Bright minds, better future

HIGHLIGHTS

SPRING / SUMMER





Teamwork for a better world

Bert Weckhuysen is a top scientist in Anorganic Chemistry and Catalysis. His and his team's work has already resulted in a large number of grants, top publications and scientific breakthroughs. Bert is also keen to use his knowledge and abilities to innovate our teaching. With the Da Vinci project he is challenging students from a wide range of specialisations to come up with solutions for topical issues, such as how to collect plastic waste more efficiently.

This is a great example of all that Utrecht University stands for: interdisciplinary teamwork for a better world, with a powerful cross-pollination between research and teaching. All the students who want to take part in the course make a film in which they present themselves and pitch the problem they are aiming to tackle. The team of lecturers then matches the students in groups of five and provides them with a contact within the business sector or the government so that their solution can make a concrete contribution in practice.

Bert and his team have many such contacts. And they are already used to pushing back boundaries by crossing them. Bert is Academic Director of the Advanced Research Center Chemical Building Blocks Consortium (ARC-CBBC), in which

the government, business sector and universities work together on such projects as making more sustainable paint, or ways in which CO_2 could be used as a new raw material to make plastic and fuel. Being able to make the use of carbon circular would represent a huge step forwards in tackling climate change.

Only recently we as the Executive Board paid a working visit to the new ARC-CBBC laboratory where we encountered young researchers in white lab coats with huge plans and contagious enthusiasm. While we were walking around, Bert explained that he also needs academics from the arts and humanities and social sciences. For him it is not only the technical discoveries that are important, but also ensuring that these discoveries are actually embraced by society.

This visit was a true highlight for us. But it was just one of many; time and time again we are amazed by the expertise with which students and staff get to work and make new connections, at the heart of society, driven by curiosity. We are thrilled to share these and other highlights with you in this leaflet: highlights which sometimes leave us speechless and of which we can be rightly proud as Team Utrecht.

Anton Pijpers, Annetje Ottow and Henk Kummeling

The Executive Board







A 'VIRTUAL SUPER-MARKET' TO RESEARCH THE CONSEQUENCES OF BRAIN DAMAGE



In June, neuropsychologist Tanja **Nijboer** was awarded the Betto Deelman Prize for her research into innovative ways of detecting disorders in cognitive functions following brain damage. One of the ways she does this is by using a 'virtual supermarket' in which people with brain damage have to find and purchase items on a shopping list. "This is an excellent method for researching neglect a condition where people 'ignore' part of their surroundings. We save all the data registered during the 'shopping trip', such as where and for how long someone stays standing still, or how long someone spends looking at a product. This provides information on the thinking functions of people with brain damage, including what grabs their attention or how well they remember things." The Betto Deelman Prize is awarded annually by the Dutch Neurology Foundation.

RESEARCH INTO ONE OF THE MOST URGENT CHALLENGES WE ARE FACING



Utrecht University has designated four focus areas for research in which a total of 1.6 million euros will be invested in the period up to August 2023. In these research focus areas. researchers from various fields of study at Utrecht University will be collaborating to achieve academic innovation and social impact. The four research focus areas are working on higher education, the digital society, artificial intelligence and migration. The latter is being led by Dr Christoph Baumgartner and involves one of the most urgent challenges of the world today: global migration and the social and cultural changes that this brings – including the opportunities and possibilities offered by migration.

'Games help people to become more socially engaged'



Remco Veltkamp
Professor of Game & Media Technology

The Week of the Game, organised by
Utrecht University's Center for Game Research
in May was aimed at gaining a deeper understanding of games, gaming and the underlying
technology. Professor of Game & Media
Technology Remco Veltkamp: "Gaming has
developed strongly in recent years. We are
conducting research into how these technologies

can be developed even further." During the Week of the Game, the researchers and students focused on a range of games, from retro games such as Pacman and Super Mario to the very latest games and escape rooms. One of the lectures was on the possibility of re-experiencing the history of the city of Utrecht by means of a journey through time using new digital technology.

UU.NL/GAME-RESEARCH





'My goal is to train the biologists of the future'

Margot Koster Lecturer in Biology

In May of this year, winner of the 2018 Lecturer Award Margot Koster made it to the final of the competition for national Teacher of the Year organised by the ISO student union. Koster is a perfect example of the passionate and accomplished lecturers at Utrecht University. Students praise her personal approach and call her a 'natural-born leader'. Margot: "It's easier to learn in an environment you're comfortable in." She puts the student first,

uses a range of teaching methods and constantly raises her teaching to a new level. "To keep pace with society and research, it's important to continuously develop your teaching, your students and yourself." Koster involves society in her teaching and integrates the latest trends in academic research, such as an interdisciplinary approach and new ways of data processing.



RESEARCH THEME

Pathways to Sustainability

Contributing to a sustainable future by means of trans-disciplinary research. Researchers from the humanities, social and natural sciences work together with external partners to develop a more sustainable society.

UU.NL/SUSTAINABILITY

'Our research reveals previous unnoticed physical processes in the Mekong Delta'



Philip MinderhoudPhysical Geography researcher

Together with Vietnamese counterparts, Utrecht University researchers have discovered that the Mekong Delta, the third largest delta in the world, is sinking much faster than sea level is rising. This acceleration is predominantly caused by the strong increase of groundwater exploitation. Sinking rates can reach more than five centimetres per year. And with the delta's average elevation being

less than a metre above sea level, large parts may sink below sea level within decades. "Our research reveals previously unnoticed physical processes in the Mekong Delta, creating an awareness of the urgency of the situation. These new insights form the basis for working towards solutions," Geoscientist Philip Minderhoud explains

THE FOOD PROBLEM
IS OF SUCH A
MAGNITUDE THAT IT
CAN'T BE SOLVED BY
ANY SINGLE DISCIPLINE

"By 2050, we will need to produce seventy percent more food if we are to keep feeding the world population, which is estimated to be some 10 to 11 billion people by then." So says Professor in Biology Rens Voesenek, head of the Future Food hub. Some 150 researchers in Utrecht are involved in finding solutions to this enormous challenge. "In particular the threatened food shortage is a major problem. We will have to produce more food, but at the same time we want to do this as sustainably as possible." Voesenek's own research addresses the question of how we can make plants tolerant to fluctuations in weather conditions, such as heat, drought and flooding, caused by climate change.

IS A FAIR ENERGY TRANSITION POSSIBLE?



the consortium is going to address the urgent requests of policy makers

for more integrative approaches to assessing energy transitions operating in both national and international contexts.

The Mekon River Delta in Vietnam





Sciences

Striving to create sustainable solutions that improve the wellbeing of animals and humans by combining knowledge and technologies ranging from molecular level to the population level.

UU.NL/LIFE-SCIENCES

'An advantage of 3D printing is that it can be tailored to the individual'



Bjorn Meij Veterinary surgeon

In Utrecht, a dog has been fitted with a new 3D-printed skull roof following the removal of a tumour. It is the first time that an operation "One of the main advantages of of this type has been performed in Europe. The operation and use of the material is part of a larger study in which the Faculty of Veterinary Medicine and Faculty of Medicine at Utrecht University are collaborating. Veterinary surgeon

Professor Bjorn Meij, is delighted with how the operation went and the dog's subsequent recovery: 3D printing of a skull roof is that it can be tailored perfectly to the individual, and a porous titanium edge can be printed. This edge allows the bone to grow into the implant so it becomes integrated into the skull."

IMPROVING TREATMENTS **FOR KIDNEY** PATIENTS



Utrecht scientists have successfully created mini kidneys, so-called kidney organoids, from urine cells. A mini kidney from the lab doesn't look like a normal kidney. But the simple cell structures share many of the characteristics of real kidneys, so researchers can use them to study certain kidney diseases. This could lead to a wide range of new treatments that are less onerous for kidney patients. Marianne **Verhaar**, Professor Nephrology and Hypertension, explains that she collaborates with medics, researchers and technical experts at a single location in Utrecht: the Regenerative Medicine Centre Utrecht. "Collaborating in this way has made a huge difference to our research. We hope that, together, we can improve treatments for kidney patients. In the long term, we hope to be able to use mini kidneys to create a real, functioning kidney – a tailor-made kidney - too. But that's still a long way away."

UU.NL/KIDNEYS

HOW THE SALMONELLA CAN CAUSE AN INFECTION



Researchers at Utrecht University have demonstrated how the pathogenic Salmonella bacteria takes advantage of one of the body's defence mechanisms in order to invade cells. The researchers, led by infection biologist Dr Karin Strijbis, discovered that Salmonella takes advantage of defensive 'mucins' in order to invade intestinal cells and start an infection. This discovery marks an important step towards developing new medicines to prevent Salmonella infections. "These results came as a complete surprise, as we had thought that MUC1 would actually offer protection against a Salmonella infection," Strijbis explains.

UU.NL/SALMONELLA

HUMAN GUT VIRUSES CAN BE AT LEAST AS OLD AS THE HUMAN LINEAGE



We are all the same, yet we are all different. A study published in Nature Microbiology reveals patterns of a virus that half the people in the world are carrying. The global collaboration of more than 100 scientists drawn form 65 countries focuses on crAssphage, a virus that feeds on human gut bacteria. This new research shows why crAssphage is so widespread. In the paper, the team (which includes Assistant Professor Bioinformatics Bas Dutilh) provides evidence that crAssphage has been with us since the dawn of humankind. They show that it is not associated with human disease, providing an explanation as to why it has not been eradicated from the population.

> Surgeons from the faculty of Veterinary Medicine and the faculty of Medicine collaborating

RESEARCH THEME

Institutions for Open Societies

Within this research theme, research is conducted on the formal and informal rules (institutions) of human action. Why do societies develop so divergently? And how do institutions contribute to the formation of open and sustainable societies?

UU.NL/INSTITUTIONS

'Your boss also pays you for the data you generate'

Maarten Goos

Professor of Labour Economics

"Your boss should no longer pay you just for your time spent at work, but also for the data you generate." This is one of the out-of-the-box ideas of a European High-Level Expert group presented to the European Commission last spring. The High-Level Expert group of experts from industry,

government and science was led by Maarten Goos, one of the prominent academics of the Future of Work Hub of Utrecht University. At the Hub, scholars from diverse disciplines study the future of work and its impact on individuals and society.

THE BETTER WELL-BEING INDEX 2019



Utrecht University and Rabobank launched the Better Well-Being Index (BWI) 2019. This index is an integral indicator that provides insight into the development of broad-based prosperity in the Netherlands. For the first time, the broad prosperity of the Netherlands is at a higher level than it was just before the economic crisis. It is striking that with increased prosperity, the environment has come under further pressure. "Climate debate in the Netherlands should not be conducted separately from current levels and distribution of material prosperity," says Tanja van der Lippe, Professor of Sociology.

INSTITUTIONAL CONDITIONS FOR 'GOOD SOCIETIES'



Economic historian professor Bas van Bavel has received the NWO Spinoza Prize. The award comes with 2.5 million euros and is the highest scientific distinction in the Netherlands. Van Bavel is one of the world's foremost experts in the area of socioeconomic history. His research is driven by the question of how societies develop in the long term and how differences in their development can be explained. Van Bavel looks beyond the boundaries of his own discipline and collaborates with economists, sociologists, political scientists, ethicists and others.

UU.NL/VANBAVEL



Future of Work hub: do some people benefit more from the changes in work than others?

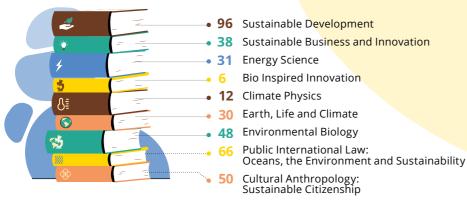


18 Green Office Living Lab projects completed



Utrecht University Green Office supported 18 specific experiments in which researchers collaborated with employees and students to look for solutions to sustainability issues.

Sustainability in education: **9** Master's degrees and **377** graduates



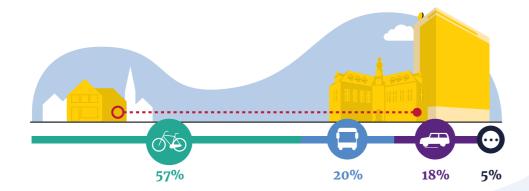
Gas consumption 85% energy efficient



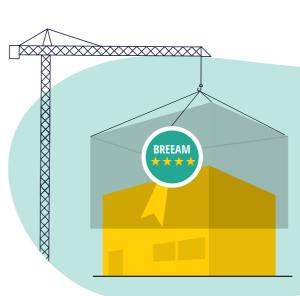
Utrecht University has a power plant on the campus which efficiently converts 20 million m³ of natural gas into heat and electricity for its own use.

Natural gas makes up 58% of Utrecht University's carbon footprint.

More than half of our employees cycle to work



2x BREEAM Excellent status for new build / renovation



The campus is home to a lot of old buildings. The University is committed to making them more sustainable. To do this, we are working in line with BREEAM certification standards. Achieving an 'Excellent' rating from BREEAM proves that our buildings are future-proof.

We are measuring local biodiversity with indicator species



The presence of three species of birds (the little owl, the kingfisher and the lapwing) is an indicator of nature on campus: they only appear if there is enough vegetation, if there are lots of insects and if the soil is fertile.

Read the full 2018 Annual Sustainability Report at

UU.NL/SUSTAINABILITYREPORT



'Alumni are standing with one foot in the world and the other firmly anchored in our wonderful university'

Jan BeuvingAlumnus of the Year

"I never dreamt that I would be awarded another academic title." With these words, cabaret performer Jan Beuving received the honorary title of Alumnus of the Year during the 383rd Anniversary Day celebrations. That Beuving studied mathematics is evident in everything he does "right down to the squared pattern on the shirt I'm wearing." In his performances, he makes complex science accessible to a wide audience. His high profile, ambassadorship and passion make an important contribution to the ambition of our university to connect science and society.

OFFERING STUDENTS AN INTERNATIONALLY ORIENTED, BROAD EDUCATION'

The European Commission has selected the 'Charm-EU' proposal that was submitted by Utrecht University together with Barcelona University, Trinity College Dublin, University of Montpellier and Eötvös Loránd University Budapest. The Charm-EU network focuses on interdisciplinary, challenge-based education. "We want to offer students a broad, internationally oriented education, and prepare them for the labour market. I regard this new European Alliance as a way to strengthen these efforts," Rector Magnificus Henk Kummeling says. Charm-EU should make it possible to follow flexible study paths, both online and physically. For example, students can follow courses at a partner institution within the network, if the expertise is there. In this way, students will be able to become critical thinkers and committed European citizens.

DIES DIALOGUE: 'LIFELONG LEARNING STANDARD TASKS FOR LECTURERS'

Prior to our Anniversary Day the Dies Natalis - in March, around 100 alumni, partners from the Utrecht region and Utrecht University staff came together to discuss LifeLong Learning. Topics such as linking teaching and research, teacher shortages and collaboration with professional organisations were addressed in a series of round table discussions. During the celebration on the day itself, rector Henk Kummeling noted that it is clear to the Executive Board "that teaching within the context of LifeLong Learning should be a standard task of lecturers and not something that has to be done in addition to the existing package of duties." The Dies Dialogue is an annual event with a different theme each year.



Hester den Ruijter receives

the Agnites Vrolik award

UU.NL/ALUMNUSOFTHEYEAR

IMPROVED ACCESS TO BUILDINGS

Utrecht University is keen that everyone, whether able-bodied or disabled, should have the best possible access to the university grounds and buildings. In the existing buildings, any access-related problems are dealt with by the Corporate Real Estate & Campus and University Facilities Service departments, usually with success, although the historic buildings in the city centre provide more of a challenge. New buildings must conform to regulations concerning access. At the same time, the digital data on the buildings has been improved to provide at-a-glance information about reachability, accessibility and facilities per building.

UU.NL/ACCESSIBLEUU

OPPORTUNITIES FOR REFUGEE STUDENTS

During the Anniversary Day celebrations in March, the initiators of Incluusion, Marij Swinkels, Hilke Grootelaar and Elena Valbusa, were presented with the Silver Medal by President of the Executive Board Anton Pijpers. The medal is awarded to people who have performed an exceptional service for the university. Since 2016, Incluusion has been facilitating academic education for refugee students and by now more than 400 refugee students have participated. The founders' underlying philosophy is that education offers refugees the chance to build a new future. The Incluusion concept has since been adopted by other universities in the Netherlands and beyond.



DUTCH NATIONAL RESEARCH AGENDA FUNDING ALLOCATIONS

'Research is enhanced when conducted together with external partners'



Four Utrecht projects have been awarded funding to a total of around 9.25 million euros from the Dutch National Research Agenda. Utrecht University is also one of the academic partners for a fifth project (worth almost nine million euros). A special feature of this new funding is that it is used for collaborations between knowledge institutions and social partners, allowing them to examine urgent issues together. Other partners are also contributing funding, on top of the total of 61 million euros shared out by the Dutch National Research Agenda. Henk Kummeling, Rector Magnificus at Utrecht University, is delighted with the awards to Utrecht. "We strongly believe that research is enhanced when it is conducted together with external partners." The funded research is on subjects such as the risk of outbreaks of infectious diseases, treatment for children with autism, managing use of painkillers and being able to provide the precise form of care needed during pregnancy.

Another example is a study on subsidence, for which some 5 million euros has been awarded. Groundwater extraction, heavy buildings, and water use for agriculture and in cities are resulting in subsidence, leading in turn to damage to crops, buildings, and infrastructure. Moreover, as sea levels rise and the land subsides. it becomes ever more difficult to keep out the water. The main question is how we can reverse our current approach to subsidence when the damage becomes too great. To tackle the issue, a wide range of disciplines such as physical geography, biology, soil chemistry, agro-economics, civil engineering, environmental policy sciences and the law are being brought together, with partners such as TU Delft, Wageningen Environmental Research, TNO, ministries, water boards and the business community.

BETWETER FESTIVAL

Academics and performance artists explore how we can meet the future with renewed energy.

Friday 4 October
Tivoli/Vredenburg

UU.NL/BETWETERFESTIVAL

SCIENCE WEEKEND

The university opens its doors to the public with a Science Escape Room among other things.

🗎 Saturday 5 and Sunday 6 October

• Across Utrecht

UU.NL/WVDW

Fascinated during the Science Weekend.

ALUMNI DAYS ON BIODIVERSITY

With lectures from Edwin Pos and Jan Luiten van Zanden.

Monday 7 and Monday 21 October

• Meppel

UU.NL/LECTUREPOS
UU.NL/LECTUREVANZANDEN

TLL AUTUMN FESTIVAL

For everyone involved in innovation in secondary and higher education.

friday 22 November

• Utrecht Science Park

UU.NL/AUTUMNFESTIVAL

Highlights is published twice a year to give Utrecht University's Dutch and international contacts an impression of what has been achieved over the past six months. Utrecht University is a leading, international research university with innovative academic teaching programmes. Our education and research are characterized by our ground-breaking interdisciplinary approach. Thanks to this interdisciplinary approach and our culture of collaboration, Utrecht University is able to achieve innovation, new insights and social impact.

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