them in ways that support the ability of forensic science to support the justice process.

Why engage? Communicating my PhD in three minutes
Anna Sanchez Avila – Winner of the University’s Three Minute Thesis competition

In this talk, Anna shares the presentation with which she won last year’s three minute thesis competition. She also talks about her experience participating, her background as well as what made her get to where she is. She will also explain why she thinks public engagement and opportunities such as this one are crucial for any researcher. In a world where people are claiming more openness and information, public engagement and having the ability to explain what you do to any audience is of the upmost importance.