Year in Review

2021

UNIVERSITÉ DU LUXEMBOURG

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2022: A New Roadmap, a Bold Vision

It is our hope that 2022 will be the first post-pandemic year. I feel that our University is well-prepared for this new year and the years to come. With a clear path into the next two decades, our Strategy Framework, adopted in February 2021, lays the foundations of a very ambitious development programme for our University. To implement this strategy framework, a new Four-Year Plan was set up and adopted in September 2021. But before describing the actions of this Plan, let me remind us of what we accomplished in 2021.

Besides reaffirming the values of our University, adopting the Strategy Framework and designing our new Four-Year Plan, we were able to maintain all our activities of research, teaching and service to society while coping with the COVID-19 pandemic, the worst in living memory. Our community acquired new ways of working, teaching, learning. We made the best of our possibilities of human interactions and in-person activities. We rediscovered how important those are. And this will make us better researchers, better teachers, and overall better human beings.

In 2021, the University conferred 1,906 new diplomas. We launched new teaching programmes in a variety of areas including engineering, finance, mathematics, and data science. We initiated major research activities, reached record numbers of partnership agreements, and inaugurated our new HPC facility, AION — a supercomputer providing state-of-the-art support to our researchers as well as the best possible lab for HPC design.

In 2021, the University adopted its first gender equality policy. By doing so, we entered a new era of human relations. Equality of genders is not a luxury, and we had the courage to acknowledge the fact that we needed to change.

In 2021, we showed how strong our community was in the face of adversity, sometimes despair. There was always hope in the eyes and the words of a colleague, a neighbour, a friend, that took us through the storm, and this sense of community is one of our most important and durable accomplishments.

In 2021, we negotiated with Luxembourg's Ministry of Higher Education and Research a new multi-annual convention spanning the years 2022-2025, leading to the most important investment by the government in our University ever. The public endowment made available to the University will increase by 17% with respect to the past four years, reaching 908 million euros for the four-year timeframe. This shows the high level of trust of our government in the University.

As much as it was a difficult year, 2021 is a year we will never forget as long as we live.

2022 is the first year of our new Four-Year Plan. The Plan is ambitious, and it will see important developments of our University. As identified in the long-term Strategy Framework, the University will apply its strength to the solution of three major interdisciplinary challenges that are among the most important facing mankind today: health and medicine; sustainable and societal development; the digital transformation of our lives and our societies. For the first time in our history, the University will not single out one discipline or another, it will prioritise interdisciplinary challenges of the highest possible relevance. Our health, that of our parents and our children, the resilience of our healthcare system, have never been challenged more than today. We have strong expertise to help solve these problems and we will develop more expertise and train more practitioners.

2022 will see the finalisation of the third year of our Bachelor in Medicine. We will work on the design and the launch of new curricula for health care professionals in the areas of general and specialised nursing science.

> "The public endowment of the University will increase by 17% with respect to the past four years. This shows the high level of trust of our government in the University."
>
> Prof. Stéphane Pallage, Rector of the University of Luxembourg

We will help our health care system become more resilient and our researchers in biomedicine will help prevent and cure more diseases.

The environment our children will live in is unstable. It is plagued with uncertainty and violent episodes of drought, heat waves, flooding, extreme storms. We have a responsibility to help design a better world, one in which THERE IS a future for them and for their children. Sustainable development is a very ambitious target. But we will be there to help achieve it.

In 2022, the University will prepare for the launch of a new Interdisciplinary Centre on Environmental Systems. We will make sure this new Centre will grow sustainably fast to tackle some of the most pressing questions of our time. We will lead by example and will make our University greener and more sustainable in all its operations. We will participate in the strengthening of our societies by providing expert guidance on key questions, pushing knowledge ever forward.

Prof. Stéphane Pallage,
Rector of the University of Luxembourg

> "This century will see democracy challenged. Let us make sure that knowledge prevails."

We live in a time of always available wide-spread information. Yet paradoxically, obscurantism and ignorance are gaining momentum. Our University should make its expertise available to the wider public. No other institution in the country has the independence, the rigour and the credibility to establish and re-establish facts. As a driver of development, designing the future of Luxembourg, it is our duty to do so.

Everyone in democracy is entitled to their opinions, however it is the duty of independent experts to present the hard facts and challenge dogmatism and bigotry. Education and research are the best ways to safeguard democracy. And this century will see democracy challenged. Let us make sure that knowledge prevails.

In 2022, we will also apply our energies to guide society through the digital revolution. On the agenda, the launch of a Centre of Digital Ethics, more research and teaching on digital finance, the legal challenges of digitalisation, data science, machine learning, artificial intelligence, High Performance Computing and quantum computing. The digital world makes our real lives easier, but the challenges are as numerous as the flaws and the potential abuses. Here again, we have the best expertise, we have independence, and we fear no judgement. We will be there to support society in this challenging transformation.

On a personal note, 2022 will be my last year as rector of the University of Luxembourg. It will be my privilege to put all my energy into the realisation of all this. There is no better team than this University's community.

Stéphane Pallage,
Rector of the University
of Luxembourg

Highlights 2021

Among the many highlights of 2021, the following stand out:

- Board of Governors adopts long-term strategy framework for the University
- Multi-year financing convention 2022-2025 is agreed with the Luxembourg government
- First Gender Equality Policy is adopted at the University
- André Losch Fondation announces new building to be made available to the University
- Creation of new Paul Wurth Chair in Energy Process Engineering
- New Chair in Urban Regeneration established
- Profs. Lagerwall and Tkatchenko obtain ERC grants to develop smart mechanical sensors and a novel chemical discovery platform
- University's Institute for Advanced Studies (IAS) launches new funding round of 12 research projects
- Times Higher Education ranks the University number 92 in Law in the World University Ranking
- Launch of AION, the University's new supercomputer
- University to lead the first pan-European Master's programme in HPC
- University receives positive evaluation of teaching conducted by the Accreditation Organisation of the Netherlands and Flanders (NVAO)
- Extension of the University's study programmes:
  - Master of Data Science;
  - New track in the Master in Finance and Economics: Digital Transformation in Finance;
  - Master in Logistics and Supply Chain Management: new Digital Procurement Track;
  - Specialisations in General Medicine, Medical Oncology, Neurology;
  - Bachelor's degree in Music Education.

The University

The University offers 17 Bachelor's and 46 Master's programmes, three specialised studies diplomas in Medicine, four doctoral schools as well as 16 vocational training and continuing education courses.

Our vision: A University for Luxembourg and the world.

The University of Luxembourg shapes societal, cultural, technological, and economic development in proactive dialogue with public and private stakeholders of society.

Our mission and profile: a world-class research university.

The University of Luxembourg strives for excellence in both fundamental and applied research, and in education. It drives innovation for society, and intertwines research, teaching and societal impact.

A Unique International Outlook

With nearly 7,000 students from 135 countries and about 2,500 staff members from all over the globe, the University is a vibrant multicultural community. Its study programmes, taught in English, French, and German, contribute to its international relevance as a pillar of higher education and research in the heart of Europe.

Three Faculties and Three Research Centres

The University comprises three faculties and three interdisciplinary centres: The Faculty of Science, Technology and Medicine (FSTM); the Faculty of Law, Economics and Finance (FDEF); the Faculty of the Humanities, Education and Social Sciences (FHSE); the Interdisciplinary Centre for Security, Reliability and Trust (SnT); the Luxembourg Centre for Systems Biomedicine (LCSB) and the Luxembourg Centre for Contemporary and Digital History (C^2DH).

Research Areas

Research at the University focuses on shaping a digital, healthy and sustainable future. Key research areas include Digital Transformation (trustworthy ICT, cybersecurity, digital humanities, FinTech, Big Data of the past, space technology and telecommunication), Health and Medicine (systems biomedicine, neuroscience and oncology, digital health, social and economic aspects of health and wellbeing) and Sustainable and Societal Development (sustainable finance and governance, inequalities, diversity and migrations, law and regulations, educational research).

Prominent Rankings

Times Higher Education ranks the University of Luxembourg #3 worldwide for its international outlook, #20 in the Young University Ranking 2021 and among the top 300 universities worldwide.

Faculty of Science, Technology and Medicine

Faculty of Law, Economics and Finance

Faculty of Humanities, Education and Social Sciences

UNIVERSITY OF LUXEMBOURG

LCSB

SnT

C²DH
LUXEMBOURG CENTRE FOR CONTEMPORARY AND DIGITAL HISTORY

A New Strategy Framework

2020›2039

The world is evolving at a faster pace than ever before, with rapidly changing technologies, labour market shifts of unprecedented proportions, and challenges to humanity that few would have imagined possible previously. Against this background, the University of Luxembourg has formulated a Strategy framework for the next two decades.

The Strategy framework of the University is a flexible roadmap for future University strategies and implementations. It is articulated as a vision, setting out where the University strives to be in the future, a profile and mission describing the University's character and focus, and values that express what the University and its community stand for. Based on these elements, the University seeks to achieve four long-term strategic goals by Luxembourg's bi-centennial anniversary in 2039, accomplished through key areas and key initiatives within the University's three missions, and supported by existing key activities and strengths of the University.

Our vision

A University for Luxembourg and the world

The University of Luxembourg shapes societal, cultural, technological and economic development in proactive dialogue with public and private stakeholders of society.

Over the last two decades, Luxembourg has undergone a deep transformation and diversified its economy towards a knowledge-based society. Luxembourg is developing new economic activities, which are technology- and knowledge-intensive and require substantial investments in skilled human resources, research and innovation. Science and innovation are key factors that will help Luxembourg's move to smart, sustainable, inclusive growth, able to solve societal challenges while being internationally competitive. The University of Luxembourg sees itself as a driving force, generating knowledge and human capital based on research and education at the highest international level.

Our mission and profile

A world-class research University

The University of Luxembourg is a world-class research university. It strives for excellence in both fundamental and applied research, and in education. It drives innovation for society, has a high proportion of graduate students, and intertwines research, teaching and societal impact.

The University of Luxembourg has the profile of a research university with a strong activity in research, a high proportion of doctoral candidates and success in internationally competitive third-party funding, combined with excellent research-driven teaching throughout the University. The University has three missions: research, higher education and contribution to the social, cultural and economic development of the country.

Our main goals to 2039

Reinforcing, strengthening and adding value

Four long-term goals represent the overall aims that the University of Luxembourg seeks to achieve by 2039.

- Reinforce international profile as an excellent research university.
- Strengthen teaching and establish new forms of learning.
- Add value to society and meet emerging societal challenges.
- Reinforce and encourage interdisciplinarity.

Key areas

In research, higher education and impact

To achieve its long-term strategic goals, the University of Luxembourg has defined eight key areas within its three missions. Within each area, ambitions, key initiatives and key activities are defined.

Mission: Research

Shaping a digital, healthy and sustainable future

The University of Luxembourg is evolving in the context of the current knowledge-based societies that rely on scientific research and a trained workforce, and contributes to their development. Successful countries and regions nurture their research and innovation ecosystem. Economic and societal innovations emerge in international and research-oriented universities such as the University of Luxembourg.

Key area 1

Digital transformation

Digitalisation, ICT, data science and artificial intelligence are omnipresent in our society and are transforming how universities fulfil their missions of research, education, and societal, economic and cultural impact. In the future, the most covetable academic staff, students and support staff will be attracted to – and retained at – those universities that embrace the digital age and its opportunities.

Ambition: Embody academic excellence by embracing and shaping the digital world and overcoming boundaries between disciplines and sectors / Provide robust and trustworthy digital activities / Drive innovation and support Luxembourg's digitalisation through research / Be a premier destination for students and researchers building their future in a digital world.

Key initiatives

- Reinforce High-Performance Computing (HPC) and data science, vital for fostering frontier research and partnerships in the computational and data sciences.
- Address ethical, cultural and legal questions around digitalisation, in particular through a newly created Center for Digital Ethics.

Key activities

Trustworthy ICT / Cybersecurity / Digital humanities / Big Data of the past / FinTech / Space technology and telecommunication.

Key area 2

Medicine and health

Ensuring healthy lives and promoting well-being at all ages is essential for society. In the current "Age of Life Sciences," Medicine and Life Sciences are expected to be at the forefront of major scientific and biomedical breakthroughs and to tackle global challenges.

Ambition: Support Luxembourg's ambitions for a strong health, medical and biomedicine ecosystem / Contribute to the international visibility of the quality of the Luxembourgish health system, thereby attracting students, researchers and professionals to build their future and career in Luxembourg.

Key initiatives

- Develop medicine, health and life sciences to reach international excellence in research and education, including a full cycle of medical education.
- Reinforce the discipline of chemistry for teaching and research related to medicine and biology as well as environmental science within the concept of global health.

Key activities

Systems biomedicine / Neuroscience and oncology / Digital Health / Social and economic aspects of health and wellbeing.

Key area 3

Sustainable and societal development

The research community has a key role in advancing sustainable and societal development, which as a topic encompasses a broad range of related aspects, today captured through the United Nations' long-term Sustainable Development Goals. The global challenges range from social, economic and legal topics regarding societal challenges, to engineering and science regarding environmental issues.

Ambition: Apply the strength of the University in digital and data science to sustainability / Give equal value to technological, socio-economic and

cultural aspects / Secure a visible identity for the University in the field of sustainable and societal development, thereby contributing to the attractiveness for talents of a modern University and country alike.

Key initiatives

- Advance future energy systems through research on sustainable energy and digital/data-based energy transformation, and analyse the socio-economic, legal, regulatory and behavioural aspects of energy systems.
- Structure the institution-wide and interdisciplinary coordination on sustainable and societal development.

Key activities

Sustainable finance and governance / Inequalities / Diversity and migration / Law and regulations / Educational research.

Mission: Higher Education

Diverse, inclusive and flexible learning support

The Unique Selling Points (USPs) of higher education at the University of Luxembourg are its personalised scale compared to neighbouring universities, its multilingualism, its mobility obligation for all Bachelor's students, its geographical location, and its unique relationship with Luxembourg's public and private sectors. In line with the national strategy for a "21st Century Education", the University will deliver the best quality teaching, by consolidating and strengthening these USPs while also developing new activities to "train the trainers", and establish University-wide standards and expectations around teaching and learning for students and staff.

Key area 4

Delivering personalised, innovative and high-quality teaching and learning across the University

The University will continue to enable students to impact future generations by exploring and developing diverse and inclusive modes of learning, including enhancing its cutting-edge digital pedagogies. Instructors will be trained appropriately both in technical and in pedagogical approaches. The personal connection between students and their resources and instructors is key to a good university experience, as is consistent support.

Ambition: Value and support the high quality of the University's teaching and learning / Offer a personalised university experience / Embed project-based learning as a University-wide mode of teaching.

Key initiatives

- Consolidate and strengthen the quality of teaching across the University through a culture of quality assurance, building on harmonised policies and procedures.
- Develop innovative learning such as project-based learning with individual and practice-oriented learning situations.

Key activities

"Training the trainers" / Project-based learning / Personalised learning.

Key area 5

Intertwining teaching and research, developing new modes of learning

The missions of a research university rely on embedding research into teaching, with programmes delivered by research-active instructors and offering transversal skills training. Education, including lifelong education, will develop in line with current and emerging research strengths.

Ambition: Teach transversal skills in languages and research-related subjects / Support research-led projects at Bachelor's and Master's levels / Offer interdisciplinary teaching.

Key initiatives

- Offer transversal training in areas such as research ethics, academic conduct and diversity, and active multilingualism throughout programmes.
- Foster a strong connection with the field of study through research-led projects, building on resources held by the University's Luxembourg Learning Centre as well as by external stakeholders.

Key activities

Innovative interdisciplinarity / Digital skills and transversal training.

Key area 6

Fostering a dynamic, diverse and international student community

Luxembourg society benefits from recruiting excellent students with an international outlook as well as cross-cultural, multilingual knowledge. Luxembourg needs graduates in key sectors like health, finance and school education, with a strong demand for digital skills and an urgent desire to develop STEM subjects to anticipate new jobs in the knowledge economy. The offer of lifelong learning allows non-traditional students ways of upskilling and adapting to an evolving workplace.

Ambition: Secure enhanced student recruitment and retention, including lifelong learning / Foster an international outlook among students / Offer an attractive, supportive and student-friendly environment.

Key initiatives

- Enhance student recruitment and retention through a focus on attracting and supporting excellent students, including those from lower-income backgrounds.
- Strengthen and develop an international outlook among the University's students, offering international mobility in programmes and joint/double diplomas with partner universities.
- Support lifelong learning and education for professionals.

Key activities

Targeted recruitment / Inclusion / Career Centre.

Mission: Impact on society, private and public sector

Contributing to social, cultural and economic development

Responding to the needs of society is part of the history of the University of Luxembourg. As the only public university of the country and as a particularly international university, the University has a special responsibility to provide education, research and entrepreneurship and to contribute to the social, cultural and economic development of the Grand Duchy and the world. New initiatives will be launched and services offered so that the University can fulfil its role and drive technological, socio-economic and cultural progress, transfer knowledge and innovation, promote entrepreneurship, enrich social life, offer a platform for public debates, and assure the impact of research and innovation.

Key area 7

From science to impact

The University is by essence a place of ideas and discoveries, and a key actor of innovation. It is only natural that the University helps those ideas develop into businesses or national policies to further support Luxembourg's knowledge-based society and economy, in active partnership with the public and private sectors.

Ambition: Promote knowledge and technology transfer as well as related partnerships / Add value to society and drive innovation and entrepreneurship.

Key initiatives

- Drive knowledge and technology transfer (KTT) via increased partnerships with private or public partners, further exploration of funding sources and support of researchers filing patents.
- Provide support and guidance to researchers, staff and students in the transfer of ideas and discoveries into the socio-economic sphere through the creation of spin-offs.
- Promote entrepreneurial thinking and creativity as transversal skills to students and young researchers.

Key activities

University of Luxembourg Incubator / Partnership and KTT.

Key area 8

Deepening dialogue and engagement

Luxembourg is undergoing rapid development socially and culturally both through its demographic growth and the increasing number of foreign residents. In order to support Luxembourg's development, but also to anchor itself further in this changing society and to secure its trust in the long term, the University must build and maintain a regular dialogue with selected important interest groups, other institutions as well as decision makers, but also address the general population.

Ambition: Foster exchanges and connections with society / Strengthen the bases of public debate, enrich social life and contribute to the development of the knowledge society / Establish the University as a reference for expert advice.

Key initiatives

- Pursue wider outreach to external stakeholders, in particular the University's alumni as well as national and international donors.
- Become a voice to society and a reference point for expert advice by enriching public debate with expert opinions, expanding innovative science communication formats and pursuing citizen science.
- Develop Belval and the future Kirchberg campuses into social, cultural and economic hubs, with a broad sports, arts and extracurricular offer for students, staff and the public.

Key activities

Alumni network / Fundraising / Citizen science / Campus sports and arts.

Implementation

Building on existing strengths

The Strategy framework will steer the coming strategic decisions of the University, making use of its existing strengths.

- Short- and mid-term planning within the four-year plans.
- Growth to meet national needs for university training, and to help realise the Strategy framework's goals.
- Dialogue with national and international partners from the academic community, business, administration and society.
- Commitment and participation of current and future generation of researchers, students and staff.
- Periodic review of implementation process.

Our Research in 2021

The University of Luxembourg is a research-oriented university, fostering the creation of knowledge that addresses society's challenges through interdisciplinary approaches.

The University's strategy framework defines three main interdisciplinary priorities for research: Digital Transformation, Health and Medicine, and Sustainable and Societal Development.

Digital Transformation:

Digitalisation, ICT, data science and artificial intelligence are omnipresent in our society and are transforming how universities fulfil their missions of research, education, and societal, economic and cultural impact.

Health and Medicine:

Ensuring healthy lives and promoting well-being at all ages is essential for society. In the current Age of Life Sciences, Medicine and Life Sciences are expected to be at the forefront of major scientific and biomedical breakthroughs and to tackle global challenges.

Sustainable and Societal Development:

The research community has a key role in advancing sustainable and societal development. The global challenges range from social, economic and legal topics regarding societal challenges, to engineering and science regarding environmental issues.

Research Highlights

IAS - Audacity Projects Focus on Highly Interdisciplinary Topics

The University's Institute for Advanced Studies (IAS) focuses on strengthening interdisciplinary research at the cutting edge of science and on attracting and retaining international talent in Luxembourg's researcher community. The IAS was created in 2020 and gained momentum in 2021. Currently, the IAS funds a total of 22 projects (12 Audacity projects and 10 Young Academics PhDs), each led by at least two researchers from different scientific backgrounds. A selection of these projects is presented here. Further information can be found online.

At the Interdisciplinary Frontier of Microbiome Research

> The interdisciplinary nature of human microbiome research – that spans epidemiology, biology, bioinformatics, ecology, translational medicine and statistics – makes both developing new methodologies and reporting of results a challenge.
>
> Prof. Paul Wilmes

New Methods to Investigate the Elusive Human Microbiome

The human gut microbiome – the community of microorganisms inhabiting our gastrointestinal tract – plays an important role in health and disease. In November 2021, a team of researchers at the Luxembourg Centre for Systems Biomedicine (LCSB) presented a novel methodology to systematically characterise the molecules secreted by the human gut microbiome using multi-omics technologies. "For example, we hope to better understand how these molecules can modulate inflammatory pathways in chronic diseases," said Bianca De Saedeleer, first author of the article. The publication is the first outcome of Prof. Paul Wilmes's ExpoBiome project, which has been awarded a European Research Council (ERC) Consolidator Grant. These new results, together with the quality criteria for multi-omics data defined in another article published in *Nature Medicine* in the same month, form the methodological basis of the project.

Birth Mode Affects Microbiome Composition and Immune System

In March 2021, a publication authored by researchers from the LCSB and the Department of Life Sciences and Medicine at the University of Luxembourg addressed the knowledge gaps concerning the lasting effects of birth mode on infants. As a result of a long-standing study, they highlighted differences in the gut microbiome composition and function that persist throughout the first year of life. These birth mode-dependent alterations are likely to affect the status of the immune system and antimicrobial resistance in the long run.

"Current hypotheses are that caesarean section is linked to different chronic diseases later in life, including metabolic disorders and allergies, or may facilitate the development of antimicrobial resistance," explained Prof. Paul Wilmes, Head of the Systems Ecology group at the LCSB, which has been investigating the impact of vaginal delivery and caesarean section on babies for several years together with Prof. Carine de Beaufort from the Centre Hospitalier de Luxembourg.

The Future of CRIMinal Forensic Genomics PhenoTYPing (CRIMTYP)

CRIMTYP is an innovative interdisciplinary project in the field of genomics, led by Prof. Silvia Allegrezza of the Faculty of Law, Economics and Finance and Dr. Patrick May from the Luxembourg Centre for Systems Biomedicine, that combines legal and genetic science to explore the future of Forensic DNA Phenotyping (FDP), as well as forensic epigenetics. These disciplines leverage predictive aspects of DNA to provide inferences on concrete features: a sample from the crime scene can offer information about appearance-related traits (hair, skin and eye colour or age), biogeographical ancestry, geographical origin, kinship, lineage (in general, relationships), behaviour or genetic diseases of the potential offender. The project explores some of the ethical, data privacy and human rights implications of FDP as well as its potential for behavioural profiling.

CAMEOS: Researching the Microbiome Towards Cancer Diagnosis and Therapy

The CAMEOS project, led by biologist Dr Elisabeth Letellier and physicist Prof. Anupam Sengupta from the Faculty of Science, Technology and Medicine, aims to understand the largely unexplored cancer microbiome. CAMEOS pioneers an advanced line of cross-disciplinary research on the cancer microbiome at the intersection of physics, biology and machine learning. The project explored the role of microbes – microorganisms which make up the microbiome – in shaping cancer characteristics and micro-environments. Crucially, CAMEOS is in a unique position to generate seminal data able to link cancer transformations, in real time, with microbial distribution and physiology, thus revealing early signs of benign-to-malignant changes.

DSEWELL: Predicting Happiness and Wellbeing with High Performance Computing

DSEWELL brings together machine learning approaches, physics-inspired descriptors and the economics of wellbeing to address questions broadly related to predicting wellbeing of individuals in a data-driven manner. The project focuses on finding the right data descriptors, using models inspired by physics and social sciences, to identify appropriate metrics to describe individuals and their relationships with others. In fact, wellbeing can be measured by life satisfaction, happiness or other indices of psychological functioning, via modern nonlinear machine learning techniques. To that purpose, DSEWELL leverages high performance computing to process psychological computational modelling and forecasting. "Who we are is determined by a myriad of factors, and we are trying to model individuals using a set of characteristics," explains doctoral researcher Niccolò Gentile, who works on the project under the supervision of professors Conchita D'Ambrosio and Alexandre Tkatchenko.

PathoFact, a New Tool for Faster Identification of Pathogens

The LCSB and the Department of Life Sciences and Medicine of the University developed a new bioinformatics tool that can help identify pathogens crucially faster and more accurately than ever possible with conventional diagnostic methods.

For example, bacterial infections are currently detected through blood cultures – a diagnostic process that takes days to complete. The LCSB team, led by Prof. Paul Wilmes, used high-throughput methods to sequence all genome fragments obtained from samples that could potentially contain pathogenic organisms. Their tool, PathoFact, compares these gene sequences against an integrated database to identify pathogens. In future clinical practice, this knowledge could be used to suggest suitable treatments. The tool could also permit to detect co-infections in COVID-19 cases and therefore help prevent severe progressions of the condition, according to Wilmes.

Focus on High Performance Computing

University Inaugurates AION Supercomputer

The University inaugurated its AION High Performance Computer (HPC) in November 2021. The new supercomputer provides state-of-the-art support to the University's researchers and partners. It enables research and innovation based on intensive computing and large-scale data analysis,in particular in the fields of computer science, materials physics, bio-medicine and life sciences, cryptology and artificial intelligence, but also digital history or socio-economic simulations.

AION is an Atos/Bull supercomputer with a peak performance of about 1.70 PetaFLOPS. By combining the previously existing supercomputer Iris with the new AION system, the University's HPC reaches a cumulated computing capacity of 2.8 PetaFLOPS, coupled with a shared storage capacity of 10 PetaBytes.

> With AION, the University reinforces its position as an international frontrunner in HPC, and further enhances its attractiveness for the most covetable academic staff, experts and students, thereby increasing Luxembourg's talent pool.

Prof. Jens Kreisel,
Vice-Rector for Research.

HPC and Interdisciplinary Research

Contemporary research requires significant computing power and generates large amounts of data. High-Performance Computers allow to run fast, complex and large-scale calculations to create simulations or models of physical systems and test the most advanced large-scale artificial intelligence applications that require massive amounts of calculations per second.

Far from being just tools, HPCs enable complex interdisciplinary research at the University across a large range of projects.

A few notable examples include:

- LuxemBERT, a project conducted by SnT in partnership with BGL BNP Paribas to develop a new Luxembourgish language model that will enable a chatbot to 'understand' Luxembourgish;
- ECHIDNA, an FNR ATTRACT fellowship in Environmental Cheminformatics to build computational methods for investigating unknown chemicals and their effects on health, a collaboration of several research groups at the LCSB;
- ADARS is a project backed by the Luxembourg National Research Fund (FNR). SnT investigated the automated generation of behaviours for distributed aerospace and space systems – enabling robot swarms and satellite fleets to take autonomous decisions;
- SPRESSO, a C²DH project to enhance the quality of scanned half-tone pictures with super resolution techniques powered by high performance computing;
- DSEWELL, a project at the Institute of Advanced Studies which brings together machine learning approaches, physics-inspired descriptors, and the economics of wellbeing to predict happiness and wellbeing of individuals.

The University's HPCs sustain research excellence while enabling faster time-to-solution.

A Race Against Time: Preventing Severe Progressions of COVID-19

Throughout 2021, scientists and researchers at the University of Luxembourg strongly supported the national COVID-19 Task Force, focusing on the prevalence of the disease, risk factors and biomarkers, modelling the evolution of the pandemic and exit strategies.

Investigating the Modulation of the COVID-19 Immune Response

A team from the Computational Biology group within the Luxembourg Centre for Systems Biomedicine (LCSB), headed by Prof. Antonio del Sol developed a new method to identify molecules that amplify and maintain the inflammatory response upon an infection, creating a hyperinflammatory condition in the patient (commonly called "cytokine storm") that can be fatal. Using a novel computational method to analyse over 1,700 cell-cell interactions, they created a comprehensive map of the immune response in the lungs of COVID-19 patients. Their model identified Toll-like Receptor 2 (TLR2) as a molecule that might be able to modulate the inflammatory response, and predicted that the inhibition of this protein could disrupt up to 75% of the feedback loops without interfering with the general immune response. The study put TLR2 on the map as a potential target for medical intervention in severe COVID-19 cases.

Early Detection of COVID-19-induced Tissue Damage and Cytokine Storm

The CovSerum research project, funded by the Luxembourg National Research Fund and conducted in collaboration with the Luxembourg Institute of Health, focused on the analysis of proteins in serum samples from COVID-19 patients with a specific focus on marker proteins for inflammation (cytokines) and tissue damage. Understanding the role of cytokines in COVID-19 is crucial to prevent the cytokine storm and to find the right treatment for patients. Iris Behrmann, Head of the Department of Life Sciences and Medicine (DLSM) at the University of Luxembourg, is co-principal investigator of the project.

Using Artificial Intelligence to Help Diagnose COVID-19

The Interventional Neuroscience group within the LCSB, led by Prof. Frank Hertel, developed new computational methods to help diagnose COVID-19. In particular, analysis of lung scans with artificial intelligence could allow for better and faster diagnosis. By processing the scans with advanced computational solutions, Prof. Hertel's team could distinguish COVID-19 lesions from those of other origins. The project is established in close collaboration with the Centre Hospitalier de Luxembourg, the Luxembourg Institute of Health and the Laboratoire National de Santé. The team's innovative approach was ranked fifth at the international "COVID-19 Lung CT Lesion Segmentation Challenge" in January 2021.

A Global Map to Understand the Behaviour of the SARS-CoV-2 virus

The LCSB's Bioinformatics Core group coordinated a team of 230 scientists from 120 institutions in 30 countries to develop the COVID-19 DiseaseMap (C19DMap), a repository of all current knowledge on the SARS-CoV-2 virus-host interaction mechanisms. The results of this large-scale, international and multidisciplinary effort were published in Molecular Systems Biology, and an interactive version of the map and its code were made publicly available. More than 600 publications were taken into account to assemble the network of molecular interactions. The map helps scientists understand why some people are more susceptible to infection with SARS-CoV-2, the differences in the course of the disease, how to predict response to treatments and how to find new drugs to treat it.

Understanding the Pandemic's Impact on Society

Pandemic Year 2: The Impact on Young People in Luxembourg

Researchers from the Department of Social Sciences examined young people's attitudes towards COVID-19 vaccines and reasons to get vaccinated or not. Compared to 2020, the researchers found a significant reduction in the levels of concern about COVID-19.

The report, published in December 2021, concluded that the majority of young people in Luxembourg were able to come to terms with the COVID-19 pandemic and the restrictions imposed by the government. However, a significant share of young people in Luxembourg reported negative effects on their mental health, relationships with friends or expectations for the future. The study also reported that most students expected delays in completing their studies.

What Has the COVID-19 Crisis Done to Our Education System?

The University's LUCET Research Centre and the Ministry for Education, Children and Youth presented the first insights from the 2020 "Épreuves Standardisées", the Luxembourg School Monitoring Programme, an initiative that created a standardised record of competency scores in schools across the Grand Duchy. Key findings showed no systematic negative trend in competency scores, but highlighted how existing inequalities in socioeconomic status, language proficiency, and track record were exacerbated by the pandemic. Overall, students and parents coped rather well with home-schooling, and teachers seemed to adapt their ways and frequency of communication to ensure contact with their students.

How the Pandemic Changed the Concept of Workplace

Wellbeing@Work (W@W) is one of six interdisciplinary research projects which received multi-year funding in the context of the Audacity funding instrument of the University's Institute for Advanced Studies. Led by Prof. Luca Ratti of the Faculty of Law, Economics and Finance, and Profs. Anna Kornadt and Claus Vögele of the Faculty of Humanities, Education and Social Sciences, the project, which kicked off in May 2021, evaluated how the wellbeing of employees in home office changed since the start of the pandemic, providing evidence to guide the introduction of new regulatory tools and practices. The project analysed data from six countries - Germany, France, Luxembourg, Italy, Spain and Sweden - on telework, privacy at work, wage policies, and productivity. Luxembourg-based company Ferrero supported the project as case study.

Uni Joins PROTEIN-ID, an EU Research Consortium for Protein Identification Technology

A team of researchers coordinated by Dr. Nicolò Maccaferri and Prof. Alexandre Tkatchenko of the Faculty of Science, Technology and Medicine joined PROTEIN-ID, a European research consortium that aspires to create a device able to generate identity cards for proteins. The project focuses on a method to identify proteins in real time and trace their identity using spectroscopic techniques, artificial intelligence and sensors operating at the nanometer scale.

PROTEIN-ID falls within the framework of an international scientific effort to obtain a complete atlas of human proteins, the proteome, but with the specific purpose of identifying which proteins are present - and not just encoded at the genome level - in the human body. This knowledge is essential to predict the onset of possible diseases. The device could be used in medical diagnostics, genomics and the identification of biological contaminants, such as the SARS-CoV-2 virus.

How Artificial Intelligence is Transforming the Art Market

Prof. Roman Kräussl of the Faculty of Law, Economics and Finance is part of an international team of researchers investigating the interactions between artificial intelligence and the secondary art market. In particular, their paper "Biased Auctioneers", published in the top-ranked Journal of Finance, examined the possibility of predicting the value of an artwork at auction using machine learning. In the study, which combined finance and computer science, the researchers used machine learning to create a neural network algorithm that mimics the work of human appraisers by generating price predictions. By leveraging both visual and non-visual information about artwork, the researchers found out that the algorithm effectively predicted the prices at auction, although human experts proved to be more accurate. Still, the algorithm could be used in real-world applications to support human appraisals, such as aiding auctioneers with their pre-sale evaluations.

C²DH Partners with De Gruyter Oldenbourg to Launch the Journal of Digital History

One of the key missions of the University's Centre for Contemporary and Digital History (C²DH) is to examine the consequences of digital transformation for historical research in its critical, experimental and interdisciplinary aspects, and to use findings to devise new practices and research tools. In 2021, the centre established a partnership with academic publisher De Gruyter Oldenbourg to develop new concepts for scholarly publications, leading to the launch of the Journal of Digital History (JDH).

The publication aims to become the central hub for critical debate and discussion in the field of digital history by promoting a new form of data-driven scholarship and transmedia storytelling. It sets new standards based on a novel multi-layered approach, with each article including a narration layer, a hermeneutic layer and a data layer. In addition to the JDH, the C²DH launched three book series in 2021 associated with De Gruyter Oldenbourg, the "Digital History and Hermeneutics" series, edited by Andreas Fickers, Valérie Schafer, Sean Takats and Gerben Zaagsma; the "Transnational History of Luxembourg" series, edited by Benoît Majerus and Denis Scuto, positioning the C²DH as a platform for studies on Luxembourg from a European perspective; the "Public History from European Perspectives" series, edited by Karin Priem and Thomas Cauvin.

The Sustainability Challenge

The University of Luxembourg has identified sustainable and societal development as a key aspect of its mission. The research community plays a key role in advancing sustainable and societal development, as global sustainability challenges range from social, economic and legal topics to engineering, science and environmental issues. The University conducts a wide range of research projects in this area and aims to be a role model for sustainable and responsible development. Key achievements and initiatives are described below.

New Paul Wurth Chair in Energy Process Engineering: Addressing the Green Challenge

The University of Luxembourg and Paul Wurth S.A., a company of SMS group, signed a five-year agreement to create and finance the Paul Wurth Chair in Energy Process Engineering, designed to conduct cutting-edge research in the field of hydrogen processing and related aspects of carbon-neutral industrial processes. Prof. Bradley Ladewig was appointed to the chair.

The chair builds on an existing longterm cooperation between Paul Wurth S.A. and the University, particularly in Bachelor and Master teaching, as well as the Hydrogen Think-tank initiated within the Department of Engineering.
It intends to be a catalyst for new research activities related to the future hydrogen economy.

The partnership reflects Luxembourg's ambition to develop a centre of excellence in fields surrounding the emerging hydrogen economy, to stimulate industrial development in process engineering, hydrogen and low carbon emission technologies, and to increase the output of skilled engineers.

Prof. Bradley Ladewig

FNR AFR Grant to Support Maritime Shipping Sustainability

Neeraj Podichetty, a 2021 graduate of the Master in Logistics and Supply Chain Management at the Luxembourg Centre for Logistics and Supply Chain Management, was awarded an FNR Aides à la Formation-Recherche (AFR) grant to calculate the reduction in carbon footprint offered by sustainable practices in maritime shipping. Podichetty's research project, supervised by Prof. Anne Lange, aims to help companies transport cargo more efficiently and sustainably. By developing precise mathematical models, Podichetty aims to measure the level of carbon reduction attained when companies share resources such as ships, thereby increasing their load and lowering the amount of emissions per container.

Neeraj Podichetty

SnT Partners with Encevo Group and LIST for Sustainable Energy Transition

The Interdisciplinary Centre for Security, Reliability and Trust (SnT) at the University of Luxembourg teamed up with Encevo Group and the Luxembourg Institute of Science and Technology to accelerate the transition to a sustainable energy landscape. By strengthening the ties between Encevo, the leading national energy player and Luxembourg's research community, the parties aim to launch the development of a long-term innovation programme and identify resources to execute joint projects in energy transition. The collaboration notably targets smarter and more intelligent energy grids, electricity and flexibility markets, renewable energies as well as data-driven business models in the energy sector.

First Edition of the Certificate Course in Sustainable Finance

The first cohort of participants from diverse professional backgrounds were awarded the Certificate in Sustainable Finance aiming to provide a comprehensive foundation in sustainable finance. The certificate course, which is intended for professionals in Luxembourg, is organised in the framework of the Chair and Research Programme in Sustainable Finance.

New Chair in Urban Regeneration for Esch-sur-Alzette: Strengthening Territorial Synergies

A new endowed Chair was established between the University of Luxembourg and the city of Esch-sur-Alzette for research and teaching activities in urban planning and urban regeneration. The chair, headed by renowned architect and urban planning researcher Prof. Markus Miessen, aims to support research projects that interrogate models of purely economic growth towards a more inclusive culture of civil society, quality of life, and sustainable futures.

Focus on the Space Sector

Since 2019, the University offers the Interdisciplinary Space Master, a specialised Master's degree to foster the development of a talent pool for the space sector. Eight research groups at the Interdisciplinary Centre for Security, Reliability and Trust (SnT), including the Master's lecturers, conduct a multitude of research projects in satellite communications, autonomous systems, orbital and planetary robotics, small satellites, and other related fields of study. These focus on both fundamental and applied research questions in partnership with the New Space industry, with the ultimate goal of supporting Luxembourg's commitment to space exploration and in-situ resource utilisation (ISRU). At the same time, the Master in Space, Communication, and Media Law at the Faculty of Law, Economics, and Finance covers the regulatory aspects of space, communication, ICT and media law.

The University of Luxembourg also is a partner in UNIVERSEH, a European University Alliance focusing on topics related to space. These activities underline a strong commitment to contribute to the international development of space-related education, as well as of scientific and industrial research activities at the highest level.

LCSB and SnT's "BRAINS" Project Explores Microgravity in Outer Space

An interdisciplinary team of students from the University of Luxembourg are set to send brain organoids – so-called mini-brains – to the International Space Station to carry out research in its microgravity environment. The project, entitled "Biological Research using Artificial Intelligence for Neuroscience in Space" (BRAINS), investigates whether these organoids would be less densely packed, and could grow larger in space than in standard gravity conditions.

"Microgravity provides a more accurate scenario than on-ground. It mimics the free-floating state during embryonic development resulting in a more physiologically relevant organisation," says BRAINS team leader Elisa Zuccoli from the LCSB.

The BRAINS Team. From left to right: José Ignacio Delgado Centeno, Lina María Amaya Mejía, Elisa Zuccoli, Daniela Vega Gutiérrez and Aelyn Chong Castro.

New Space Labs at SnT for Research on Microgravity and 5G

In 2021, SnT launched two new state-of-the-art laboratories – the 5G-SpaceLab and the Zero-G Lab. The 5G-SpaceLab has seen space researchers at SnT collaborate to set up a unique, integrated space communications platform for the next generation of space applications. It emerges from the joint efforts of SnT's existing space labs, including the CubeSatLab, LunaLab, SatComLab, and the Concurrent Design Facility.

The Zero-G Lab is designed to allow students and researchers to test the movement of in-orbit robotics, satellites and other spacecraft in a microgravity environment – similar in concept to an air hockey platform. Seeing how spacecraft and orbital robotics can be controlled or perform with decoupled systems in this environment provides students the unique chance of understanding and forecasting their behaviour in space.

Professors Djamila Aouada and Miguel Angel Olivares Mendez lead the Zero-G Lab at SnT.

SnT and Spacety Partner to Tackle Space Debris Pollution

Space debris is an environmental catastrophe threatening the scientific community's efforts in space as well as the fast-growing market of small satellites. In 2021, SnT entered a partnership with Spacety, a global company specialised in small satellites and satellite-based services, to study small satellite solutions for active space debris removal. The joint team has also received two FNR grants related to this partnership. Their project is leveraging the potential of the University's 2D microgravity facility, the Zero-G lab, to design and validate a CubeSat-based active space debris removal system, allowing it to reach a technology readiness level (TRL) of up to six.

The SnT/Spacety team. From left to right: Baris Can Yalcin, Olga Christidi, Gonzalo Rodriguez, Maxime Hubert Delisle and Xiao Li.

University participates in launch of "Beyond UNIVERSEH"

As a member of the UNIVERSEH Alliance, the European Space University for Earth and Humanity, the University contributed to the launch of "Beyond UNIVERSEH", the research pillar of UNIVERSEH. Its main goal is to develop a research policy roadmap by 2035, and a vision by 2050, for the European space sector. This roadmap will implement a sustainable, integrated research and innovation network within the UNIVERSEH alliance and beyond.

10th anniversary of the SES Chair in Space, Satellite Communications and Media Law

2021 marks ten years of the Chair in Space, Satellite Communications and Media Law, a strategic partnership between the global satellite operator SES S.A. and the University of Luxembourg. This extended multi-year agreement will continue developing innovation in all relevant aspects of space, information communications technology (ICT) and media law in the field of satellite communications. In addition to the related Master in Space, Communication and Media Law (LL.M.) and research undertaken in these fields, the SES Chair, held by Prof. Mahulena Hofmann, contributes to existing media law research by including space law and global telecommunications issues.

Prof. Mahulena Hofmann

Doctoral Studies at the University

Doctoral training is one of the pillars of teaching and research at the University. Doctoral candidates play a substantial role in the research activities that are conducted in Luxembourg, and they contribute to the University's positioning as a leading research university. PhD candidates from all over the world also represent an important asset to diversify and deepen the talent pool that Luxembourg relies on. During the academic year 2020-2021, nearly 1,000 doctoral candidates were registered at the University, and 151 obtained their degrees.

Honouring Doctoral Excellence

In 2021, the University honoured 17 doctoral graduates with the Excellent Thesis Award, recognising the excellent quality, originality and depth of knowledge of their doctoral theses. Ten of the 17 award winners were female candidates.

A selection of winners is presented here.

The University's Doctoral Schools

The University of Luxembourg has four doctoral schools:

- **The Doctoral School of Science and Engineering (DSSE)** offers six doctoral programmes in Engineering, Computational Sciences, Computer Science and Computer Engineering, Mathematics and Applications, Physics and Materials Science, and Systems and Molecular Biomedicine.

- **The Doctoral School of Law (DSL)** responds to the needs of PhD candidates educated in different legal systems and prepares them for competitive academic and non academic future careers.Courses on general skills and methods are combined with specific training in legal topics, including themes attached to externally funded research programmes on doctoral education.

- **The Doctoral School in Economics, Finance and Management (DSEFM)** aims at providing doctoral candidates with a high-calibre research environment meeting the standards of the best universities in Europe and North America. The School works with private partners as well as local and international public institutions.

- **The Doctoral School in Humanities and Social Sciences (DSHSS)** offers its training within four different doctoral programmes: Humanities, Education, Social Sciences and Psychology.

Research Awards

Excellence in research combines vision, creativity and constant commitment to innovation. In 2021, many University researchers were honoured with awards for their outstanding contributions to world-class research.

Prof. Jan Lagerwall Obtains an ERC Grant to Produce Smart Mechanical Sensors

Jan Lagerwall, Professor of Experimental Polymer Physics, has obtained a Proof-of-concept grant from the European Research Council for the production of sheets and fibres of smart sensors applicable on various materials, to be used in in smart textiles, as well as to monitor the health and stability of buildings.

In fact, the Internet of Things, Industry 4.0, and the increased availability and performance of sensors have led to new generations of smart products that can communicate real-time status information. Mechanical sensors, which are often measuring strain, are key components in many smart objects. However, current technology typically employs one-dimensional strain sensors with low spatial resolution, which provide limited information about complex deformations. Prof. Lagerwall and his team proposed a solution offering two-dimensional distributed strain sensing with high resolution, as well as a one-dimensional version that is very interesting for smart textiles.

Their two new concepts for non-electronic strain sensing, based on the mechanochromic response of Cholesteric Liquid Crystal Elastomers (CLCEs), change colour in response to mechanical deformation. Distributed strain sensors are highly useful for detecting and monitoring cracks in concrete structures as a function of ageing and wear, and after extreme events like earthquakes, hurricanes, or floods they can help determine if buildings have suffered dangerous plastic deformations. With the next generation of smart buildings being built to counter these problems, there is a strong market opportunity for suitable mechanical sensors," explains Prof. Lagerwall.

Prof. Jan Lagerwall

Prof. Alexandre Tkatchenko

Prof. Tkatchenko Awarded a New ERC Grant to Develop Novel Chemical Discovery Platform

Alexandre Tkatchenko, Professor of Theoretical Chemical Physics and Head of the Department of Physics and Materials Science, was awarded a Proof-of-Concept grant from the European Research Council to develop a novel chemical discovery platform. The grant supports the development and preparation for commercialisation of "Chemical Space Machine" – a platform for chemical modelling that combines molecular quantum mechanics and artificial intelligence (AI).

Today, the discovery and design of chemicals with tailored properties, such as new drugs, antivirals, antibiotics, catalysts or battery materials, requires a fundamental paradigm shift in searching unchartered swaths of the vast chemical space.

To enable this shift, Prof. Tkatchenko and his research team inverted the selection pyramid of chemical design, by starting with pre-defined parameters to design new chemical entities through reliable molecular quantum calculations and AI-enabled algorithms. To allow others to benefit from this innovative approach, they integrated the methodology they developed over the last decade into a commercial platform for chemical modelling.

"Recent research in our field enables expedient searches of novel molecules in vast chemical spaces. Now we are ready to put this technology to use to answer molecular design questions in chemical and pharmaceutical industries. We will work together with our industrial partners towards enabling the 'chemical discovery revolution'", says Prof. Tkatchenko.

Professors Lindsay Flynn and Etienne Fodor Awarded FNR ATTRACT Fellowships

Two ATTRACT Fellowships awarded by the Luxembourg National Research Fund (FNR) in 2021 strengthen research units in social sciences and physics.

Prof. Lindsay Flynn's FNR ATTRACT Fellowship investigates the relationship between housing policies and inequality, acting within a theoretical framework that is interdisciplinary and draws on political science, sociology, demography, and economics. The project, entitled PRO-Active Policymaking for Equal Lives (PROPEL), combines qualitative and quantitative research methodologies to study how housing policy regimes influence inequality within and between generations in affluent democracies. This FNR ATTRACT Fellowship is endowed with two million euros over five years.

Prof. Etienne Fodor conducts research on active matter, a novel class of nonequilibrium systems composed of self-propelled agents. Prof. Fodor's project employs and develops statistical mechanics concepts to identify possibilities of optimal control in active matter. His research goals are to both find answers to fundamental questions in theoretical physics, as well as to identify possible applications such as active micro-engines. Prof. Fodor's FNR ATTRACT Fellowship is endowed with 1.5 million euros over five years.

Prof. Lindsay Flynn

Prof. Etienne Fodor

Researchers Commended at the FNR Awards 2021

The FNR Awards celebrate outstanding efforts in research. In 2021, Dr. Christa Birkel, Prof. Stefan Krebs and the C²DH REMIX project team, as well as C²DH Director Andreas Fickers received awards across multiple categories.

Prof. Klucken is granted a FNR PEARL Chair in Digital Medicine to Develop Healthcare Innovative Tools

Prof. Jochen Klucken, Full Professor for Digital Medicine at the Luxembourg Centre for Systems Biomedicine (LCSB), was granted a 3.3 million euros FNR PEARL Chair for a joint research programme involving the LCSB, the Luxembourg Institute of Health and the Centre Hospitalier de Luxembourg. The Digital Medicine group led by Prof. Klucken will address the medical benefits, structural and procedural changes, and social acceptance of new digital healthcare services. The team will use Parkinson's disease as an example to develop and unlock the potential of digitalisation, studying how patients, doctors and therapists could make the most of data that are continuously recorded in the patient's home environment. Based on this, the use of other patient-centred digital tools, including wearable sensors and smartphone apps, will then be evaluated and integrated into healthcare.

Example of a gait sensor.
Photo credit: Portabiles HCT

FNR ATTRACT to Fund Research in Quantum Physics Towards Sustainable Energy Solutions

Aurélia Chenu, Associate Professor within the Department of Physics and Materials Science at the Faculty of Science, Technology and Medicine, was awarded FNR ATTRACT funding to create her own group in quantum physics to conduct research on quantum dynamics and control. Chenu has been working for more than nine years in the broad field of quantum science and technologies, and she is specifically looking into solutions for sustainable energy production. "My hope is that we can help orient the search for new materials for artificial photovoltaics toward a systematic and quantitative approach, develop new ideas for quantum computing, or stimulate projects merging physics and biology. The potential is huge, and we need to develop quantum science and technologies in Luxembourg to build international leadership in these emerging future technologies," she stated.


Prof. Aurélia Chenu

Professors Stéphane Bordas and Alexandre Tkatchenko Confirmed Among World's Highly Cited Researchers

In 2021, professors Stéphane Bordas and Alexandre Tkatchenko were ranked again among the world's most influential academics on Clarivate's Highly Cited Researchers 2021 list. Their publications rank in the top 1% by citations for field and publication year in the Web of Science citation index, demonstrating outstanding influence among their peers. Prof. Stéphane Bordas has been on the list consecutively since 2015, and Prof. Alexandre Tkatchenko since 2018.

LetzMath Wins the World Summit Awards

For the first time ever, a Luxembourgish start-up was among the 40 winners of the World Summit Awards, an international competition promoting digital innovation for the improvement of society. The start-up, LetzMath, participated with its application Magrid, a math learning solution.

Magrid is a language-neutral pedagogical programme for improving the development of early visual-spatial and mathematical abilities. The app removes the language barrier for learning mathematics, thus providing equal educational opportunities to learners, including the typically unserved population of those who learn in a second language, as well as those with impaired hearing and language disorders.

Magrid was launched via the University of Luxembourg's Entrepreneurship Programme and Incubator as a result of Tahereh Pazouki's doctoral research project.


Dr. Tahereh Pazouki

Studying at the University: A Life-Changing Experience

Studying at the University of Luxembourg is a genuinely enriching experience. As an international university with a global reputation for high-quality teaching and research, the University is committed to provide students with the best learning opportunities and help them develop the skills that will lay the foundation for success, enabling them to reach their full potential.

By striving for excellence, we prepare students for strong, forward-looking career paths in Luxembourg and beyond.

In 2021, the University counted more than 6,900 student registrations. Among these, more than half were international students from over 135 countries. The teaching staff, from circa 100 countries, is similarly diversified.

Teaching at the University of Luxembourg is multilingual. The programmes are primarily bilingual (French/English or French/German), some are trilingual, and others are entirely taught in English.

The University of Luxembourg offers 17 Bachelor's and 46 Master's degrees, three medical residency programmes, 16 lifelong learning courses and vocational training opportunities, as well as personalised PhD programmes in four doctoral schools.

New Study Programmes

In line with ongoing societal and global challenges, the University has developed new study programmes in strategic disciplines such as Data Science and Medicine in partnership with national and international institutions from the public and private sectors.

The new and expanded study programmes launched in 2021 include:

- Three new medical specialisations: General Medicine, Medical Oncology, and Neurology
- Second year of Bachelor in Medicine
- Master's degree in Data Science
- New study track in the Master's degree programme in Finance and Economics: Digital Transformation in Finance
- Master in Logistics and Supply Chain Management: new Digital Procurement Track
- A new, redesigned Bachelor in Economics
- Bachelor's degree in Music Education

More Than 1,900 Graduates in 2021

The University of Luxembourg awarded more than 1,900 diplomas in the academic year 2020/2021, including 640 Bachelor's and 596 Master's degrees, 151 doctoral degrees and 519 other certifications (specialisation diplomas, vocational training and lifelong learning diplomas).

Expansion of Medical Studies

The University of Luxembourg is committed to training the next generation of health professionals with excellent career prospects. Following the launch of the Bachelor in Medicine in 2020, and the first student cohort's graduation in 2021, the University has been expanding its range of medical studies as part of a comprehensive offer aiming at increasing the number of medical graduates and boost medical research in Luxembourg.

Three new medical specialisations started in 2021, expanding the University's education offer with high-quality, multilingual medical training based on innovative technologies and therapies. The three programmes are:

- The Diplôme d'Etudes Spécialisées en Neurologie, a five-year professional qualification authorising the practice of neurology;
- The Diplôme d'Etudes Spécialisées en Oncologie Médicale, a five-year programme authorising the practice of oncology. The programme is full-time and includes one year of research;
- The Diplôme d'Etudes Spécialisées en Médecine Générale, a four-year course comprised of a three-year clinical training programme plus two semesters in a department specialising in biomedical, clinical or primary care research.

New Master's Degree in Data Science

A new Master's degree in Data Science, based on a multidisciplinary approach, was launched in 2021 to train students in data analysis, modelling, and management, and prepare them to work in areas such as artificial intelligence, cloud computing, machine and statistical learning, and big data.

The Master's degree in Data Science at the Faculty of Science, Technology and Medicine builds on existing synergies between the University's and two of its research centres, the Luxembourg Centre for Systems Biomedicine and the Interdisciplinary Centre for Security, Reliability and Trust. Teaching and research activities are led by renowned academics and researchers with world-class expertise in data science.

New Specialisation Track in Finance and Economics: Digital Transformation in Finance

A new study track, Digital Transformation in Finance, has been added to the Master of Science in Finance and Economics of the Faculty of Law, Economics and Finance. This new option adds to an existing roster of study tracks, including specialisations in Banking, Investment Management, Risk Management, Sustainable Finance, and Financial Economics. The track aims at boosting analytical and problem-solving competences through digitisation to offer new solutions to inherent problems in the sector.

New Specialisation Track in Logistics and Supply Chain Management: Digital Procurement

The track in Digital Procurement prepares students of the MIT SCALE Master in Logistics and Supply Chain Management for a professional career in global procurement organisations. It offers students a unique combination of an academic education in operations management with the study of digitalisation and its impact on procurement.

New Bachelor's Degree in Music Education

This programme offers intensive training through a combination of pedagogical theory and practice. Taught in four languages, it caters to future graduates interested in working in music education (delivered in Luxembourg by conservatories and commune-run music schools). It also opens the door to doing a Master's programme.

Master in Logistics and Supply Chain Management Ranked #1 Worldwide

The Master in Logistics and Supply Chain Management of the Faculty of Law, Economics and Finance was ranked #1 globally in the Supply Chain Management Master's category by Eduniversal, a global leader in higher education information. This is the sixth consecutive year that the prestigious Master's programme has secured the top spot. The Luxembourg Centre for Logistics and Supply Chain management offers its Master of Logistics and Supply Chain management through the MIT SCALE Network, founded by the MIT Center for Transportation and Logistics in 2003, which includes education and research centres in Spain, Luxembourg, Colombia, Malaysia, and China, with headquarters in Cambridge Massachusetts, USA.

Three New ACQUIN-accredited Study Programmes in Computer Science

The Bachelor in Applied Information Technology, the Bachelor in Applied Information Technology – Continuing Education Programme, and the Master in Information and Computer Sciences have been accredited by the German Accreditation, Certification and Quality Assurance Institute (ACQUIN), renowned for carrying out assessments and accreditations in the European higher education sector. The accreditation is granted until the end of September 2028.

Romain Soubeyran, Director General of CentraleSupélec, and Jens Kreisel, University of Luxembourg's Vice-Rector for Research, at the signing of the Memorandum of Understanding.

Regional Cooperation with CentraleSupélec School of Engineering

The University and CentraleSupélec (Metz Campus) signed in July 2021 a Memorandum of Understanding to strengthen academic collaboration and research in Luxembourg and the Greater Region, while reinforcing the international character of the teaching and research facilities.

The Agreement is an important cross-border partnership for the University of Luxembourg, encouraging regional cooperation and exchanges in areas of mutual academic interest.

EUMaster4HPC: European HPC Master to Launch in 2022

The University of Luxembourg is leading a consortium of European partners selected by the EuroHPC Joint Undertaking to launch EUMaster4HPC, the first pan-European High Performance Computing (HPC) pilot Master's programme, as of Autumn 2022. The consortium, consisting of 35 universities and partners, offers courses that will provide students with outstanding career perspectives in the rapidly expanding field of HPC, encompassing multiple applications in artificial intelligence, genetics, biology and economics.

The curriculum of the HPC pilot Master's programme is designed in a modular structure to facilitate a full or partial integration of the modules into new or existing Master's programmes, strengthening mobility between European universities, research centres and industry. The students can choose among eight awarding universities for the Master's, including the University of Luxembourg.

The initiative is coordinated by Pascal Bouvry, Professor of Computer Science and Special Advisor to the Rector for HPC.

University's Teaching Receives Positive Evaluation by NVAO

The University of Luxembourg was recently evaluated by the Accreditation Organisation of the Netherlands and Flanders (NVAO), which submitted the University's educational mission and activities to the scrutiny of an international panel of 35 external reviewers, including higher education experts, university leaders, academics and students.

The conclusions of the external evaluation, presented in late 2021, confirmed the University's commitment to international standards for ensuring quality in higher education. The panel's recommendations to continue the institutionalisation of a comprehensive quality assurance framework for education in compliance with European guidelines, including the creation of benchmarking opportunities and the certification of teaching qualifications, demonstrate that the direction the University has taken in the past inspires confidence in the future.

The Rector of the University of Luxembourg, Prof. Stéphane Pallage, stated: "External evaluations are for us an excellent opportunity to learn and to improve. This evaluation confirms the outstanding commitment of the University's academic community, students and personnel, to the development of educational quality. The evaluation panel considers this commitment one of the key strengths of the University."

Studying during the COVID-19 pandemic

Throughout the COVID-19 pandemic in 2021, the University ensured a healthy working, learning and living environment on all campuses and facilities, for staff and students.

The University maintained all its activities and continued to fulfil its missions.

In its research activities, the University continued to focus on key aspects and the impact of COVID-19, generating numerous studies and publications with international exposure (see pages 16 to 17).

Continued access to the LLC, the Luxembourg Learning Centre on Belval Campus

The Luxembourg Learning Centre (LLC) on Belval Campus is an extensive documentation infrastructure providing innovative facilities, including an extensive library and spacious lecture halls for courses, workshops and seminars. The LLC remained open during the pandemic and rapidly reverted to its full capacity as soon as the health measures were lifted.

Making Teaching COVID-proof

The University invested approximately one million euros to convert more than 70% of all classrooms into Webex classrooms, used for simultaneous in-person and remote teaching. In fact, approximately one-third of all classes were delivered in hybrid mode in 2021. Hybrid learning, combining in-person lectures and real-time video-conferencing, allowed for learning to take place in the best possible conditions, ensuring continuity of teaching and allowing lecturers to maintain close contact with students.

Online Campus Life and Student Support

To support the mental and physical well-being of students and staff, the Campus Life programme, including the courses and activities in the framework of the Campus Sport, Campus Art and Campus Well-Being initiatives switched to an online format to help maintain and improve personal balance, even at a distance. In addition, the University's Inclusion and Psychological support team have expanded their support, including through the Umatter platform.

What Students Say About the University

Marie HAUBRICH
(Bachelor in Biology – Life Sciences, German)

"I really enjoyed my first semester at the University. My studies are very diverse, so I was able to make friends in other study programmes. The Belval Campus and the Luxembourg Learning Centre are very modern and offer a great learning environment. What I like most about my studies is that I use three languages every day and have the opportunity to meet people from everywhere! "

Andrea Daniela RODRIGUEZ VERA
(Master in Wealth Management, Ecuadorian)

"My first semester at the University of Luxembourg has been one of the most rewarding and enriching experiences of my life! Uni.lu stands out not only for its academic excellence, but also for the friendliness and warmth of its faculty and administrative staff. Among the things I appreciate the most about the University are the various seminars, workshops, and activities that are constantly organised to encourage students as well as to make them feel at home. I am beyond grateful for all the wonderful friendships I have made here so far, and I look forward to continuing to grow personally and professionally in this amazing international community!"

Marine DEGODENNE
(Master in European Law, Belgian and Luxembourgish)

"The University of Luxembourg is like a big community, a big family of which you become part. In the Master in European Law, the courses are taught in both French and English, which is a major asset in today's world. The atmosphere between the students is very pleasant, there is a lot of mutual aid, and you never feel alone. The professors are always there for us, always ready to help us in any moment of our studies. The University is multicultural, people come from all around the world, and this allows us to learn about different cultures and grow intellectually."

Mohamed Lamine Oumar BANGOURA
(Master in Parliamentary Studies, Guinean)

"The University of Luxembourg is a cosmopolitan and multicultural institution where we find a diverse range of nationalities from all across the globe. The cultural diversity of the students at this modern and young University has allowed me to meet wonderful people and learn about other cultures. The indisputable reputation of this University, the pragmatism of its teachings, a highly qualified and experienced teaching staff, the seminars held on a regular basis within my department, and its strong ties with government and private sector administrations, which facilitate practical training for students, are just a few of the many things that set it apart."

Sumit GOSKI
(Interdisciplinary Space Master, Indian)

"My experience at the University of Luxembourg has been amazing so far. The University has so much to offer, you just need to be proactive. The Interdisciplinary Space Master programme, which is a fairly new programme at the University, integrates very well in the Luxembourg space ecosystem. Moreover, the content delivered is very up-to-date and relevant to recent advancements in the space sector. I am looking forward to all the exciting things that I will have an opportunity to learn in the coming semesters."

Student Life

The SEVE (Service des Etudes et de la Vie Etudiante) is dedicated to accompanying and guiding students throughout student life, from registration to final graduation. It provides administrative support, information and guidance, covering all processes of student integration into the University community. The SEVE is the reference point for applications, study programmes information, housing, mobility, health, well-being and inclusion. It also provides assistance in finding internships and student jobs. In 2021, Grégory Dubost was appointed new Head of SEVE, taking over from Stefanie Knill.

6,990 Registrations in 2021

The SEVE admission and enrolment office processed 3,148 Bachelor and 1,902 Master registrations for the academic year 2020/2021 (excluding re-enrolments). In addition, 1,027 registrations for doctoral degrees and 913 registrations for vocational training and lifelong learning courses added to the total of 6,990 student registrations.

Student Housing

The University provides accommodation in 31 student housing facilities, totaling about 1,000 residential units (studios, apartments), located in the centre and the south of Luxembourg.

The Career Centre: Planning for the Future After Graduation

The University's Career Centre is the point of contact for activities related to employability, providing advice on applications and career paths. Its goal is to help students prepare for the best career opportunities after graduation offering tailored support, advice, and helping to identify aspirations, potential, talents and passions. It offers workshops and interview simulations, personalised advice, information on job markets, and it facilitates contacts with professional networks.

UMatter

UMatter is a hub for our student support and well-being services offering a wide range of resources to help and guide students during their academic journey. It encompasses topics such as campus life, IT services, financial support, jobs and more.

The Inclusion team, headed by Joanna West, also offers mental health support, providing a listening ear as well as advice on a broad range of issues - personal, emotional, and psychological.

Launch of the Alumni Network

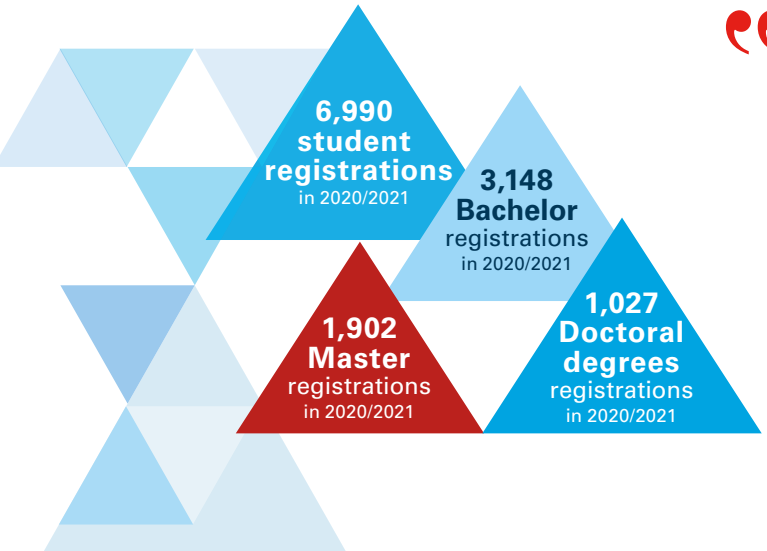
The Alumni Network, headed by Andy Adams, was launched at the end of 2021. New graduates who registered received access to the GradPack, an exclusive package of discounts and networking memberships to help them in their transition to the professional world.

A Class Fund to help future students in difficult financial situations was also established together with the Student Delegation.

The Student Lounge

The Student Lounge is a place to unwind, relax and meet other students in between classes and lectures. The student association that runs the Student Lounge is SAUL - Student Association for University Campus Life.

Grégory Dubost, new Head of SEVE



> It is a privilege and a challenge to head the Student Department since 2021, to accompany students throughout their university experience and facilitate their educational and social life on campus. With the SEVE Team, we are committed to ensure a safe learning experience and offer students support and guidance at every step of their integration and student life.
>
> Grégory Dubost

From left to right: Anne Feltz, Naveen Aruchamy, Sandy Heep, Patrick-Claus Leske, Nikole Kaserová, Ruth Lau, Aymeric Le Drezen, Susanna Zohrabyan.

The Student Delegation

The Student Delegation elected in 2021 has set its focus on three main priorities: improve the housing situation at the University, promote student life, and foster sustainability. Headed by Nikole Kaserová its first female leader, the Student Delegation is focused on making the University a great place to study. The delegates are involved and active in various committees, making sure that the student voice is heard.

Members of the delegation and areas of focus

- Nikole Kaserová, Master in European Business Law (LL.M.), President
- Patrick-Claus Leske, Bachelor in Engineering, in charge of Academic Affairs
- Ruth Lau, Master in Wealth Management, in charge of Sustainability
- Aymeric Le Drezen, Bachelor in Computer Science, in charge of Student Life
- Sandy Heep, Trinationaler Master in Literatur-, Kultur- und Sprachgeschichte des deutschsprachigen Raums, in charge of Student Life
- Anne Feltz, Bachelor en Cultures Européennes - Philosophy, in charge of Internal Management
- Susanna Zohrabyan, Master in Learning and Communication in Multilingual and Multicultural Contexts, in charge of Communication/Marketing
- Naveen Aruchamy, Materials Research & Technologies Department at LIST, in charge of PhD Department

The Student Associations: Connecting Students

Student associations provide students with valuable skills such as the ability to work in a team environment, to engage with the University beyond academics, and to belong to a family away from home. This type of engagement is essential to making the most of their time at the University. This positive experience can help networking with other peers and promote teamwork to defend common interests and improve student life.

The University has 23 recognised student associations and clubs.

Details here.

A Partner to Society

A university is a place where knowledge is created and new ideas are born, but also where creative minds transform their research insights into practical applications and new businesses. It is part of the University of Luxembourg's mission to deliver research and innovation with a positive impact on the regional economy and society. Throughout 2021, the University has sought out meaningful partnerships and outreach projects to further strengthen its network with other institutions, public authorities and corporations in Luxembourg – and beyond.

The University, a Key Player in the COVID-19 Task Force

In 2021, the University pursued its systematic involvement in the activities of the national COVID-19 Task Force. Over a dozen work packages have been launched to address various issues caused by the pandemic, including a cross-sectional study on infection prevalence, the search for predictive markers of severity, an interventional clinical trial with existing drugs, diagnostic capacity and large-scale testing strategies, and more. To learn about some of the specific projects, see pages 16-17.

Leveraging Hydrogen to Decarbonise the Steel Industry

Hydrogen is considered a crucial factor in future energy systems and energy transformation, as well as in the transition to greener energy sources. For the steel industry, it promises to become an alternative to traditional reducing agents in steelmaking and as a driver of the large-scale transformation of steel production, which is a large emitter of CO2. This is one of the drivers behind the 2021 creation of the Paul Wurth Chair in Energy Process Engineering, hosted at the Faculty of Science, Technology and Medicine in the Department of Engineering. The chair conducts state-of-the-art research in the field of hydrogen processing and related aspects of carbon-neutral industrial processes, and engages in teaching at Master, Bachelor and doctoral level. "The Paul Wurth headquarters in Luxembourg is home to SMS group's global hydrogen competence centre. Together, we are working on the decarbonisation solutions of tomorrow, with the clear goal of enabling CO2-free steel production worldwide," said Prof. Hans Ferkel, CTO of SMS group, owner of Paul Wurth S.A.

SnT Partnership Day 2021: Together We Shape Tomorrow

The Interdisciplinary Centre for Security, Reliability and Trust (SnT) annual Partnership Day was an important opportunity to highlight ICT research projects conducted in partnership with organisations from the public and private sectors. These activities contribute to establish Luxembourg as a European centre of excellence and innovation in the field of secure, reliable and trustworthy ICT systems and services. In addition to featuring 30+ demo stands, six researchers held flashtalks about the partner projects they were leading, namely:

- ARTAGO, a project focusing on the use of AI for GDPR compliance checking, conducted in partnership with global law firm Linklaters;
- Inductive, a project for optimising EV charging conducted in partnership with Fondation de Luxembourg and Fondation Enovos;
- PROOFILE, a project for deep fake detection conducted in partnership with Post Luxembourg;
- DigitalUs, a FinTech start-up for know-your-customer technology and SnT's most recent spin-off;
- Connected Dynamic Insurance, a project conducted in partnership with insurance company Foyer;
- Active Space Debris Removal, a project for cleaning space debris, conducted in partnership with Spacety (see page 21).

University Incubator Partnered With MIT to Launch MIT Catalyst Luxembourg

In 2021, the University of Luxembourg Incubator partnered with the Massachusetts Institute of Technology to launch the FNR KITS-funded MIT Catalyst Luxembourg fellowship programme. The fellowship, which started in Spring 2022, is dedicated to researchers and students from research institutions in Luxembourg focusing on developing technologies to address unmet medical needs.

Scienteens Lab Launches New Workshops in Computer Science for Secondary School Pupils

The Scienteens Lab (De Labo fir Jonker), an extracurricular learning centre of the University of Luxembourg, has organised its first workshops in computer science for secondary school pupils. Designed as an interactive introduction to programming and artificial intelligence, these workshops were developed with the support of the Royal Bank of Canada and are the first step toward extending the Scienteens Lab's activities to the field of computer science. Building on these new workshops, the Scienteens Lab has proposed the creation of a comprehensive programme in computer science in collaboration with the Faculty of Science, Technology and Medicine. This project, entitled "Become A Computer Scientist", has gained the support of the National Research Fund (FNR). For the past eight years, the Scienteens Lab has offered workshops for over 9,400 pupils.

Five Publications in Top-Tier Finance Journals

Reflecting the high quality of its research output during the year, the Department of Finance of the Faculty of Law, Economics and Finance (FDEF) had five publications in the top three ranked finance journals.

Journal of Finance:

- "Skill, Scale, and Value Creation in the Mutual Fund Industry" by LAURENT BARRAS (co-authors Patrick Gagliardini, Olivier Scaillet)

Review of Financial Studies:

- "When a Master Dies: Speculation and Asset Float" by JULIEN PÉNASSE (co-authors Luc Renneboog, José A. Scheinkman)
- "Institutional Investors and Infrastructure Investing" by ROMAN KRÄUSSL (co-authors Aleksandar Andonov, Joshua M. Rauh)
- "Gendered Prices" by ROMAN KRÄUSSL (co-authors Renee B. Adams, Marco A.Navone, Patrick Verwijmeren)

Journal of Financial Economics:

- "Inspecting the Mechanism of Quantitative Easing in the Euro Area" by FRANÇOIS KOULISCHER (co-authors Ralph Koijen, Benoît Nguyen, Motohiro Yogo).

Nine ESA Projects Awarded to SnT in 2021

In 2021, nine research projects funded by the European Space Agency (ESA) were awarded to SnT, all focusing on the industrial application of cutting-edge technologies. ESA's Partnership Projects introduce space-based solutions into the commercial market, with the goal of fostering competitiveness in the satcom sector. In particular, eight of the projects look at concrete applications for state-of-the-art satellite communication solutions. These are all conducted by SnT's Signal Processing and Communication group, headed by Prof. Symeon Chatzinotas. Funded by ESA together with LuxIMPULSE, the ninth research project focuses on the proof of existence and integrity of digital data, and is conducted by the Computer Vision, Imaging, and Machine Intelligence group led by Prof. Djamila Aouada. Here is the complete list of projects:

Project	Principal Investigator	Role of the University	Programme
ANCSAT-IoT – Agile Network Configurations 5G IoT over Satellite	S. Chatzinotas	Partner	ESA
SATNEX V – Satellite Network of Experts V	S. Chatzinotas	Partner	ESA
SKYTRUST – Proof of Existence and Integrity of Digital Data	D. Aouada	Partner	ESA / Luximpulse
EGERTON – Efficient Digital Beamforming Techniques for On-Board Digital Processors	S. Chatzinotas	Coordinator	ESA
SAT-SPIN – Satellite Communications via Space-Based Internet Service Providers	S. Chatzinotas	Coordinator	ESA
SPAICE – Satellite Signal Processing Using an Off-the-shelf AI Chipset	S. Chatzinotas	Coordinator	ESA
DIVERSITY – User Terminal with Path Diversity for Constellations	S. Chatzinotas	Coordinator	ESA
5G-LEO – 5G-Enabled Ground Segment Technologies Over the Air Demonstrator	S. Chatzinotas	Partner	ESA
SYMBOL – VHTS SYstem EMulator Based on Functional MOdeLling of the System	E. Lagunas	Partner	ESA

Inter-University Cooperation Between Luxembourg and Laos Renewed

The University of Luxembourg and the Directorate for Development Cooperation and Humanitarian Affairs of the Luxembourg Ministry of Foreign and European Affairs have agreed to extend the Inter-University Cooperation project between the University's Faculty of Law, Economics and Finance and the National University of Laos in Vientiane, a project which started in 2017 with an initial four-year agreement. The Inter-University cooperation seeks to foster a genuine legal culture and reinforce best practices for law students, lecturers and researchers at the National University of Laos, and more specifically the Faculty of Law and Political Science. The ultimate goal of the project is to promote the rule of law in Lao People's Democratic Republic by supporting and enriching both its research and teaching environments, with a focus on the correct application of legal rules.

A Partner to the European Capital of Culture

The University of Luxembourg is a partner of the European Capital of Culture Esch2022. Numerous activities at the University campuses promote cultural diversity, sustainable development and participation in the social life of the region.

Among the University's activities, six main projects are showcased during Esch2022:

Petite Maison: a small house on Belval Campus (± 100 m^2) demonstrates designing, building and deconstructing a small house by adopting a circular approach. The project works with salvaged, second-hand, recycled materials, with renewable and raw materials and/or materials with a high potential for reuse.

Remix Place: a project to explore people's attachment to places in the Alzette-Belval cross-border area. It uses and mixes the disciplines of geography, photography, and theatre to explore places, and represents inhabitants' experiences, stories, and emotions associated with places.

The Sound of Data – Science Meets Music: A joint project of the National Research Fund, the concert venue Rockhal, the Luxembourg Institute of Science and Technology and the University of Luxembourg transforms scientific data into music in an innovative and experimental approach with the help of data sonification. The project aims to merge the worlds of music and science during live performances at Belval.

Remixing Industrial Pasts in the Digital Age: A team of historians, anthropologists and designers explore the history of cultures, populations and territories of the southern Luxembourg Minett region from different perspectives. The project includes the "Historical Voices from the Minett" interactive multimedia installation, highlighting the multiple and sometimes contested identities of the region and the inhabitants.

Artificial Intelligence and the Future of Art: AIFA 2021 explores the growing interactions between AI and art. The workshop addresses issues such as the role of AI as a tool for art creation in visual and performing arts, how AI becomes a material component of an artwork, its weight in the evolution of contemporary art and how artists may inspire or trigger scientific and technological innovation in AI.

A Colônia Luxemburguesa: This transmedia project explores the story of Belgo Mineira (the Brazilian subsidiary of Luxembourg steel giant Arbed – precursor to today's ArcelorMittal) in the heart of Minas Gerais in the 1920s. At the time, the lack of qualified workforce provoked a massive movement of Luxembourgish migrants to Brazil in order to erect a steel plant and a surrounding industrial city. On a journey in search of her own identity and part of her roots, director and historian Dominique Santana makes a prodigious discovery of the town of João Monlevade, a strangely familiar tropical version of the industrial south of Luxembourg where she grew up.

The fundraising team from left to right: Philippe Lamesch, Lisa Smits, Florence Tacque, Ken Fukino

Donors Supporting Research and Innovation

The University's central fundraising office (Bureau du Fundraising) is dedicated to raise donations to finance the University's research and to support students. In 2021, new donors significantly contributed to fund important scientific research related to the COVID-19 pandemic but also to other major research projects in biomedicine, artificial intelligence and history.

> Thanks to the generosity of our donors, the University can continue to carry out research at a level that would otherwise not be possible. We are also excited to see that a growing number of corporate donors are interested to support scholarships allowing the University to attract excellent Master students.
>
> Philippe Lamesch, Head of the Fundraising office.

The CINVEN Foundation Supports COVID-19 Projects

The CINVEN Foundation made a substantial donation to support two of the University's major research projects on COVID-19: the PANDEMIC project, led by Prof. Conchita D'Ambrosio, that studies various aspects of the population's wellbeing during the pandemic, and the Virus-Surface Interactions in Dynamic Environments project led by Assistant Prof. Anupam Sengupta, that aims to gain a better understanding of the impact that various environmental factors (such as humidity, temperature, materials, etc.) have on the survival of SARS-CoV-2.

Quilvest Funds Biomedical Research at the University

The family-owned Quilvest SA financial group made a major donation this year to the Luxembourg Centre for Systems Biomedicine. Over the next five years, Quilvest's six-figure donation will support the laboratory of surgeon and researcher Prof. Frank Hertel, whose research aims to use clinical images to develop new algorithms, driven by AI and Deep Learning, that will improve classification of diseases. The research will be conducted by a dedicated Quilvest Research Fellow in Prof. Hertel's Interventional Neuroscience group.

CMCM Supports Research on Epilepsy

The Caisse Médico-Complémentaire Mutualiste (CMCM) is supporting a three-year project to study the dynamics of nerve cells in the brains of patients suffering from Parkinson's disease and epilepsy. Conducted by Prof. Alexander Skupin, the project aims to develop mathematical models that will help to better understand the critical transition of these nerve cells from a healthy to a diseased state. This research project is co-funded by the Luxembourg National Research Fund.

“The Cloud - Inspired by André Losch” – A New Auditorium Planned on Kirchberg Campus

The André Losch Foundation announced the funding of a new 4,000-m² University building. The Cloud, which is due to be delivered by 2025, will act as gateway to the Kirchberg campus. Its design has been awarded to renowned Japanese architects firm SANAA, while the project will be implemented in collaboration with the Luxembourg architectural firm Fabeck Architectes.

The Cloud will occupy a privileged location on Boulevard J.F. Kennedy and serve as a reference point for the urban development of the Kirchberg campus. It will include classrooms, seminar rooms, practical training rooms, two auditoriums (with 40 seats each) and a large conference room for 450 people. The building will also have several multifunctional rooms, offices and catering facilities.

Speaking at the announcement, Pit Reckinger, the President of the André Losch Fondation, said: “It is with great emotion that we announce the construction of the auditorium for the University of Luxembourg. This flagship project of our Foundation was started by its founder André Losch. It conveys his vision to act for the young in the field of education and for the advancement of knowledge. We are overwhelmed by the University’s enthusiasm and by the support of the State.”

Donations to the University of Luxembourg in 2021

By focus area:	
COVID	17%
Software/IT/AI	15%
Parkinson	13%
History	11%
Student Scholarship/Merit	8%
Scienteens Lab	8%
Student Support/Need	5%
Alzheimer	5%
Physics	4%
Rare diseases	4%
Other*	4%
Cancer	3%
Entrepreneur	3%

*The category ‘Other’ includes donations towards Gender Studies, Satellite research, Law as well as in-kind donations.

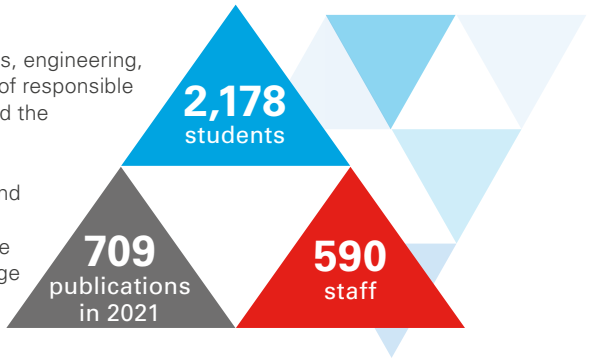
By donor type:	
Foundations	53%
Corporations	26%
Associations	13%
Private	8%

The Faculties

Faculty of Science, Technology and Medicine (FSTM)

The FSTM contributes multidisciplinary expertise in the fields of mathematics, physics, engineering, computer science and life sciences and medicine. The FSTM trains new generations of responsible citizens and leaders in order to better understand, explain and advance the society and the environment we live in.

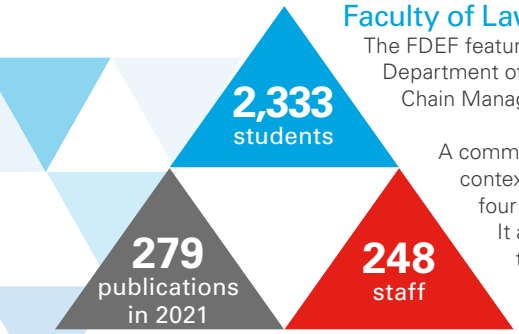
With eight Bachelor's and 18 Master's programmes, one doctoral school in science and engineering and lifelong learning programmes, the FSTM offers opportunities with multilingual and small group courses, early involvement in research projects, and close connections with institutions and industry. Its five departments undertake cutting-edge science and innovation in collaboration with local and international partners.



Faculty of Law, Economics and Finance (FDEF)

The FDEF features three departments – the Department of Law, the Department of Finance and the Department of Economics and Management, including the Luxembourg Centre for Logistics and Supply Chain Management (LCL).

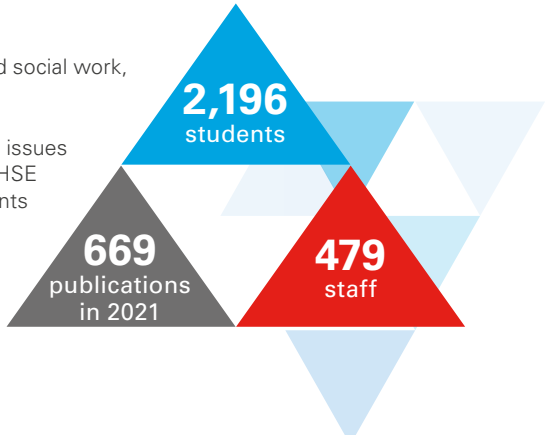
A common theme is a resolutely European and international outlook that is rooted in the Luxembourg context through a number of strong institutional and industry partnerships. The FDEF offers four Bachelor's and 12 Master's programmes as well as lifelong learning/vocational programmes. It aims to shape critical thinkers, able to provide solutions to the challenges of today and tomorrow in Luxembourg and beyond.



Faculty of Humanities, Education and Social Sciences (FHSE)

The FHSE covers a wide range of fields: behavioural and cognitive sciences, education and social work, geography and spatial planning, humanities and social sciences.

The Faculty's research and teaching focuses on social, economic, political and educational issues with the common goal of contributing to an inclusive, open and resourceful society. The FHSE offers five Bachelor's and 17 Master's programmes, and a doctoral school providing students with the necessary knowledge and skills to succeed in their future career.



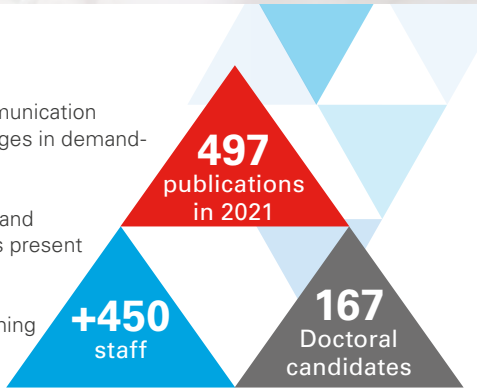
The Interdisciplinary Centres

Interdisciplinary Centre for Security, Reliability and Trust (SnT)

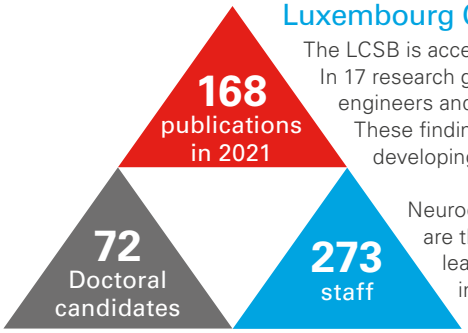
SnT conducts internationally competitive research with high relevance in information and communication technology (ICT), creating socio-economic impact. In addition to long-term research, SnT engages in demand-driven collaborative projects with industry and the public sector.

The Centre has set up a Partnership Programme with 60+ members targeting strategic areas, and addressing challenges confronting industry and the public sector in ICT. The resulting concepts present a genuine, long-lasting competitive advantage for companies in Luxembourg and beyond.

SnT has undergone rapid development since its launch in 2009, recruiting top scientists, launching over 90 EU and European Space Agency projects, creating a Technology Transfer Office, protecting and licensing IP, launching six spin-offs, and creating a dynamic interdisciplinary research environment.



Luxembourg Centre for Systems Biomedicine (LCSB)



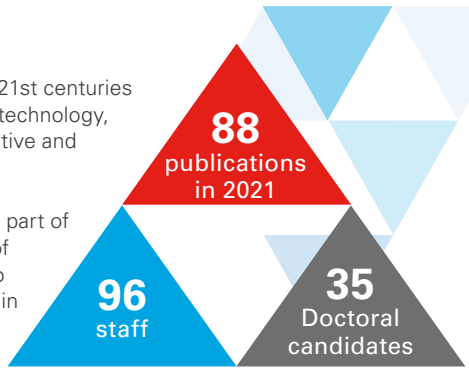
The LCSB is accelerating biomedical research by closing the gap between systems biology and medical research. In 17 research groups, collaborations between biologists, medical and computer scientists, physicists, engineers and mathematicians offer new insights into complex systems such as cells, organs and organisms. These findings are essential for understanding principal mechanisms of disease pathogenesis and for developing new tools in diagnostics and therapy.

Neurodegenerative diseases such as Parkinson's disease and the description of diseases as networks are the focus of the LCSB's research. The centre has established strategic partnerships with leading biomedical laboratories worldwide and with all major biological and medical research units in Luxembourg. The LCSB fosters collaboration with industrial partners and accelerates the translation of fundamental research results into clinical applications.

Luxembourg Centre for Contemporary and Digital History (C²DH)

The key focus areas of the C²DH are the history of Luxembourg and Europe in the 20th and 21st centuries and the burgeoning field of digital history, which explores the impact and potential of digital technology, tools and working methods for historical research. The centre serves as a catalyst for innovative and creative scholarships and new forms of public dissemination.

Public history, outreach and societal engagement with history in Luxembourg are an integral part of the centre's approach. The "Forum Z" event series serves as a platform for the discussion of current issues related to contemporary Luxembourgish and European history. The C²DH also houses a doctoral school in Digital History and Hermeneutics that provides valuable training in digital literacy for the next generation of history scholars.



Governance Bodies

Board of Governors

The Board of Governors decides upon the University's general policies and strategies and oversees the University's activities.

It has 13 voting members: 11 members are appointed by the government (of which two are proposed by the University Council). The head of the staff delegation and the head of the student delegation are also voting members of the Board of Governors. The Rector of the University and the Government Commissioner participate in a consultative role in meetings.

Chairman:

Yves Elsen
Managing partner and CEO of HITEC

Vice-Chairwoman:

Kristín Ingólfsdóttir
Professor and former Rector
at the University of Iceland

Members:

Yvonne Flour
Vice-Rector of Université Paris
Panthéon Sorbonne

Michel Goedert
Programme leader at Medical Research
Council Laboratory of Molecular Biology
in Cambridge, Honorary professor of
University of Cambridge

Gérard Hoffmann
CEO and Managing Director
of Proximus Luxembourg

Paul Lesch
Director of the Centre National
de l'Audiovisuel

Claudine Moulin
Professor at the University of Trier

Virginie Mucciante
Head of the staff delegation

Anke Müßig
Professor at the University
of Luxembourg

Georges Steffgen
Professor at the University
of Luxembourg

Jeannot Trampert
Professor at the University
of Utrecht

Sandra Visscher
Executive Director of UNICEF
Luxembourg

Nicolas Schreiner
(from November 2020
until November 2021)
Head of the Student Delegation

Nikole Kaserová
(since November 2021)
Head of the Student Delegation

Secretary General:

Massimo Malvetti
Secretary General

Anne Christophe
Deputy Secretary General

The Rectorate

Prof.
Stéphane Pallage
Rector

Prof.
Jens Kreisel
Vice-Rector
for Research

Prof.
Catherine Léglu
Vice-Rector for
Academic Affairs

Director of Administration and Finance

Dr
Erica Silvia Monfardini

Deans of Faculties and Directors of Interdisciplinary Centres

Prof.
Jean-Marc Schlenker
Dean of the Faculty of
Science, Technology
and Medicine

Prof.
Katalin Ligeti
Dean of the Faculty of
Law, Economics and
Finance

Prof.
Georg Mein
Dean of the Faculty of
Humanities, Education
and Social Sciences

Prof.
Björn Ottersten
Director of the
Interdisciplinary Centre
for Security, Reliability
and Trust

Prof.
Michael Heneka
Director of the
Luxembourg
Centre for Systems
Biomedicine
(since 1 January 2022)

Prof.
Andreas Fickers
Director of the
Luxembourg Centre
for Contemporary and
Digital History

University Council

The University Council assists the Rector in the organisation of teaching and research activities, decides on the orientation of study programmes and issues opinions on internal regulations, appointments of rectorate members, the four-year plan, the budget and other strategic decisions. It is composed of 38 members: 24 voting members (of which 18 are elected representatives of staff across 9 electoral colleges and 6 students designated by the student delegation) and 14 non-voting members (members of the management team and key representative officers: staff delegation, gender equality, inclusion officer).

Chair: Paul Heuschling, Professor elected by the University Council

Administrator: Nathalie Klopfenstein

Voting Members:

Representatives of Professors: Pascal Bouvry, Anke Müßig, Jang Schiltz , Antoine Fischbach, Georges Steffgen, Anne Grünewald, Jacques Klein;

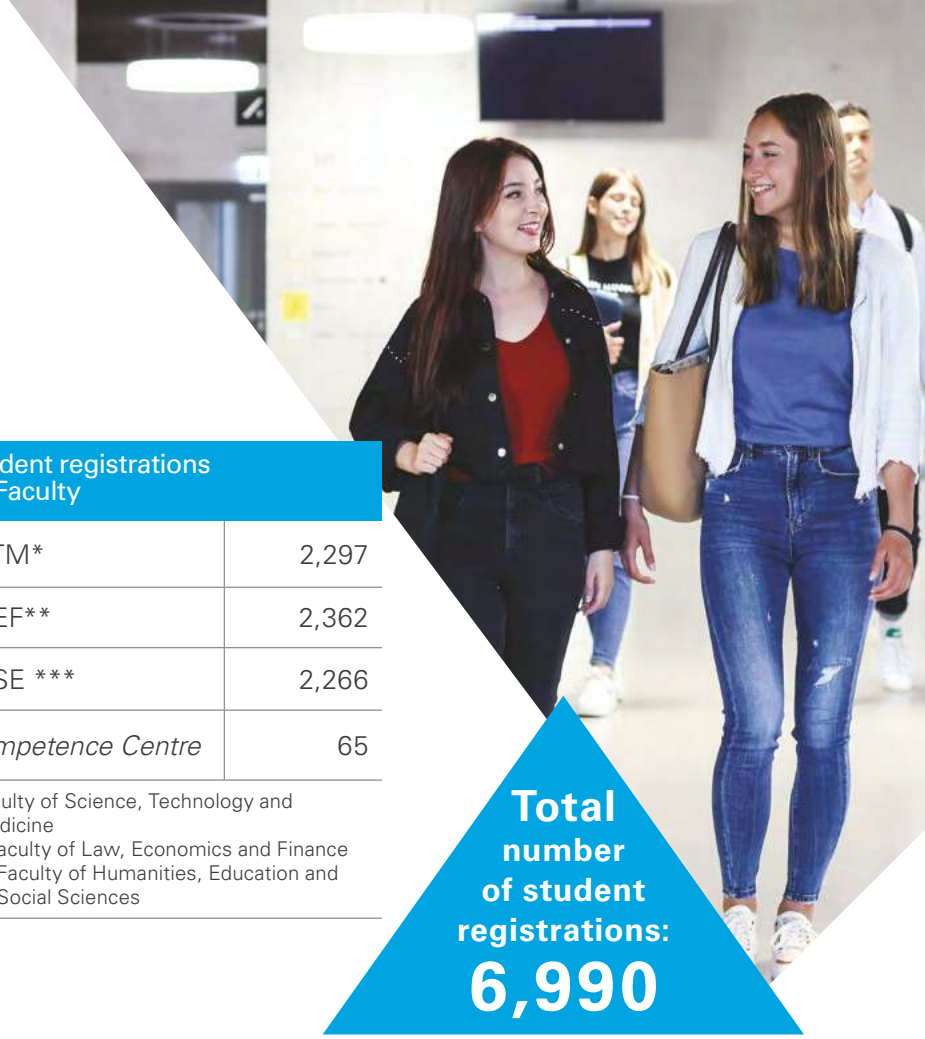
Representatives of Assistant researchers: Elisabeth Schaffner-Reckinger, Ariane Scheffer, Janine Silga, Véronique Weber, Andreia Pinto Coelho Da Costa, Elena Danescu, Cedric Laczny, Tegawendé Bissyande, Christoph Purschke;

Representatives of Administrative, Finance and Technical staff: Audrey Collard, Adolfo Sommarribas;

Student representatives: Anne Feltz, Nikole Kaserová, Aymeric Le Drezen, Susanna Zohrabyan, Patrick-Claus Leske, Ruth Lau, Sandy Heep, Naveen Aruchamy.

Non-Voting Members: Michael Heneka, Andreas Fickers, Jörg Gerkrath, Jens Kreisel, Catherine Léglu, Katalin Ligeti, Massimo Malvetti, Georg Mein, Erica Monfardini, Björn Ottersten, Stéphane Pallage, Jean-Marc Schlenker, Skerdilajda Zanaj, Joanna West.

Facts and Figures



Student Statistics

Student registrations by degree	
Bachelor	3,148
Master	1,902
Doctoral	1,027
Other degree*	913

*Vocational and lifelong learning programmes

Student registrations by Faculty	
FSTM*	2,297
FDEF**	2,362
FHSE ***	2,266
Competence Centre	65

*Faculty of Science, Technology and Medicine
** Faculty of Law, Economics and Finance
*** Faculty of Humanities, Education and Social Sciences

Total number of student registrations: 6,990

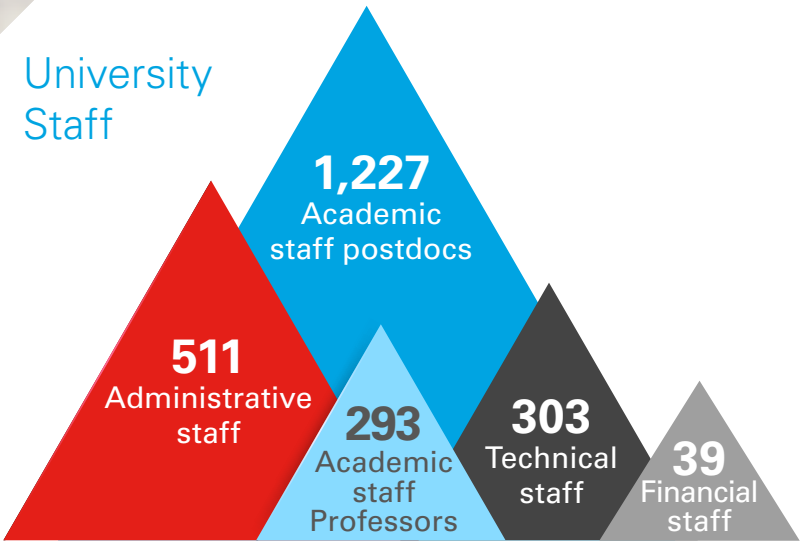
University Graduates

Graduates by degree	
2020/2021	
Total	1,906
Bachelor	640
Master	596
Doctoral	151
Other	519

Graduates by Faculty	
2020/2021	
Total	1,906
FSTM	372
FDEF	964
FHSE	522
Competence Centre	48

135 Student nationalities

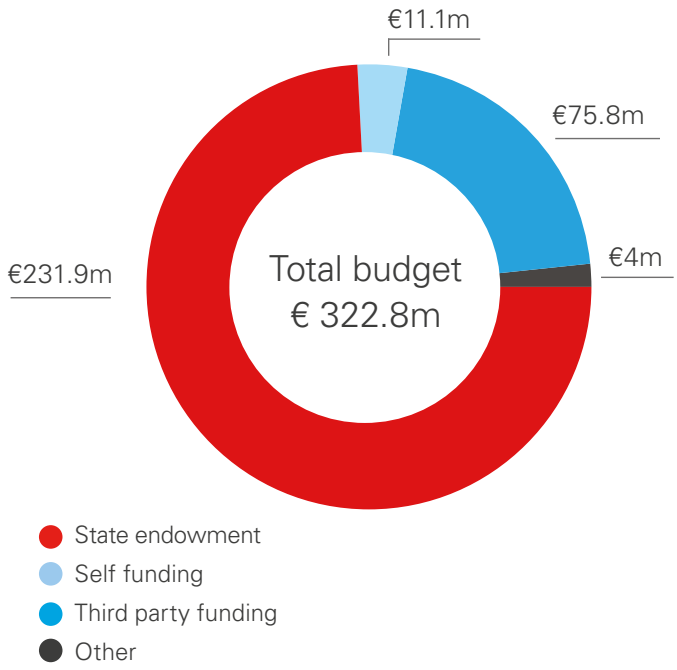
University Staff



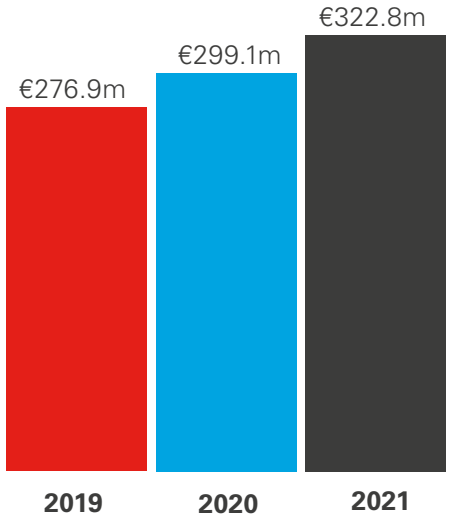
Publications 2021

2,238	1,485	347	26	37	343
Total publications	Journal papers	Book chapters	Authored books	Edited books	Conference proceedings

University Budget in 2021



Budget Evolution 2019-2021

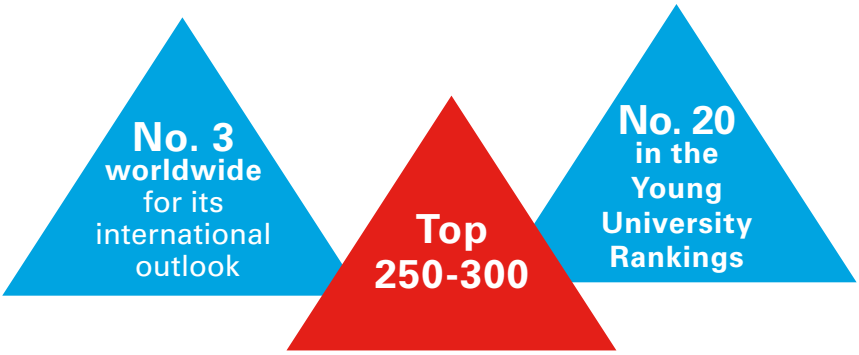


Funding

In 2021, the University generated 56.9 million euros in third-party funding. This amount includes funding through the Luxembourg National Research Fund (FNR) that awarded grants for 113 projects totaling 39.2 million euros, as well as major European instruments such as Horizon 2020, which accepted 13 new projects for a total of 10.1 million euros (H2020 and Horizon Europe programmes).

World University Rankings 2021

Times Higher Education[1] 2021



By subject:

- 92 in Law (not listed previously)
- 93 in Computer Science
- 126-150 in Engineering & Technology
- 101-125 in Life Sciences
- 201-250 in Physical Sciences
- 126-150 in Psychology
- 176-200 in Social Sciences
- 251-300 in Business and Economics
- 176-200 in Education
- 201-250 in Arts and Humanities

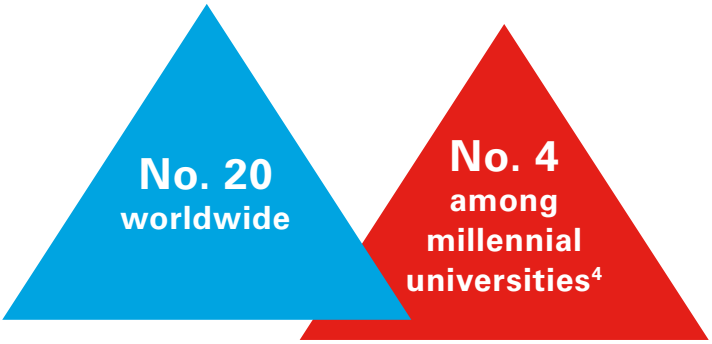
Shanghai Ranking[2] 2021

601-700 among the top 1,000 universities worldwide

By subject:

- 76-100 in Telecommunications engineering
- 201-300 in Electrical and electronic engineering
- 201-300 in Computer science engineering
- 401-500 in Chemistry
- 201-300 in Human Biological Sciences
- 201-300 in Biological sciences
- 201-300 in Education
- 201-300 in Political sciences
- 401-500 in Psychology
- 301-400 in Economics

THE[3] Young University Rankings 2021



[1] The THE World University Rankings was founded in 2004 by the Times Higher Education magazine. It evaluates world-class universities against 13 separate performance indicators, covering the full range of a top university's essential areas of activity: research, interaction with business, international outlook and the teaching environment. More than 1,500 universities are ranked.

[2] The Shanghai Academic Ranking of World Universities (ARWU) aims to establish the quality of teaching, the quality of research as well as the impact of an institution by using multiple criteria. More than 1,800 universities are ranked by ARWU every year and the best 1,000 are published.

[3] Times Higher Education

[4] Set up in the 21th century

European Research Council (ERC) grant holders and chairs at the University of Luxembourg

Prof. Tegawendé Bissyandé (Starting Grant)

Prof. Lionel Briand (Advanced Grant)

Prof. Daniele Brida (Consolidator Grant)

Prof. Jean-Sébastien Coron (Advanced Grant)

Prof. Massimiliano Esposito (Consolidator Grant)

Prof. Josip Glaurdić (Starting Grant)

Prof. Jan Lagerwall (Proof-of-Concept)

Prof. Anja Leist (Starting Grant)

Prof. Björn Ottersten (Advanced Grant and Proof-of-Concept)

Prof. Mark Podolskij (Consolidator Grant)

Prof. Alexandre Tkatchenko (Consolidator Grant and Proof-of-Concept)

Prof. Paul Wilmes (Consolidator Grant)

PEARL Chairs

PayPal-FNR PEARL Chair in Digital Financial Services (Prof. Gilbert Fridgen)

Chair in Digital History Advanced Research Projects Accelerator (Prof. Sean Takats)

Chair in Functional Materials (Prof. Jens Kreisel)

Chair in Neuroscience (Prof. Rejko Krüger)

Chair in Digital Medicine (Prof. Jochen Klucken)

Chair on Social Inequality (Prof. Conchita D'Ambrosio and Prof. Louis Chauvel)

Chair in Software Verification and Validation (Prof. Lionel Briand)

ERA Chairs

ERA Chair in Mathematical Statistics and Data Science for the University of Luxembourg – SanDAL (Prof. Yannick Baraud)

Chairs in Partnership

ATOZ Chair in European and International Tax Law (Prof. Werner Haslehner)

SES Chair in Satellite Communications and Media Law (Prof. Mahulena Hofmann)

ADA Chair in Financial Law - Inclusive Finance (Prof. Dirk Zetzsche)

Chair in Entrepreneurship and Innovation (Prof. Mickaël Géraudel)

Chair and Research Programme in Sustainable Finance (Prof. Michael Halling)

ArcelorMittal Chair of Steel and Façade Engineering (Prof. Christoph Odenbreit)

Chaire de recherche en études parlementaires (Prof. Philippe Poirier)

UNESCO Chair in Human Rights (Prof. Robert Harmsen)

Chair in Digital Procurement (Assoc. Prof. Nils Löhndorf)

Chair in Urban Regeneration (Prof. Markus Miessen)

Paul Wurth Chair in Energy Process Engineering (Prof. Bradley Ladewig)

Horizon 2020 (2014-2020) and Horizon Europe (2021-2027) Projects

Call	Faculty/ IC	Responsible/PI within University	Project Acronym	Role of the University
IBA-SwafS-Support-2-2020	FSTM	TSCHIRHART Eric	Beyond UNIVERSEH	Partner
H2020 MSCA	FSTM	PECCATI Giovanni	Stein-ML	Coordinator
MSCA-IF-2020	FSTM	TKATCHENKO Alexandre	vdWForcesIn2D	Coordinator
H2020-JTI-EuroHPC-2020-03	FSTM	BOUVRY Pascal	HERCULES	Coordinator
HORIZON-EIC-2021-PATH-FINDEROPEN-01 2021-PATH-FINDEROPEN-01	FSTM	DALE Phillip	REMAP	Partner
JUST-2021-JCOO	FDEF	ALLEGREZZA Silvia	FORCE	Partner
ERASMUS-JMO-2021-HEI-TCH-RSCH	FDEF	RATTI Luca	SESaMe	Coordinator
H2020-JTI-IMI2-2020-23	LCSB	KRÜGER Rejko	EPND	Partner
H2020-WF-03-2020	LCSB	WILMES Paul	SyMPaBiome	Coordinator
H2020-LC-GD-2020	LCSB	SCHYMANSKI Emma	ZeroPM	Partner
IBA-SwafS-EURAXESS-Top-IV-2020	IRO	DIDIER Aliénore	EURAXESS Hubs	Partner

FNR Projects

New Luxembourg National Research Fund (FNR) projects accepted in 2021

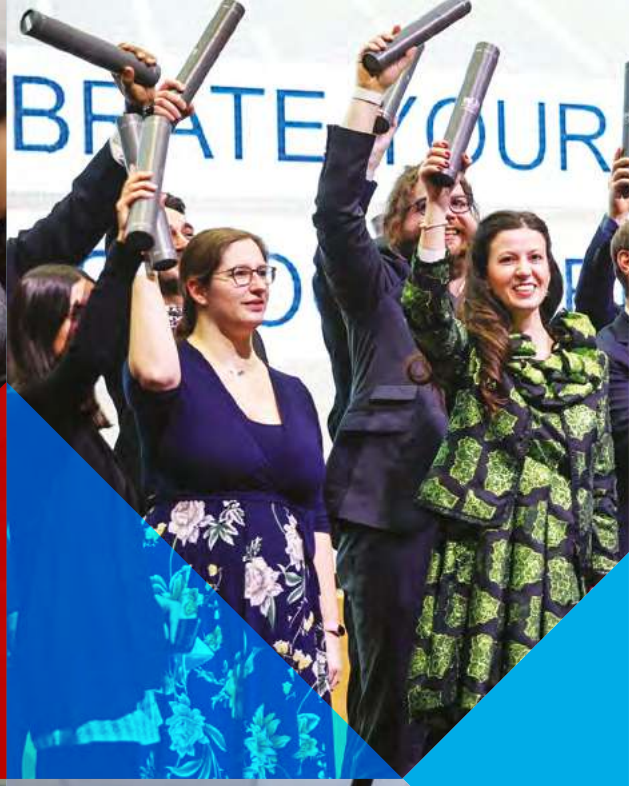
FNR Program	Faculty/ IC	Responsible/PI within University	Project Acronym	Role of the University
ATTRACT	FSTM	CHENU Aurélia	QOMPET	Coordinator
AFR	FSTM	ESPOSITO Massimiliano	HybridCRNThermo	Coordinator
AFR	FSTM	THEOBALD Martin	GNN-QA	Coordinator
AFR	FSTM	SCHLENKER Jean-Marc	RigidHyGe	Coordinator
AFR	FSTM	LAGERWALL Jan	COMMONSENSE	Coordinator
AFR	FSTM	FRANCIS Olivier	CSGR	Coordinator
AFR	FSTM	TKATCHENKO Alexandre	NavChem	Coordinator
AFR	FSTM	MAUW Sjouke	LCSPCS	Coordinator
AFR	FSTM	SCHÄFER Markus	LinCoCo	Coordinator
AFR	FSTM	MICHELS Andreas	MNSONAE2021	Coordinator
BRIDGES	FSTM	PETERS Bernhard	HPC4MP	Coordinator
BRIDGES	FSTM	BORDAS Stéphane	OptiSimCVD	Coordinator
CORE	FSTM	LAGERWALL Jan	BIOFLICS	Coordinator
CORE	FSTM	ESPOSITO Massimilano	ChemComplex	Coordinator
CORE	FSTM	MAUW Sjouke	HETERS	Coordinator
CORE	FSTM	TOULOUSE Constance	INSIGHT	Coordinator
CORE	FSTM	HASDEO Eddwi	NavSQM	Coordinator
CORE	FSTM	SORET Ariane	ThermoQO	Coordinator
INTER	FSTM	GUENNOU Mael	SWIPE	Partner
INTER	FSTM	SIEBENTRITT Susanne	REACH	Partner
INTER	FSTM	LEIVA Luis	BANANA	Partner
INTER	FSTM	BORDAS Stéphane	S-KELOID	Partner
INTER	FSTM	CHENU Aurélia	STAQS	Partner
INTER	FSTM	SCHMIDT Thomas	MAGMA	Partner
INDUSTRIAL FELLOWSHIPS	FSTM	PLAPPER Peter	Bright	Coordinator

FNR Program	Faculty/ IC	Responsible/PI within University	Project Acronym	Role of the University
INTER MOBILITY	FSTM	MANOHARAN Ganesh Babu	panRAFi-PB	Coordinator
INTER MOBILITY	FSTM	WIRTZ Ludger	2DOPMA	Coordinator
INTER MOBILITY	FSTM	DE BEULE Christophe	ESRMOIRE	Coordinator
INDUSTRIAL FELLOWSHIPS	FSTM	ODENBREIT Christoph	Prefa - SeTi	Coordinator
JUMP Proof-of-Concept (PoC)	FSTM	SCHOMMER Christoph	REMEDIS	Coordinator
OPEN	FSTM	PARLIER Hugo	HypSTER	Coordinator
OPEN	FSTM	PECCATI Giovanni	HDSA	Coordinator
PSP CLASSIC	FSTM	BELMANS Pieter	ClassMath	Coordinator
PSP CLASSIC	FSTM	LETELLIER Elisabeth	InsideColon	Coordinator
RESCOM	FSTM	VAN DER TORRE Leon	JISCAI	Coordinator
AFR	FDEF	LANGE Anne	LowerCO2By-Collaboration	Coordinator
BRIDGES	FDEF	LANGE Anne	CrAFT	Coordinator
CORE	FDEF	RAUX Morgan	DIGISKILLS	Coordinator
CORE	FDEF	ERPELDING Michel	FoMeSA	Coordinator
CORE	FDEF	KRÄUSSL Roman	GREEN	Coordinator
CORE	FDEF	BEINE Michel	MIGDCM	Coordinator
CORE	FDEF	TATSIRAMOS Konstantinos	ORIGINS	Coordinator
INTER	FDEF	PIERRET Diane	GREENFINHOME	Partner
INTER MOBILITY	FDEF	COSMA Antonio	Indinfcat	Coordinator
INTER MOBILITY	FDEF	STERI Roberto	CDSAUG-MOB	Coordinator
INTER MOBILITY	FDEF	PICARD Pierre	PICARD-WB-VUA	Coordinator
INTER MOBILITY	FDEF	KRÄUSSL Roman	SUSTAININ	Coordinator
RESCOM	FDEF	STERI Roberto	FinSem	Coordinator
CORE	FDEF	DUPUY Arnaud	ChilDev	Partner
AFR	FHSE	GLAURDIC Josip	UCEuro	Coordinator
AFR	FHSE	MELZER André	VGESP	Coordinator
AFR	FHSE	KIRSCH Claudine	MOSAIC	Coordinator
CORE	FHSE	HESSE Markus	FINCITY	Coordinator

FNR Program	Faculty/ IC	Responsible/PI within University	Project Acronym	Role of the University
CORE	FHSE	LOCHY Aliette	READINGBRAIN	Coordinator
CORE	FHSE	CIMA Ottavia	SUSINU	Coordinator
COVID-19 FAST TRACK	FHSE	VOEGELE Claus	Psy-Long-Covid	Partner
INTER	FHSE	HOWARTH David	Bank-EU	Partner
IPBG	FHSE	KOENIG Vincent	C21	Coordinator
PSP FLAGSHIP	FHSE	SUNNEN Patrick	RePublic	Contracting Partner
RESCOM	FHSE	DUSDAL Jennifer	SciSci	Coordinator
AFR	LCSB	LINSTER Carole	careCDG	Coordinator
CORE	LCSB	BOLOGNIN Silvia	AstrAging	Coordinator
CORE	LCSB	GRUSDAT-POZDEEV Melanie	CD8-library	Coordinator
CORE	LCSB	LEDDA Mirko	ChaperonePD	Coordinator
CORE	LCSB	ARENA Giuseppe	PINK1-DiaPDS	Coordinator
COVID-19 FAST TRACK	LCSB	SKUPIN Alexander	ERCSaCoV	Coordinator
COVID-19 FAST TRACK	LCSB	WILMES Paul	CORONAVAR	Partner
INTER	LCSB	HUSCH Andreas	BIML-19	Partner
INTER	LCSB	SKUPIN Alexander	MechEpi-2	Partner
INTER MOBILITY	LCSB	BOLOGNIN Silvia	CAinOR	Coordinator
JUMP Proof-of-Concept (PoC)	LCSB	KRÜGER Rejko	CUTSinPD	Coordinator
KITS	LCSB	OSTROWICZ Clemens	Biohealth Incubator	Partner
PSP FLAGSHIP	LCSB	JOHN Elisabeth	BeCoS	Coordinator
AFR	SnT	CHATZINOTAS Symeon	ITIS	Coordinator
BRIDGES	SnT	OLIVARES MENDEZ Miguel Angel	HELEN	Coordinator
BRIDGES	SnT	KLEIN Jacques	LuxemBERT	Coordinator
BRIDGES	SnT	STATE Radu	ACE5G	Coordinator
BRIDGES	SnT	AOUADA Djamila	FakeDeTeR	Coordinator
BRIDGES	SnT	LETRAON Yves	UPTIME4.0	Coordinator
BRIDGES	SnT	AOUADA Djamila	FREE-3D	Coordinator
CORE	SnT	MERLANO DUNCAN Juan Carlos	ARMMONY	Coordinator

FNR Program	Faculty/ IC	Responsible/PI within University	Project Acronym	Role of the University
CORE	SnT	BOUVRY Pascal	CBD	Coordinator
CORE	SnT	BOUVRY Pascal	COMOC	Coordinator
CORE	SnT	AOUADA Djamila	ELITE	Coordinator
CORE	SnT	SKROBOT Marjan	FuturePass - Resubmission	Coordinator
CORE	SnT	SOREMEKUN Ezekiel	GTDebug	Coordinator
CORE	SnT	LE TRAON Yves	LightGridSEED	Coordinator
CORE	SnT	FRIDGEN Gilbert	PABLO	Coordinator
CORE	SnT	KLEIN Jacques	REPROCESS	Coordinator
CORE	SnT	VOLP Marcus	ReSAC	Coordinator
CORE	SnT	LAGUNAS Eva	SmartSpace	Coordinator
CORE	SnT	HABCHI Sarra	SpotFlakes	Coordinator
INTER	SnT	VAN DAM Tonie	GlobalCDA	Partner
INDUSTRIAL FELLOWSHIPS	SnT	OLIVARES-MENDEZ Miguel Angel	MIS-URSO	Coordinator
INDUSTRIAL FELLOWSHIPS	SnT	STATE Radu	FLAGS	Coordinator
INDUSTRIAL FELLOWSHIPS	SnT	VOOS Holger	ML-COBOTS	Coordinator
INDUSTRIAL FELLOWSHIPS	SnT	AOUADA Djamila	OBSERVE	Coordinator
JUMP Proof-of-Concept (PoC)	SnT	IANILLO Ken	OWL	Coordinator
JUMP Proof-of-Concept (PoC)	SnT	KLEIN Jacques	SecuBox	Coordinator
KITS	SnT	DUPREL Carlo	KITS SnTIPmgt	Coordinator
INDUSTRIAL FELLOWSHIPS	SnT	OLIVARES-MENDEZ Miguel Angel	CASED	Coordinator
INDUSTRIAL FELLOWSHIPS	SnT	AOUADA Djamila	UNFAKE	Coordinator
CORE	C²DH	FICKERS Andreas	BUREU	Coordinator
CORE	C²DH	MAJERUS Benoit	LETTERBOX	Coordinator
INTER	C²DH	MAJERUS Benoit	normal#verrückt	Partner
INTER	C²DH	FICKERS Andreas	POPKULT60_II	Partner
INITIATE	C²DH	SAKATS Sean	LuxTIME	Coordinator
KITS	Incubator	SHAH Pranjul	CATALYST	Coordinator
KITS	Rectorate	HAUNOLD Christophe	PaKTTO	Coordinator


DUBLIN



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