

SOCIAL IMPACTS 2022-2023

RESPONSIBLE ENTREPRENEURSHIP
SOCIAL ENGAGEMENT
SUSTAINABLE HEALTH
SUSTAINABLE DEVELOPMENT



UNIVERSITÉ
LAVAL

FOREWORD

INSPIRATION FOR ACTION/ WORD FROM THE VICE RECTOR



Today, more than ever, society is facing a series of major challenges, including climate change, social justice, mutual aid, health, and education.

We are all called upon to play our part as citizens and as a university community, but also as an organization. By virtue of our teaching and research mission, it is our duty to help build a sustainable and inclusive future.

For several years now, Université Laval has been committed to opening up its activities and forming closer relationships with its stakeholders and the community. To that end, we have set up four major initiatives: sustainable development, social engagement, responsible entrepreneurship, and sustainable health. These collaborative and inclusive initiatives address cross-cutting themes. Based in particular on the United Nations' 17 Sustainable Development Goals, they are increasing and accelerating the social impact of Université Laval and its members.

The 2022–2023 Social Impacts annual report shares more than 65 stories and advances made by Université Laval staff and students in connection with the themes of its initiatives. Although they represent just a fraction of the social impacts of the past year activities carried out by member of the university community, these stories are representative of the incredible and are a source of pride and hope.

The team at the Office of the Vice Rector, International Affairs and Sustainable Development would like to extend its sincerest thanks to the entire community for its contribution to making Université Laval an innovative institution that is taking part in major social and environmental transformations to benefit society.

François Gélinau

Vice Rector, International Affairs and Sustainable Development



SDG FRAMEWORK

The Sustainable Development Goals (SDGs), adopted in 2015 by the United Nations member states, provide a “blueprint to achieve a better and more sustainable future for all.” Thanks to their individual and collective engagement, members of the university community are actively involved in finding solutions to achieve these goals. By joining this global initiative, Université Laval is becoming a leader in the university sector and committing to playing a part in the transformation of our world. With a view to generating a positive and lasting societal impact, it also intends to measure the effects of its actions on the advancement of the SDGs, not only those it carries out itself, but also those carried out by the members of its community.



TABLE OF CONTENTS

| | |
|---|----|
| Highlights..... | 6 |
| Work and progress of the cross-cutting initiatives..... | 41 |
| Progress indicators..... | 49 |





HIGHLIGHTS



1/ NO POVERTY

Economic growth must be inclusive to provide sustainable jobs and promote equality.

1 2 10

CENTRAIDE-ULAVAL CAMPAIGN WINS DISTINCTION AWARD

For the third year in a row, Université Laval received the Distinction award from Centraide (United Way) for its internal campaign. This award recognizes the best campaigns in each sector, i.e., the companies with the highest rate of participation and the highest average donation.

In 2022, community members raised a monumental \$616,000. This amount will allow Centraide to support local organizations and projects, particularly in the fight against food insecurity and school dropout.

1 4 10

SOCIAL ENGAGEMENT: WHAT FUTURE IS THERE FOR COLLECTIVE WELL-BEING?

In the fall of 2022, Université Laval, in collaboration with the AELIÉS Public Chair, invited the community to the fifth Pour en savoir plus conference.

Moderated by Professor Luc Audebrand of the Faculty of Business Administration, the conference invited panellists and the audience to reflect on the role and place of engagement in everyday life. Professor Dan Furukawa Marques from the Faculty of Social Sciences; Professor Geneviève Cloutier from the Faculty of Planning, Architecture, Art and Design; Professor Laura Monetta from the Faculty of Medicine; and Ph.D. candidate in public communications Pierre Michelot Jean Claude were invited to examine how issues such as demographic decline and labour shortages will influence social engagement.



1 4 10

TURNING SOCIAL ENGAGEMENT INTO UNIVERSITY CREDITS

The Faculty of Business Administration's Educational Leadership Chair in Social Engagement is offering a new course (GPL-4914/ GPL-6914) to recognize community engagement in students' university careers.

Available to all programs of study, this course uses an academic approach that encourages experiential learning rather than lectures. Through five modules and the writing of prospective and retrospective reports, students acquire knowledge, as well as social, practical, and community-oriented skills.



1 3 10

OFFERING DENTAL CARE ACCESSIBLE TO ALL

For several years, Professor Aimée Dawson of the Faculty of Dental Medicine has been working to democratize access to dental health care for underprivileged communities. To that end, she set up a social dentistry project, helping to launch the SPOT community health and teaching clinic. This clinic offers front-line care to people experiencing social disaffiliation, while helping to break down isolation.

Professor Dawson's approach kills two birds with one stone, as the clinic is also a unique learning environment that can be used to educate dental students and raise their awareness about the importance of providing community care that is adapted to marginalized and vulnerable patients.





2/ ZERO HUNGER

Eradicating hunger, ensuring food security, improve nutrition and promote sustainable agriculture.

2 9 12

TOWARDS A RESPONSIBLE NEW GENERATION OF LOCAL FARMERS

Since 2018, the Faculty of Agriculture and Food Sciences has been responsible for the Capitale-Nationale farm training camp. Through a mix of coaching, business mentoring, and hands-on training, the camp aims to help young farmers establish themselves while supporting the emergence of new agricultural businesses in the region.

Participants are not only accompanied by the ULaval Entrepreneurship team, which places great emphasis on the principles of responsible entrepreneurship, but also receive 50 hours of training in organic farming and market gardening.

2 9 12

WHEN FOOD INNOVATION MEETS SUSTAINABLE DEVELOPMENT

As part of the “*Projet intégrateur en développement de produit alimentaire*” course, Professor Julien Chamberland of the Faculty of Agriculture and Food Sciences invites his students to develop low-cost, marketable products. This year, several teams incorporated sustainable development principles into their product development.

These products included an edible coffee cup to reduce waste, an insect flour brownie mix that is less harmful to the environment, and a vegan jelly snack made from recycled juice pulp with a view to creating a circular economy.



2 9 12

REDUCING FOOD WASTE WITH EDIBLE INSECTS

A new Chair of Leadership in Education in Primary Production and Processing of Edible Insects has been created at the Faculty of Agriculture and Food Sciences. Under the direction of Professor Marie-Hélène Deschamps, this chair will aim to promote organic waste management and use edible insects as an avenue to identify solutions and opportunities to counter food waste and the resulting pollution. To that end, Professor Deschamps and her colleagues will be looking at using insect larvae to upcycle food waste—an innovative and environmentally responsible approach that allows organic waste to be reused and creates a circular economy that requires limited external resources.



2 3 11

COOKING TOGETHER TO FIGHT FOOD INSECURITY

Virginie Drolet-Labelle, a Ph.D. student in nutrition, and Mon équilibre ULaval have created low-cost group cooking workshops for the university community. Students are invited to cook healthy meals to go, using nutritious and budget-friendly ingredients such as textured vegetable protein. The workshops are also an opportunity to learn about the best practices to adopt in the kitchen. Since launching in the spring of 2022, over 250 people have attended a total of 16 workshops at the Institute for Nutrition and Functional Foods (INAF).





3/ GOOD HEALTH AND WELL-BEING

Giving people the means to live a healthy life and promote the well-being for everyone at all ages.

3 11 17

PARTNERS TO SUPPORT WELLNESS AND MENTAL HEALTH ON CAMPUS

Université Laval is proud to be able to count on the financial contributions of Beneva and Bell Let's Talk to promote sustainable health in all its forms.

Beneva's donation (\$590,000) will support the Centre d'expertise en gestion de la santé et de la sécurité au travail's Baromètre project, the Mon Équilibre ULaval program, the Faculty of Law's Laboratoire en droit des services financiers, scholarships from the Faculty of Science and Engineering, and the Rouge et Or volleyball club's excellence program.

Meanwhile, support from Bell Let's Talk (\$100,000) will help create five new wellness spaces on campus, support the ESSAIM project, and provide a personalized lifestyle coaching service for the student body.

3 10 11

FOR SUSTAINABLE HEALTH HUMANITIES EDUCATION

As part of the 2023 edition of the Canadian Association for Health Humanities annual conference, chaired by Professor Thierry Belleguic of the Faculty of Arts and Human Sciences, the Arts, Society, and Wellness international associated laboratory (LIA) organized an evening of entertainment around the idea of solicitude in health and the act of caring.

Over a dozen English- and French-speaking artists put on literary, musical, theatrical, and choreographic performances for the evening.



3 11 16

NEW RESOURCES TO SUPPORT THE COMMUNITY

To make its expertise even more accessible to the student body, Université Laval's Centre d'aide aux étudiants has set up outreach workers in the faculties and residences.

They provide front-line support and referral to the appropriate resources for students experiencing difficulties of all kinds, regardless of how well they are doing academically.



3 4 11

GAMER MENTOR: FROM VIDEO GAMES TO SPORTS

Université Laval graduates Mathieu Arcand and Katherine Mailloux took part in the ULaval Programme d'incubation d'Entrepreneuriat to help them develop their company, Le Gamer Mentor. Through the program, they gained access to a coworking space and received technical, strategic, and moral support.

Since 2020, Le Gamer Mentor has been offering a variety of coaching and mentoring services to help young people find a healthy balance in video gaming. Strongly inspired by athletic programs, the mentoring program gives youth access to a structure with practices, coaches, teammates, goals, and people who count on them. It helps youth develop social bonds with each other and become aware of their personal potential and the skills they can acquire through video games.

To date, more than 15 mentors have supported no fewer than 800 families.





4/ QUALITY EDUCATION

Ensuring equal access to quality education for all, and promoting lifelong learning opportunities.

4 11

ALBUM DE FAMILLE: SHEDDING LIGHT ON QUEBEC CITY'S PAST

Claudie Maynard, a Ph.D. student in art history, sought to provide a more intimate look into the past through a series of historical video vignettes on four emblematic figures of Quebec City.

Backed by painstaking research, the “*Album de famille*” project reveals the impact of Pamphile Le May, Alfred Laliberté, Roger Lemelin, and Jeanne Lapointe while discussing their relationships with Quebec City.

This project was made possible thanks to the financial support of Première Ovation and SPIRA, not to mention the support of the City of Quebec for documentary and visual production, the Bibliothèque de l'Assemblée nationale du Québec, the Musée national des beaux-arts du Québec, and the Archives de l'Université Laval.

4 16 17

CREATION OF THE RÉSEAU FRANCOPHONE INTERNATIONAL EN CONSEIL SCIENTIFIQUE

After responding to a call for projects from the Fonds de recherche du Québec (FRQ), Université Laval has become host to the Réseau francophone international en conseil scientifique (RFICS). Based at the Graduate School of International Studies and directed by Mathieu Ouimet, a professor in the Faculty of Social Sciences, this network aims to strengthen scientific advisory capacities in the French-speaking world through research, training, and the sharing of scientific advisory knowledge and tools. Several partners from French-speaking regions will be collaborating on the network, including several Quebec universities, the Assemblée parlementaire de la francophonie (Europe), and the Laboratoire d'études et de recherche sur les dynamiques sociales et le développement local (Africa).

The RFICS will receive \$1.5M over five years from the FRQ and \$800,000 from Université Laval partners.



4 15 16

NEW SHORT PROGRAM ON BIOETHICS AND ENVIRONMENTAL ETHICS

Offered jointly by the Faculty of Philosophy and the Faculty of Theology and Religious Sciences, this new short undergraduate program is distinctive in its focus on environmental ethics. Students will develop their ability to analyze, synthesize, and think critically. Additionally, rather than limiting themselves to cases of applied ethics, they will familiarize themselves with the basic principles of ethics to develop all the tools they need to engage in ethical reflection on various contemporary issues.

4 13 17

CLIMATE CHANGE: ONCE YOU KNOW

The Alliance étudiante en développement durable, the ÉcoResponsable committee of Université Laval's chemistry department, CADEUL, the International University Network for Climate Action (UniC), and Université Laval organized a screening of *Once You Know*. The documentary explores the climate crisis and encourages audiences to truly reflect on the world and how they can build a better future.

More than 50 people who attended the screening were also able to meet with director Emmanuel Cappellin to dig even deeper into the matter and find potential solutions to address the tendency to freeze in the face of the climate crisis.

4 13 17

CLIMATE ACTION FROM HIGH SCHOOL TO UNIVERSITY

UniC, the International University Network for Climate Action, collaborated with the Secrétariat à la jeunesse du Québec and the Fondation Monique-Fitz-Back to produce three videos to inspire young Quebecers aged 14 to 17 to take climate action in their studies and careers.

Released as part of the *Sors de ta bulle* youth mobilization campaign, the videos cover the university careers of three UniC members: Alice Miot-Bruneau (Ph.D. candidate in the Faculty of Social Sciences), Valentina Donati (Master's candidate in the Faculty of Planning, Architecture, Art and Design), and Félix-Antoine Cloutier (Master's candidate in the Faculty of Forestry, Geography and Geomatics).





5/ GENDER EQUALITY

Gender equality is not only a fundamental human right, but also a necessary foundation for a peaceful, prosperous and sustainable world.

5 10 16

WOMEN ON A BOARD OF DIRECTORS: A WAY TO CURB SEXUAL HARASSMENT

Professor Andréanne Tremblay of the Faculty of Business Administration collaborated on a study examining the relationship between the number of women on boards of directors and cases of sexual harassment within the company. The study, which was published in *Corporate Governance: An International Review*, shows that a 10% increase in diversity on a board of directors can reduce cases of sexual harassment by 22%. This finding can be explained by the fact that companies with more female directors integrate more social policies, thus promoting a healthier workplace that is less likely to develop a culture of sexual harassment.

5 10 16

NEW EQUITY, DIVERSITY, AND INCLUSION POLICY

Université Laval has adopted a new equity, diversity, and inclusion (EDI) policy after extensive consultations with the university community over the past few years.

The policy (in French only) was drafted with and for the members of Université Laval to ensure that it is diverse, equitable, inclusive, and free from discrimination or prejudice in the fulfillment of its mission, and to ensure consistency and effectiveness in institutional EDI actions. This will allow Université Laval to become a more equitable, more diverse place to work and study.

5 10 17

PROMOTING CULTURAL CHANGE ONE STEP AT A TIME

Université Laval received the Construction recognition from the Dimensions: Equity, Diversity, and Inclusion Canada program. This recognition is awarded to participating post-secondary institutions that have adopted a coordinated EDI strategy.

As the only participating university in Quebec, Université Laval has implemented numerous initiatives over the past three years to create an environment that fosters respect and well-being for everyone. More than 20 people from the staff and the student body are working to support the faculties and administrative units in this regard.

The Dimensions: Equity, Diversity, and Inclusion Canada program is piloted by the Natural Sciences and Engineering Research Council of Canada, the Social Sciences and Humanities Research Council of Canada, and the Canadian Institutes of Health Research. It is the most ambitious EDI recognition program in the world.





6/ CLEAN WATER AND SANITATION

Guaranteeing access for all to sustainably managed water supply and sanitation services.

6 11 14

INTERNATIONAL WATER THINK TANK

Université Laval hosted the International Water Think Tank (IWTT), a conference that aims to unite experts from all disciplines in exploring issues related to sustainable access to water for communities in Canada and around the world. The main objective of this conference is to identify the key issues of the world's most pressing water challenges, while supporting cooperation among key players.

In addition to numerous lectures by international experts, graduate students were also invited to present their work on water access and governance, water treatment and quality monitoring, and water and public health.

The IWTT was organized by IC-IMPACTS, the Centre for Forest Research, Université Laval's Centre de recherche sur l'eau, and Quebec's Ministère de l'Environnement, de la Lutte contre les changements climatiques, de la Faune et des Parcs.

6 9 11

TOWARDS SUSTAINABLE WATER SOURCE PROTECTION: ONE DROP AT A TIME

As part of their lab test, a team of students from the Faculty of Planning, Architecture, Art and Design studied water source protection in 15 rural municipalities. Gabrielle Beaudry, Vicky Bertrand Dupont, and Kim Kowtaluk developed a municipal support needs index (the *Indice du besoin d'accompagnement des municipalités*, or IBA) under the supervision of Professor Manuel J. Rodriguez. This index can be used to identify what (and how much) support municipalities need to better face the risks associated with climate change. Following their analysis, the students made five recommendations to improve the approach to water source protection.



6 9 16

A NEW TRANSATLANTIC WATER RESEARCH AND EXCHANGE NETWORK

Université Laval and the Nouvelle-Aquitaine region of France extended their collaboration on water-related scientific research by signing a new agreement and renewing an existing one.

The new agreement is aimed at creating a France-Quebec group to address the issue of water in the era of climate change. It will be made up of the Quebec Water Research Centre (CentrEau) and the Réseau régional de recherche sur l'eau en Nouvelle-Aquitaine (Naiades). The second agreement is for the renewal of the Réseau scientifique Nouvelle-Aquitaine Québec de l'eau (NAQeau) partnership, co-directed by François Anctil, a professor in the Faculty of Science and Engineering.



6 9 11

ÉTEAUL SHINES ONCE AGAIN

Université Laval's Équipe de Traitement des Eaux (ÉTEAUL) took first place at the 2023 Mid-Pacific Student Symposium. Organized by the American Society of Civil Engineers, this event pits numerous university teams against each other. In one challenge, students are given a specific scenario for which they must build and implement a wastewater treatment system. The jury analyzes the construction in terms of cost, efficiency, design, and quality. Teams are also required to give an oral presentation to assess their level of knowledge.

ÉTEAUL is an association of students pursuing bachelor's degrees in water engineering, chemical engineering, and agro-environmental engineering. Since 2011, they have been taking part in competitions to create systems for treating water that has been contaminated by natural disasters.





7// AFFORDABLE AND CLEAN ENERGY

Guarantee access for all to reliable, sustainable, modern and affordable energy services.

7 9 13

IMPROVING ENERGY EFFICIENCY AND SHRINKING THE ENVIRONMENTAL FOOTPRINT OF ALUMINUM PRODUCTION

Three professors from the Faculty of Science and Engineering received \$3.7M in funding from the Natural Sciences and Engineering Research Council of Canada (NSERC) and Alcoa, a partner of Université Laval for the past 13 years, to improve energy efficiency and shrink the environmental footprint of aluminum production.

Professor Houshang Alamdari's work will explore biomass sources that can replace fossil fuels in the manufacture of the anodes used in aluminum production. It will also examine the quality of those sources.

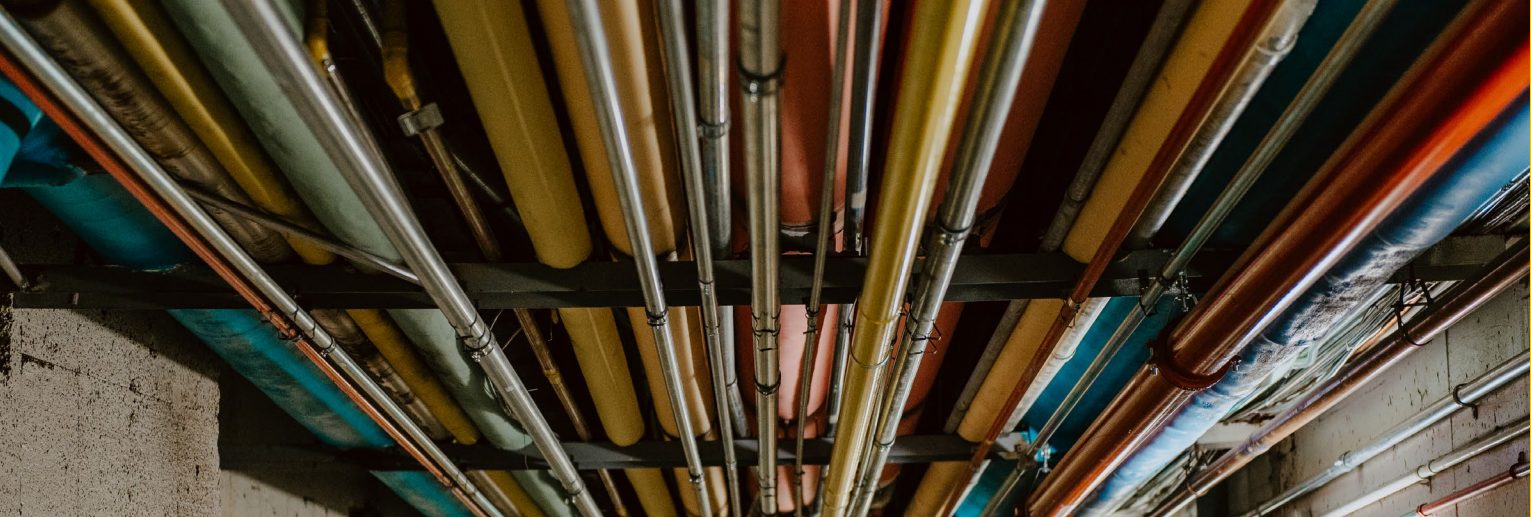
Additionally, Professor Louis Gosselin will be looking to develop more efficient models for key processes in primary aluminum production, in order to reduce energy and resource consumption.

Finally, Professor Carl Duchesne will focus on the creation of advanced monitoring and quality control systems for use in production.

7 8 9

BUILDING CSM RESEARCH TOGETHER FOR A GREEN ECONOMY

Université Laval's Initiative de recherche sur les minéraux critiques et stratégiques (MCS) pour une relance économique verte organized a cross-sector symposium to address the various issues surrounding critical and strategic minerals, or CSMs. Experts from the academic and private sectors discussed issues such as social acceptability, the role of business, blind spots and opportunities for Quebec, and the challenges of sustainable development. Participants included professors Christophe Krolik (Faculty of Law), Patrick Gonzalez (Faculty of Social Sciences), and Crystal Laflamme and Dominic Larivière (Faculty of Science and Engineering).



7 9 13

PARTNERING WITH DAVIE TO DEVELOP A CLEANER FUEL

A team of researchers from Université Laval will be working with Davie Shipyard to develop a fuel that can replace diesel without requiring boat engines to be changed. Professors Alain De Champlain, from the Faculty of Science and Engineering, and Julien Lépine, from the Faculty of Business Administration, will use the shipyard facilities to research the best conditions for the safe use of green ammonia in diesel engines. Combining these two types of fuel would considerably reduce the greenhouse gas emissions released during combustion. If the process proves successful, it could be used in other modes of transport.

7 12 13

2035 TARGET: USE 100% RENEWABLE ENERGY FOR THE CAMPUS

Université Laval has adopted its new energy strategy, which includes numerous ambitious targets for energy efficiency and consumption. Focusing on four areas of intervention (energy efficiency, decarbonization, transport electrification, and raising awareness and mobilizing the university community), the Service des immeubles will be deploying several different actions, such as standardizing temperatures on campus, installing additional charging stations for electric vehicles, transforming energy equipment, and requiring the use of renewable energies for all new buildings. Ultimately, the strategy's work will allow Université Laval to be powered solely by renewable energies by 2035, and reduce the institution's greenhouse gas emissions by 70% by 2030 compared to the baseline year of 2006.

7 9 12

FOR BETTER ENERGY USE AT HOME

The results of research by Ph.D. student Louis-Gabriel Maltais and Professor Louis Gosselin of the Faculty of Science and Engineering could help reduce the energy consumption of residential water heaters over the next few years.

Their research, published in the journal *Energy Conversion and Management: X*, establishes that more closely balancing hot water production and consumption could lead to significant energy savings while still complying with Canadian hot water regulations.

By studying consumption data from 40 housing units in Quebec City's Cité Verte and applying artificial intelligence to control production based on use, the two researchers were able to simulate a reduction of between 4% and 8% in energy consumption. This is a significant reduction, considering that water heaters account for an average of 17% of a Canadian home's energy needs.





8 / DECENT WORK AND ECONOMIC GROWTH

Promote a sustained, shared and sustainable economic model, full and productive employment and decent work for all.

8 9 12

RESPONSIBLE PROCUREMENT RESEARCH TEAM COLLABORATES WITH THE UNITED NATIONS

A research team from Université Laval's Laboratoire interdisciplinaire de la responsabilité sociale des entreprises contributed to the 2022 Sustainable Public Procurement (SPP) Global Review published by the United Nations Environment Programme (UNEP). Since 2013, this report has provided an overview of global sustainable procurement practices and their social, environmental, and economic impact.

Professors Luc Brès, Martin Dumas, and Marzia Angela Cremona of the Faculty of Business Administration, along with research professionals Ouïam Outmani and Anne-Marie Saulnier, not only collaborated in establishing the report's methodology, but also wrote Chapter 5 on private sector organizations.

8 9 12

REVOLUTIONIZING WOOD COMPOSITE PANELS

Université Laval and Université du Québec en Abitibi-Témiscamingue (UQAT) have launched the new Consortium de recherche sur les panneaux composites à base de bois (Corepan-Bois). Directed by Professor Alain Cloutier of the Faculty of Forestry, Geography and Geomatics, Corepan-Bois will create 6 undergraduate internships, 19 master's projects, 16 Ph.D. projects, and 3 postdoctoral fellowships. Research will focus on three main areas: identifying new sustainable sources of fibre from forest, urban, and agricultural biomass; optimizing panel manufacturing processes; and developing new products and tools for management, decision-making, and control. The Consortium will receive \$4M in funding over five years from the Natural Sciences and Engineering Research Council, Quebec's Ministère des Ressources naturelles et des Forêts, the Conseil de l'industrie forestière du Québec, and project partners.



8 13 17

HIGH DISTINCTION FOR JEAN-FRÉDÉRIC MORIN

Professor Jean-Frédéric Morin of the Faculty of Social Sciences has been elected a Fellow of the College of the Royal Society of Canada. His work focuses on international institutions, and more specifically their design, interaction, and distribution in the fields of trade, environment, investment, space, and intellectual property. Among others, this research allows environmental concerns to be better incorporated into trade agreements. It has also led to the creation of the TREND (TRade & ENvironment Database), which lists environmental clauses in over 775 trade agreements.

8 4 9

NEW INTERNATIONAL ENTREPRENEURSHIP RESEARCH CENTRE

The Faculty of Business Administration has created a new International Entrepreneurship Research Centre. Headed by Professor Sophie Veilleux, this research unit's mission is to increase knowledge in international entrepreneurship to target and develop the skills and practices that lead to international growth and sustainability for SMEs.

To that end, research will focus on analyzing the business models and practices of successful international SMEs, empirically validating the impact of the factors identified, and developing tools for entrepreneurs to grow their business.

8 4 9

UNDERSTANDING THE NEW CHALLENGES OF ECONOMIC GLOBALIZATION

Professor Richard Ouellet of the Faculty of Law has become the holder of the new Research Chair on New Challenges of Economic Globalization (NEME). Its mission will be to carry out legal and multidisciplinary research to better understand the causes and repercussions of the various forms of free trade, the shortening of value chains, the implementation of green plans, and the integration of markets around the world.

The NEME Chair will have four objectives: contribute to a better understanding of the new forms of regulation of economic globalization; establish collaborations between leading researchers from different disciplines; train students who will be the next generation involved in the negotiation and implementation of trade agreements; and ensure the transfer of knowledge to society.

It will receive \$2.1M in funding over five years from Quebec's Ministère des Relations internationales et de la Francophonie and the Ministère de l'Économie et de l'Innovation.



9/ INDUSTRY, INNOVATION, AND INFRASTRUCTURE

Build a resilient infrastructure, promote sustainable industrialization that benefits everyone, and encourage innovation.

9 11 12

CAN COMPANIES BE RESPONSIBLE, INNOVATIVE, AND SUSTAINABLE?

The Entrepreneuriat ULaval Concours d'idées d'entreprise responsible returned for another edition in 2023. The aim of the competition is to encourage the emergence of innovative yet responsible ideas that could give rise to new businesses.

New for this year's event, participants had to demonstrate how their idea would contribute to sustainable development. To do so, they had to draw on the 17 Sustainable Development Goals and explain how their ideas contributed to them. To support the competitors, a workshop was given on the SDGs and their interrelationships. Over 50 projects were submitted for this edition.

9 11 12

ADAPTING ROAD INFRASTRUCTURES TO CLIMATE CHANGE

Université Laval has launched a new Sentinel North Partnership Research Chair on Northern Infrastructure. Headed by Professor Jean-Pascal Bilodeau of the Faculty of Science and Engineering, its mission is to develop technological tools to promote the sustainable development of infrastructure adapted to northern conditions and climate change.

In addition to giving engineers access to highly specialized training in northern infrastructure, the Chair will enable the development of guidelines for road construction and maintenance in northern Quebec and Canada.

The new Chair will have a budget of \$785,000 over the next five years, thanks to support from Sentinel North, Quebec's Ministère des Transports, and Hydro-Québec.



9 8 12

THE SECRETS OF FOOD INNOVATION REVEALED

Université Laval, the Institute of Nutrition and Functional Foods (INAF), and the Quebec Reference Centre for Agriculture and Agri-Food (CRAAQ) have published a French-language guide for food processing advisors entitled *Développer un produit alimentaire : ingrédients de la réussite*.

This guide covers essential concepts and provides tools and best practices, but it also shares the factors that contribute to a successful food development process, from innovation through launch.

The guide was co-written by Michel de Blois, professor at the Faculty of Planning, Architecture, Art and Design; Ronan Corcuff and Élodie Boonefaes, research professionals at INAF; and Ghislain Danyod, project manager at CRAAQ. The graphic design and layout were prepared by Audrey-Anne Brillant and Aurélie Brissac, graduates of the graphic design bachelor's program, and Jérôme Lessard, lecturer at the Faculty of Planning, Architecture, Art and Design.

9 8 12

RESPONSIBLE ENTREPRENEURSHIP AT THE HEART OF COMMUNITY PROJECTS

The year 2023 saw the first-ever *Talk-show entrepreneurial ULaval*, an event celebrating Université Laval's entrepreneurial ecosystem. In particular, it was an opportunity to highlight the work of those who help responsible entrepreneurs succeed. Throughout the evening, they discussed their achievements and plans for the future.

The Paul-Henri Fillion, Marie-France Poulin, and Fonds de mentorat Rodrigue-Julien scholarships were also awarded. The event drew over 120 people.

9 2 13

NUMEROUS SUSTAINABLE DEVELOPMENT RESEARCH PROJECTS FUNDED BY THE CFI

Twenty-two research teams at Université Laval have received a total of \$4.2M in funding from the Canada Foundation for Innovation (CFI) John R. Evans Leaders Fund. Many of the projects it backs are contributing to the development of sustainable solutions and alternatives for their industries.

This is certainly true of the projects by professors Josée Duchesne (Faculty of Science and Engineering) and Edel Pérez Lopez (Faculty of Agriculture and Food Sciences). Professor Duchesne's research will focus on developing cementitious materials with a low carbon footprint and improving the durability of concrete. Meanwhile, Professor Pérez Lopez's work will analyze canola crops' genetic resistance to clubroot, with a view to sustainable agriculture and food security.

9 7 13

ALÉRION SUPERMILEAGE REMAINS ON TOP

In 2022, Université Laval's Alérion Supermileage team took first place at the SAE Supermileage competition in Michigan, which pitted university teams from Canada, the United States, Portugal, and the United Arab Emirates against each other. The aim of the competition is to design and build an extremely fuel-efficient single-person vehicle. The Alérion student team had an outstanding performance, with their vehicle getting 1557 mpg—almost 500 mpg better than the second-place team.

The Alérion Supermileage team is made up of students enrolled in a bachelor's degree program in mechanical, electrical, or water engineering. They were supported by multiple Université Laval units, including the Department of Mechanical Engineering and its machining centre.



10/ REDUCED INEQUALITIES

**Reducing inequalities
within and between
countries.**

10 4 11

INAUGURATION OF THE CERCLE DES PREMIERS PEUPLES

As part of its *En action avec les premiers peuples plan*, Université Laval inaugurated the Cercle des Premiers peuples in its library. The fruit of a collaboration between Université Laval, the Premiers Peuples team, and a committee of Indigenous students, this cultural safe space will serve as a place for meetings and discussions. It will offer a variety of activities and services tailored to the specific needs of the Indigenous community. For example, people will be able to receive psychological and administrative support, as well as help with homework and scholarship applications. The Cercle's program will also include craft workshops, conferences, and excursions that are open to all.

10 4 16

PERSEVERANCE AND ACADEMIC SUCCESS AMONG FIRST PEOPLES

The Faculty of Education hosted the fifth Convention on Perseverance and Academic Achievement for First Peoples. Following the theme "Fifty Years of Taking Ownership of Indigenous Education: Progress Made and the Way Forward," a number of experts took the floor, including Jacques Kurtness (Université Laval graduate and renowned researcher), Marion Buller (first Indigenous female judge in British Columbia), Lorinda Riley (professor at the University of Hawaii), and several community organizations.

A cultural evening featuring artists from Indigenous communities was also held at the Théâtre de la Cité universitaire.



10 5 11

IMMIGRATION AND CULTURAL DIVERSITY: LESSONS TO BE LEARNED IN TIMES OF CRISIS

The Équipe de recherche en partenariat sur la diversité culturelle et l'immigration dans la région de Québec (ÉDIQ) held the first ÉDIQ international congress in 2022 under the theme “*Temps de crise : un espace pour réfléchir sur l’immigration et sur la diversité culturelle.*” Lectures by Marcela de Andrade Gomes, Rupaleem Bhuyan, and Nicholas De Genova gave rise to a number of exchanges, creating a multidisciplinary and international space for sharing scientific knowledge, expertise, and practices to address the challenges of immigration and cultural diversity in times of crisis.

ÉDIQ’s mission is to examine the interactions of individuals and groups within society, considering both historical roots and recent local dynamics. Their work aims to improve understanding of the conditions that support the development of an inclusive local society that promotes social justice.

10 4 17

INDIGENOUS UNIVERSITY CENTRE: A FIRST FOR QUEBEC

Université Laval and the First Nations Education Council (FNEC) have signed a partnership agreement to develop an Indigenous university centre. Governed mainly by the Indigenous community, the centre will aim to meet the training and research needs of First Peoples, recognize their knowledge and skills through training content, and establish a university teaching model specific to First Nations.

The initiative will take a holistic approach to education in accordance with the wishes of FNEC’s member communities, providing a lifelong continuum of learning inspired by the values, cultures, and languages of First Peoples.

10 4 11

SUPPORTING CHILDREN’S DEVELOPMENT THROUGH MUSIC

The “*Unir la différence au-delà des mots et des sons*” project, involving Jonathan Bolduc, a professor in the Faculty of Music and holder of the Canada Research Chair in Music and Learning, received the Essor prize in Pedagogical Development, awarded by Quebec’s Ministère de l’Éducation.

The project, led by Marie-Dominique Boivin, a teacher at École Madeleine-Bergeron (a school for students with significant physical and motor limitations), and Jonathan Bolduc, who is also a music specialist at the École oraliste de Québec (a school for d/Deaf and hearing-impaired students), gave over 40 young people the opportunity to perform three songs on stage.

Using the Chair’s research, the aim of this project is to demonstrate that there are research-backed tools for supporting children’s overall development through music.





11 / SUSTAINABLE CITIES AND COMMUNITIES

Ensure that cities and human settlements are open to all, safe, resilient and sustainable.

11 3 13

SUCCESS FOR MOBILITÉ ACTIVE ULAVAL

After its first year of existence, Mobilité active ULaval is on a roll. This initiative, set up by Université Laval staff and students, aims to encourage and facilitate the adoption of active transportation. To that end, the group collaborates with Université Laval to hold annual competitions that reward those who use active transportation for their commute to campus. The competition sees more and more participants each year.

After two editions and on-campus awareness-raising activities, the group now has over 450 members.

11 13 15

OASIS: A REFRESHING APP

A student team from Université Laval's Club éco-numérique won third place at HackQC 2022. Under the theme of "*Les données au service de la transition écologique*," teams were asked to design mobile apps that addressed public concerns.

Jessy Talbot, Laurence Delisle, Raphaël Guay Gagné, and Sabrina Cazzolato from the Faculty of Science and Engineering chose the heat island problem in Repentigny as their case study. Their application, Oasis, lists heat islands and places where citizens can go to cool off during heatwaves, such as public water fountains and parks. It also highlights ecological facts about the content and best practices for hot weather.

11 9 13

REDUCING GHGS THROUGH SUSTAINABLE MOBILITY

Professor Bobin Wang of the Faculty of Science and Engineering has been awarded a \$350,000 grant from the Fonds de recherche du Québec – Nature et technologies for her research project “*Exploration du potentiel des alternatives à l’auto-solo pour réduire les GES.*”

In partnership with the City of Quebec, the research team led by Professor Wang will examine the challenges associated with the local shift towards sustainable mobility in order to promote the implementation of a multimodal transportation system centred around an electric tramway. More specifically, their work will focus on forecasting travel demand and assessing greenhouse gas emissions and the potential market share of mobility as a service (MaaS). Professor Geneviève Cloutier and Professor Dominic Villeneuve of the Faculty of Planning, Architecture, Art and Design will also be collaborating on the projects.

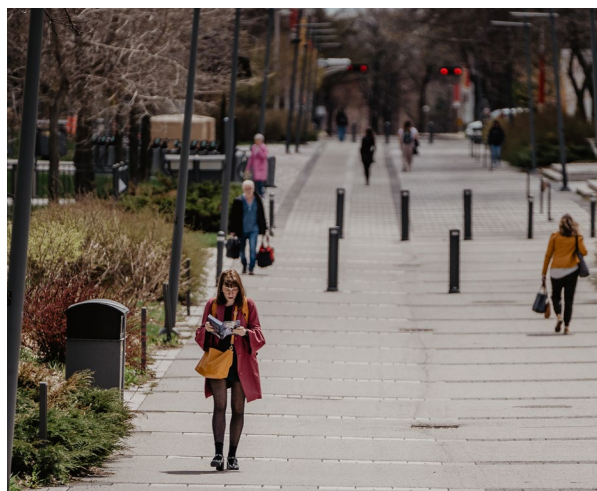
11 4 9

ÀVÉLO ARRIVES ON CAMPUS

Since the spring of 2023, the Réseau de transport de la Capitale’s (RTC) àVélo service has been available on campus. The service allows the community to rent electric assist bikes for a nominal fee from four strategically located stations.

This car alternative makes it easier for students and staff to get to and from Université Laval, and even between campus buildings.

This is not the first time Université Laval and the RTC have worked together. For several years now, students have had access to the Laissez-passer universitaire, which allows them to use public transit at all times. What’s more, over the next few years, the campus will be a major location for the future Réseau structurant de transport en commun, which includes the tramway.





12/ RESPONSIBLE CONSUMPTION AND PRODUCTION

Sustainable consumption and production aims to "do more and better with less".

12 3 11

ENSEMBLE RÉDUISONS!

The "*Ensemble réduisons!*" project was launched in the fall of 2022. Led by Service Campus, this initiative sought to improve food service spaces to encourage the use of reusable rather than single-use items. Numerous awareness-raising activities have allowed the university community to pay more attention to their use of dishes on campus after two years of pandemic. Université Laval has also acquired outdoor water fountains for use on campus during events.

Finally, Sylvain St-Onge, Mathieu Rancourt, Jean-François Gingras, Thomas Langlois and Jessica Rock, all graduates of Université Laval (Faculty of Music; Faculty of Arts and Human Sciences; Faculty of Planning, Architecture, Art and Design), composed a theme song for the campaign.

12 2

REDUCING FOOD WASTE IN RESTAURANTS

A research team from the Institute for Nutrition and Functional Foods (INAF) and GastronomiQc Lab unveiled a study identifying the most effective strategies for reducing food waste in the food service industry at the 89th Acfas Congress.

For the study, Jade Lévesque (student researcher), Professor Sergey Mikhaylin (Faculty of Agriculture and Food Sciences), and Professor Véronique Perreault (Institut de tourisme et d'hôtellerie du Québec – ITHQ) collected and characterized food waste from the ITHQ's gourmet restaurant for a week. They then integrated different waste reduction strategies to compare their impact.

The data showed that the most effective practices are reducing the number of choices on the menu, training kitchen staff in food waste prevention, and using the parts discarded during the preparation of one meal for another meal on the menu.



12 1 13

RETURN OF THE ECO-FRIENDLY CHRISTMAS MARKET

Université Laval's eco-friendly Christmas market returned after several years off. More than 15 student associations took part in the event. The university community had the opportunity to purchase a wide range of eco-friendly products, including handmade soaps, fabric bags, homemade baked goods, second-hand clothing, and reusable gift wraps called *furoshiki*.



12 2 15

FRUIT ON CAMPUS

Recipient of the Imagine an environmental challenge for change! bursary and the Youth Projects to Fight Against Climate Change program, Magalie-Jade Fortin's "Plant your fruit tree for a healthy campus" project is taking root.

In the spring of 2022, she and the student association VIA Agro-Écologie took the first step in this project to turn the campus into a nourishing environment. They planted around 85 fruit trees and shrubs near the Roger-Van den Hende University Garden.

In the spring of 2023, the second stage began with the planting of 60 trees and shrubs near the Paul-Comtois building on campus.





13/ CLIMATE ACTION

Take urgent action to combat climate change and its repercussions.

13 17

FOURTH EDITION OF THE BAROMÈTRE DE L'ACTION CLIMATIQUE

For the past four years, Université Laval's Groupe de recherche sur la communication marketing climatique has published a *Baromètre de l'action climatique*—a climate action barometer—each year. This study aims to establish a number of findings, notably in terms of environmental concerns, attitudes to climate issues, feelings of personal efficacy, civic involvement, and perceptions of responsibility for climate action.

The 2022 edition found that 86% of Quebecers believe in the urgency of climate change, that one in five feel that the measures needed to combat climate change infringe on their personal freedoms, and that 47% of the population have experienced eco-anxiety.

This fourth report was written by Professor Valériane Champagne St-Arnaud of the Faculty of Business Administration, Professor Maxime Boivin of the Faculty of Arts and Human Sciences, and research professional Karine Langlais of the Faculty of Business Administration.

13 9 15

CREATING A CARBON SINK WITH ABANDONED LAND

In collaboration with other Quebec experts, professors Méline Thibault and Évelyne Thiffault of the Faculty of Forestry, Geography and Geomatics published a study in the scientific journal *Plant and Soil* on the amount of carbon captured by reforested wasteland.

Their work compared the amount of carbon sequestered in the soil on abandoned farmland and on fields reforested with white spruce. The results of the study, carried out on a total sample of 49 fields, show that the amount of carbon sequestered is relatively equivalent over a 50-year period, whether the land is reforested or not. This is because the natural progression of vegetation on abandoned land is just as beneficial for removing carbon from the atmosphere, all while generating zero emissions.



13 4 11

NEW INITIATIVE FOR THE FUTURE ON CLIMATE ACTION

Launched as part of the 2017–2022 Strategic Plan, the Initiatives for the Future program provides a deep dive into a complex social issue. This year marked the fourth Initiative for the Future, which addressed climate action.

Focusing on interdisciplinarity and the development of forward-looking skills, this initiative aims to train leaders who can guide companies and society in concrete action to tackle and adapt to climate change.

The steering team is made up of professors from the Faculty of Forestry, Geography and Geomatics; the Faculty of Business Administration; the Faculty of Medicine; the Faculty of Nursing; and the Faculty of Social Sciences.

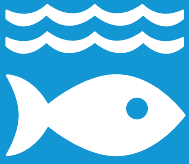
13 11 17

URBI-GES: FOR BETTER GHG MONITORING

A team led by Professor Stéphane Roche of the Faculty of Forestry, Geography and Geomatics has received a \$3.7M grant as part of a call for projects from the Canadian government's Climate Action and Awareness Fund.

The project, "*Urbi-GES: plateforme d'intelligence urbaine pour le suivi des émissions de gaz à effet de serre*," aims to better understand greenhouse gas emissions and mitigation effectiveness across Canadian cities and municipalities. To achieve this, the platform will provide innovative ways to analyze the spatial, location-based correlations of what is emitted by households, what is done (behaviours and mitigation measures), and what is said (perceptions and opinions).





14/ LIFE BELOW WATER

Conserve and sustainably use the oceans, seas and marine resources for sustainable development.

14 13 17

\$154M TO STUDY OCEAN CARBON SEQUESTRATION

Université Laval is one of four universities participating in the \$154M “Transforming Climate Action” initiative, funded by the Canada First Research Excellence Fund. The initiative is looking to study how oceans contribute to carbon sequestration and how climate change is affecting that ability. Researchers will also work with affected First Peoples communities to study the impacts of climate change on coastal communities. In all, more than 46 partners in 8 countries will collaborate on the initiative, which will run until 2030.

One of the unifying projects, led by teams from Université Laval, will involve documenting the oceanographic processes taking place in Baffin Bay. Professor Jean-Éric Tremblay of the Faculty of Science and Engineering and Director of the Institut nordique du Québec will act as co-scientific director of the management team.

14 11 13

DISCOVERY OF AN ICE SHELF THAT DISAPPEARED 14,500 YEARS AGO

Professor Patrick Lajeunesse and postdoctoral fellow Pierre-Olivier Couette from the Faculty of Forestry, Geography and Geomatics have contributed to a study on the disappearance of the ice shelves bordering West Antarctica, published in the journal *Communications Earth & Environment*.

The study reveals the discovery of a similar event that occurred 14,500 years ago in Baffin Bay, causing the disappearance of an ice shelf and a marked rise in sea level of around 20 metres over 500 years. Research indicates that this shelf would have had a surface area of up to 150,000 km² and a maximum thickness of 500 metres before it melted.

The discovery of this event will enable us to better understand the dynamics between melting ice shelves and glacier flow. In recent years, several ice shelves, notably the Ross Ice Shelf, have fractured; their disappearance would significantly affect sea levels, and therefore our societies.



14 13 15

NATURE THWARTS PREDICTIVE MODELS

An international research team that includes Professor Pascale Roy-Léveillé of the Faculty of Forestry, Geography and Geomatics has found that northern rivers are not moving according to predicted patterns of regional warming.

Published in the scientific journal *Nature Climate Change*, the study shows that the impact of thawing permafrost on bank destabilization and erosion is outweighed by the influence of other regional factors, such as the proliferation of shrubs in previously sparsely vegetated areas. This stabilizes the banks and prevents accelerated channel migration.

However, the work found that this does not apply to other permafrost-free regions, where river migration has followed the predictive models.

14 6 9

SLOWING LAKE EUTROPHICATION WITH GEOCHEMISTRY

Since 2017, Professor Raoul-Marie Couture of the Faculty of Science and Engineering and Professor Dolores Planas of the Université du Québec à Montréal have been studying the reaction of Lake Bromont after treatment with Phoslock to reduce the number of blue-green algae outbreaks.

Developed in Australia in the 1990s, Phoslock contains lanthanum, an element that can bind to phosphorus in a water column and in the upper layer of sediment. This binding reduces the amount of phosphorus available to microorganisms, including blue-green algae.

While the monitoring work by Professor Couture's research team has so far shown the treatment to be beneficial, the professor took part in a recent study published in the journal *Environmental Science: Processes & Impact* that demonstrated unexpected effects of the process. Some of the lanthanum also appears to bind to other elements, such as carbon and iron, in the sediments, thereby reducing the rate of phosphorus sequestration.



15/ LIFE ON LAND

Preserve and restore terrestrial ecosystems, ensuring that they are used sustainably, manage forests sustainably, combat desertification, halt and reverse soil degradation and halt the loss of biodiversity.

15 9 13

FIFTH WORLD CONGRESS ON AGROFORESTRY A SUCCESS

In the summer of 2022, Université Laval hosted the fifth World Congress on Agroforestry: Transitioning to a Viable World. As an essential component of the ecological, energy, social, and climate transition, agroforestry was discussed from a number of angles, including its contribution to development, society, biodiversity, soil health, and the fight against climate change. Over 800 people attended the event in person and virtually.

More than 20 members of the university community were involved in organizing the conference, including Professor Nancy Gélinas of the Faculty of Forestry, Geography and Geomatics as Chair of the Logistics Committee, and Professor Alain Olivier of the Faculty of Agriculture and Food Sciences as Chair of the Scientific Committee.

15 13 17

ELEVEN QUEBEC UNIVERSITIES JOIN FORCES TO PROTECT BIODIVERSITY

Université Laval joined ten other Quebec universities in signing the Nature Positive pledge, becoming one of the founding institutions of this international movement.

By becoming a member of the Nature Positive Universities Alliance, Université Laval is recognizing its role in combating the decline in biodiversity and committing to taking action now. Over the next few years, it will have to take stock of the current situation, set achievable and measurable targets, implement an action plan to reach these targets, and report annually on its progress.



15 11 12

WOODLAND CLEAN-UP STILL ON THE AGENDA

Even after a two-year hiatus due to the pandemic, the Nettoyage des boisés event has remained as popular as ever with the university community. Held in May of each year, this Service des immeubles initiative is an opportunity for those who wish to do so to help beautify the campus by collecting garbage left in the woods.

For the tenth edition, no less than 175 kg of waste and 66 kg of recyclables were collected by the 108 participants.



15 11

LIVING LABORATORY: FROM THEORY TO ACTION

Eighteen students in the master's program in environmental biogeosciences have been characterizing the natural environments and studying the plants and animals in Montmagny's Parc du Marais. This field activity was part of their program and was supervised by instructor Danielle Cloutier and expert technician Martine Lapointe, both from the Faculty of Forestry, Geography and Geomatics.

Using the data collected, the team will propose plant and wildlife additions that will improve the nature of the area, enhance the public experience, and contribute to the area's biodiversity. Their recommendations will then be implemented by elementary-school children as part of a project funded by the TELUS Foundation and the Fondation Richelieu Montmagny.





16/ PEACE, JUSTICE AND STRONG INSTITUTIONS

Promoting peaceful and inclusive societies, ensuring access to justice and building effective, accountable and accessible institutions at all levels.

DEMOCRATIZING AND POPULARIZING THE RIGHT TO FINANCIAL SERVICES FOR ALL

Université Laval has announced the creation of a new joint research unit (UMR), the Laboratoire en droit des services financiers (LABFI), in partnership with Beneva and the Autorité des marchés financiers. Each of the partners will provide \$250,000 in funding over five years.

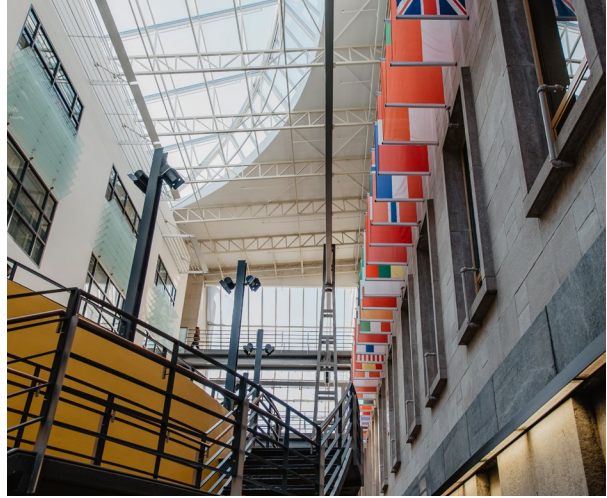
Under the direction of Professor Cinthia Duclos of the Faculty of Law, the LABFI will seek to develop and raise awareness of financial services law, prepare the next generation of qualified lawyers in the field, encourage research on regulatory and contemporary issues, contribute to education by democratizing and popularizing financial services law, and promote the protection of consumers of financial services.

To achieve these objectives, the laboratory will work to create a financial services consumer protection clinic, whose mission will be to make legal advice more accessible for members of the local community.



THE EXPERTISE OF A LAW PROFESSOR SOUGHT ABROAD

Professor Géraud de Lassus St-Geniès of the Faculty of Law has published a study examining how the United Nations Commission on International Trade Law could contribute to the objectives of the Paris Agreement. Commissioned by the Secretariat of the Commission, the study by Professor de Lassus St-Geniès focuses in particular on private law issues relating to climate change. The conclusions were presented to the members of the Commission as part of their work.



16 10 17

WORKING TOWARDS A JUST AND INCLUSIVE SOCIETY BY COMBATING IMPUNITY FOR INTERNATIONAL CRIMES

This year, the Canadian Partnership for International Justice (CPIJ), co-founded and led by Professor Fannie Lafontaine of the Faculty of Law, received the Governor General's Innovation Award and the Social Sciences and Humanities Research Council of Canada Partnership Award. These awards illustrate the CPIJ's benefits and transformative innovations in its field. Bringing together 25 academic and legal researchers, the Partnership is a key player in international justice, both in Canada and abroad.

With over 200 scientific texts to its credit and 600 students trained, the Partnership focuses its research on the challenges of criminal reparations faced by national systems, as well as civil and administrative reparations for victims of international crimes.



16 7 9

FOR RESPONSIBLE EXTRACTION OF ENERGY TRANSITION MINERALS

An intersectoral team from Université Laval and the Université du Québec en Abitibi-Témiscamingue has been awarded a grant under the Programme de recherche en partenariat sur le développement durable du secteur minier II – Recherche sur les minéraux critiques et stratégiques.

Entitled "*Pour une meilleure compréhension de la radioactivité et de sa perception dans le contexte d'exploitation des éléments de terres rares (ETR)*," the project will look at the effects of rare-earth-element mining on the environment, the perception of affected populations, and the best legal practices to be developed.

Professor Christophe Krolik of the Faculty of Law will act as co-investigator.





17/ PARTNERSHIP

**Strengthen
and revitalize
the Global Partnership
for Development.**



SHAPING THE FUTURE OF SUSTAINABILITY

The Institut environnement, développement et société (IEDS) collaborated with the Centre interdisciplinaire de recherche en opérationnalisation du développement durable (CIRODD) for the second edition of the École d'été en transformation sociétale. This accredited graduate program aims to develop design and systems thinking, strategic planning, and data modelling to solve complex problems. Ultimately, participants will be able to operationalize Sustainable Development Goals and find sustainable solutions to their organizational problems that incorporate them.

Offered to both the university community and staff members of public and government bodies, this training program uses an academic approach based on concrete case studies and workshops involving numerous experts from different backgrounds.



THE SDGs IN LOCAL GOVERNMENTS

The Institut environnement, développement et société (IEDS) has signed a partnership agreement with the city of Baie-Saint-Paul as part of its "*Démarche transformationnelle d'intégration des Objectifs de développement durable dans les communautés locales*" project. With the expertise of numerous partners, the IEDS will support this city in the comprehension, planning, implementation, and monitoring of the SDGs.

Using a participatory approach, the collaboration between the Institute and Baie-Saint-Paul will inform decision-making and guide the emergence of foundational initiatives to transform the local situation with a view to achieving the SDGs.

17 3 4

SUSTAINABLE HEALTH: A SOCIAL PROJECT

Université Laval, Alliance santé Québec, and VITAM – Centre de recherche en santé durable organized the symposium “*La santé durable: vecteur d’un projet de société*” at the 89th Acfas Congress.

Bringing together a wide range of players from the academic, local, and business worlds, the symposium was an opportunity for everyone to bear witness to progress towards a shared vision of sustainable health, to exchange views on the role of cities, to recognize the importance of leveraging data, to discuss the challenges of inter-sectoral collaboration and citizen participation, and to celebrate concrete initiatives.

The public was also invited to take part in “*Au cœur de la santé durable*” as part of the “*Science-moi*” activity series. Over the course of two days, people had the chance to meet experts working in their communities and discover initiatives to allow them to take concrete action for their well-being.



17 3 4

ACADEMIC HEALTH INSTITUTIONS’ DECLARATION ON PLANETARY HEALTH

Université Laval’s Faculty of Medicine has become a signatory to the Academic Health Institutions’ Declaration on Planetary Health, unveiled at the International Congress on Academic Medicine, which it hosted in 2023.

By signing this declaration, the Faculty of Medicine is committing to implementing an action plan for the advancement of planetary health education and research, including the allocation of financial resources for researching and developing climate-resilient healthcare.

17 4 16

ACCELERATION TOWARDS MORE TEACHING AND RESEARCH ON INTERNATIONAL CHALLENGES

Université Laval has unveiled a major campaign to build the Carrefour international Brian-Mulroney. This project will bring together the Graduate School of International Studies and key Université Laval players involved in international issues under one roof. It will contribute to achieving Sustainable Development Goals and hosting representatives of the international community. It will also give rise to new research chairs and encourage French-speaking students to take up strategic positions within international organizations.

As a testament to Université Laval’s mobilizing power and expertise in international studies, it was able to raise \$60M of the \$80M needed to launch the project in less than a year, including securing nearly \$41M from the federal and provincial governments.



WORK AND PROGRESS OF THE CROSS-CUTTING INITIATIVES

SUSTAINABLE DEVELOPMENT

Since 2007, sustainable development has been a distinctive feature of Université Laval's culture. Having celebrated its 15th anniversary in 2023, the sustainable development initiative continues to move forward and innovate, with more emphasis than ever on a participative approach with, by, and for the community.

Over the past two years, we have adopted a new Shared Vision of Sustainable Development and a new SD Policy, and the SD team has drafted a new Sustainable Development Strategy to implement these orientations alongside the university community. The Strategy, which will be unveiled in the fall of 2023, was written in collaboration with over 100 people from 27 different administrative units.

Driven as it is to increase opportunities for experiential learning, the sustainable development team takes on several interns each year. In 2023, it offered three internships: one in active mobility, one in climate action, and one in process automation. Two of these interns have even been hired to continue their work.

In addition to these examples, the SD team collaborates with numerous groups within the community, such as the Table étudiante sur les enjeux environnementaux et sociaux (TEES), the Groupe de travail enseignement et recherche en développement durable (GTERDD), the Institut Environnement, Développement et Société (IEDS), the Réseau des répondantes et des répondants locaux en développement durable (RRRL), and numerous advisory committees.

Our work with the GTERDD has led to the development of an initial portrait of the ways teaching and research activities are contributing to the achievement of the SDGs, as well as the creation of a training program on the SDGs that is tailored to the university community. The training program will be rolled out in 2023–2024.

To assess students' SD knowledge, the SD team and the Observatoire québécois de l'adaptation aux changements climatiques (OQACC) developed a questionnaire for the entire student body. The first edition (released in fall 2022) created a baseline, while subsequent versions will allow the SD team to assess how studying at Université Laval influences this knowledge.

In conclusion, 2022–2023 was an important year in our fight against climate change. Université Laval has adopted its new energy strategy, which aims to decarbonize its energy infrastructure by 2035. This will result in the institution being fully supplied by renewable energy, reducing greenhouse gas (GHG) emissions by 70% compared to 2006, the reference year. In addition to continuing to produce its annual GHG report and maintaining its carbon neutrality, Université Laval has embarked on an extensive project to draw up a methodological guide for inventorying its Scope 3 (indirect) emissions.



RESPONSIBLE ENTREPRENEURSHIP

2022 was a pivotal year that marked the end of the first strategic plan for the responsible entrepreneurship initiative and the preparation of the next. For the past five years, the initiative has been driven by the energy and commitment of the members of the Comité d'action sur l'entrepreneuriat responsable (CASER), whose mandate is threefold: ensure coordination, complementarity, and synergy between stakeholders; strengthen Université Laval's positioning in entrepreneurship in Quebec and Canada; and seize opportunities to develop regional alliances. Driven by CASER, the mobilization of entrepreneurial forces across campus has led to the emergence of numerous impactful projects, the vast majority of which reflect the sustainability and impact concerns of their initiators. This is just one indicator that the culture of responsible entrepreneurship is taking firm root at Université Laval.

Building on these achievements, over the past few months the team has been engaged in a collective reflection process to co-construct the vision, mission, values, and strategy that will guide its actions and priorities over the coming years. This exercise coincided with Université Laval's institutional planning process, and the findings are consistent with the overall orientations in terms of impact and collective ambition. The entrepreneurial future is bright!



SOCIAL ENGAGEMENT

As part of the first Social Engagement Conference on November 11, 2020, the university community adopted the Statement of Social Engagement. This has allowed the social engagement initiative to define actions that align with orientations directly from the Université Laval community. As in previous years, in 2022–2023 work under the Statement involved a number of initiatives that align with the vision of this foundational text.

The GPL-4914/GPL-6914 course was created in collaboration with the Chair in Social Engagement, allowing off-campus social engagement to earn credit and be celebrated. It offers students recognition for their social commitment, while facilitating the associated learning. Thanks to the contribution of the social engagement initiative, this course has become an institution-wide endeavour.

To support volunteers in their efforts, an educational series has been developed in collaboration with members of the faculty and teaching staff who are part of the initiative's network, members of the Table de concertation de la Démarche such as the Équipe des Premiers peuples, and official partners such as Centraide and the Centres d'action bénévoles.

Produced in collaboration with the Service du développement professionnel (SDP), another Table de concertation member, the series highlights engagement as an opportunity for experiential learning. The goal is to promote the importance of learning through social engagement, a type of experiential learning comparable to that associated with employment and internships.

The textbook will be published as an open educational resource with the support of the Université Laval library and the Service de soutien à l'enseignement. It will include elements like the new Socially Engaged Project Canvas (a guide for those wishing to design such projects), produced in collaboration with the Chaire sur le développement de l'esprit d'entreprendre et de l'entrepreneuriat, the Chair in Social Engagement, the responsible entrepreneurship initiative, and the social engagement initiative.

The SDP's social engagement platform, backed by a partnership with the Centres d'action bénévoles, will enable members of the student community to discover volunteering opportunities tailored to their needs. For their part, the initiative's partners will work together to promote the course to student volunteers, informing them of the new recognition mechanism.

This achievement is built around Université Laval's mission. It encourages experiential learning within the community and recognizes the social engagement of members of the university community while promoting social engagement, its importance, and its many forms.



SUSTAINABLE HEALTH

Université Laval sees health and well-being as a global, transdisciplinary matter. The knowledge generated by cross-disciplinary and cross-sector collaboration helps open up new avenues of research, develop new expertise, identify opportunities for improving practices, and accelerate their implementation in the workplace.

In keeping with its vision of sustainable health, Université Laval is a signatory to the Okanagan Charter. This document is a cornerstone of Université Laval's sustainable health initiative, acting as an institutional guide and making UL a leader in sustainable health throughout the French-speaking world.

The 2022–2023 school year was notably marked by the launch of many different initiatives that contribute to two priorities of the sustainable health action plan: Priority 2 (make the campus a living environment conducive to sustainable health, including balance spaces) and Priority 7 (advance research, teaching, knowledge, and actions to promote sustainable health). In particular, a new course for the short undergraduate program on healthy lifestyle habits was launched and two new research chairs were initiated.

Université Laval: an environment that supports healthy lifestyle habits

The Mon équilibre ULaval team collaborated with campus teams to install seven “balance spaces” in different campus buildings, including Desjardins, Vandry, Pouliot, Vachon, and Félix-Antoine-Savard. These calm, comfortable, green spaces are perfect for rest or quiet socializing.

The spaces also serve as showcases for campus activities throughout the year that focus on adopting and maintaining healthy lifestyle habits. The Mon équilibre ULaval team and its collaborators organized many activities and initiatives throughout the year to help the community adopt and maintain healthy lifestyle habits. Here are just a few examples: group culinary workshops; yoga, meditation, and massage therapy activities; healthy snack booths at campus events; several flash concerts in the hallways; creation of an “active route” in podcast format by students in the kinesiology program.

Université Laval: a sustainable health training and research environment

The 2022–2023 school year saw numerous academic and research activities and initiatives to promote health in multiple areas. Firstly, two new research chairs were created: the Chaire de recherche en santé durable and the Relief Research Chair in Mental Health, Self-Management, and Work. A true innovation, the former will be headed not only by two scientists, but also by two citizens.

Additionally, new courses and programs introduced over the past few months have enhanced the range of courses on offer at all levels. For instance, a new course on the science of happiness has been added to the short undergraduate program on healthy lifestyle habits. Using the principle of positive psychology, this course aims to better understand what influences our happiness and to offer concrete, evidence-based solutions. A short graduate program on sustainable health and climate change has also been added to the Faculty of Medicine's curriculum. The only one of its kind in Quebec, it helps respond to the complex challenges and new realities posed by climate change and its impact on health.

Finally, this year, a group of scientists and citizens created a free training series for the general public, to help people prepare for appointments with health and social services workers. These courses help develop skills to improve health literacy.

Université Laval: a growing reputation in sustainable health

Several delegations from other universities and international organizations came to meet with Université Laval teams this year and discuss their vision of sustainable health. What's more, numerous concerted actions by sustainable health players at UL and in the regional ecosystem are attracting attention and contributing to its position. They include projects and events involving: PULSAR, VITAM, Alliance santé Québec, the Association pour la santé publique du Québec, Mon équilibre ULaval, the Réseau d'action en santé durable, the Fonds de recherche du Québec, Université Laval's Faculty of Medicine, and others.

A number of articles in the local media have contributed to raising our profile on sustainable health, including some on Université Laval's partnership with insurance company Beneva.

In all, nearly 36,400 members of the university community were involved in sustainable health initiatives this year.



PARTNERS

| | | |
|--|---|---|
| 2 Degrés | Centre intégré universitaire de santé et de services sociaux de la Capitale-Nationale | Institut intelligence et données |
| 9 universités partenaires d'UniC | Convergence action bénévole | Institut Mallet |
| Alliance santé Québec | Coop FA | Institut universitaire de cardiologie et de pneumologie de Québec |
| Axelys | Développement économique Canada | La Main |
| Babson College | Espace de concertation sur les pratiques d'approvisionnement responsable (ECPAR) | LE CAMP |
| Banque de Montréal | Entrepreneuriat ULaval | Ministère de l'économie et de l'innovation |
| Banque Nationale | Environnement et Changement climatiques Canada | Mycelium |
| Banque Royale | Fairmont Château Frontenac | Nation Huronne-Wendat |
| BCF Avocats d'affaires | Fondation MasterCard | NEOMA Business School |
| Bell pour la cause | Fondation Molson | Palais des congrès de Montréal |
| Beneva | Fondation Monique-Fitz-Back | Pôle des entreprises d'économie sociale de la région de la Capitale-Nationale |
| Bénévoles d'expertise | Fondation Prince Albert 2 de Monaco | Propulsion Québec |
| Ça marche doc! | Fonds de recherche Santé | Quantino (INO) |
| Centre d'action bénévole Aide23 | Forces Avenir | Québec international |
| Centre d'action bénévole du Contrefort | Forum économique international des Amériques | Réalité Climatique Canada |
| Caisse de dépôt et placement du Québec | Institut national d'excellence en santé et en services sociaux (INESS) | RTC |
| Centraide Québec et Chaudière-Appalaches | Institut national de santé publique du Québec (INSPQ) | Santé et Services sociaux |
| Centre d'action bénévole de Québec | Institut de la Francophonie pour le développement durable (IFDD) | Secrétariat à la jeunesse |
| Centre des congrès de Québec | | Séminaire de Québec |
| Chambre de commerce de Québec | | Ville de Québec |
| Centre hospitalier universitaire de Québec – Université Laval | | |
| Centre intégré de santé et de services sociaux de Chaudière-Appalaches | | |

CERTIFICATIONS

STARS Platinum rating

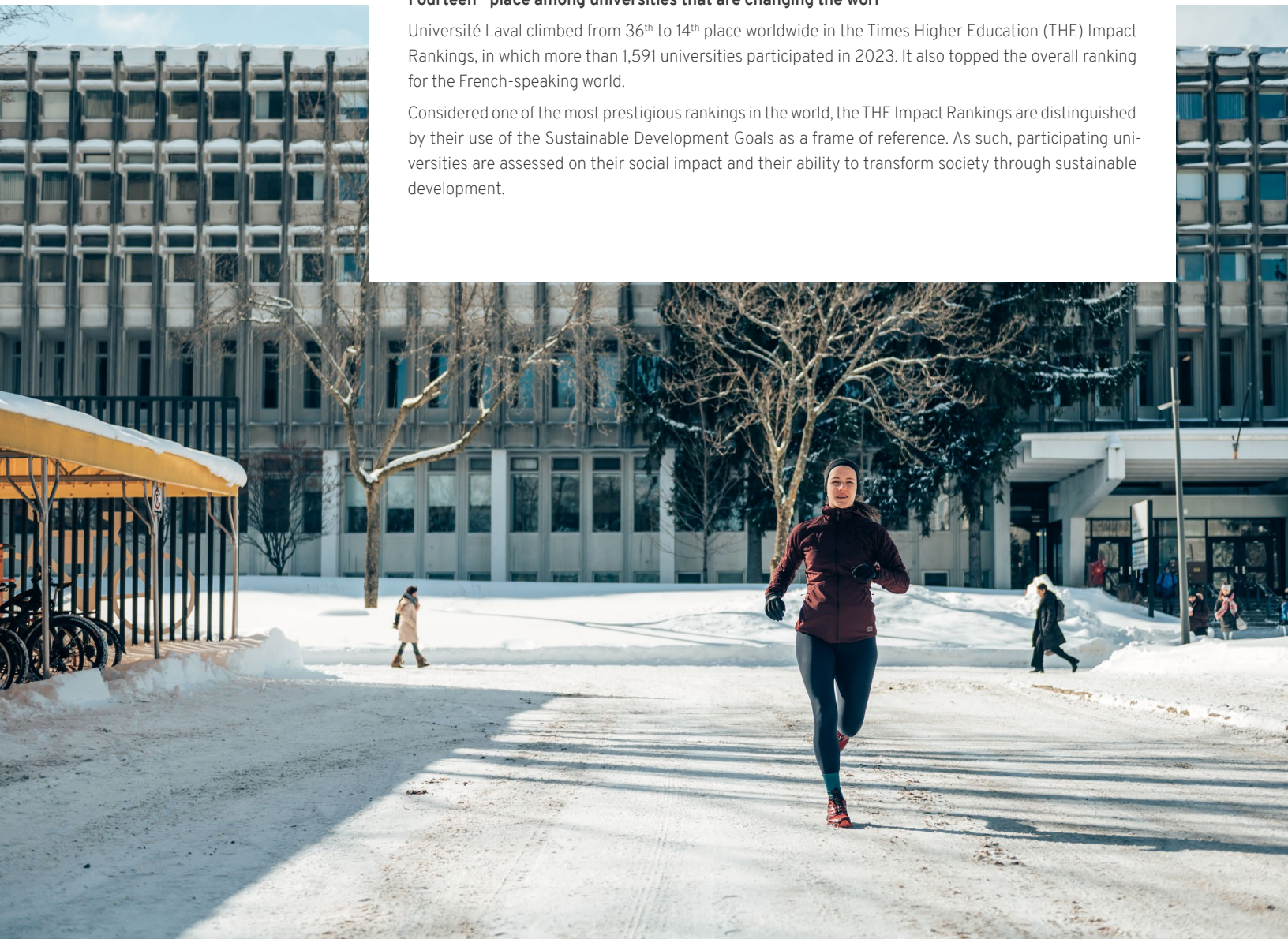
Université Laval has achieved a Platinum rating under the international STARS (Sustainability Tracking, Assessment and Rating System) program, and is one of the few universities in the world to have done so.

With over 67 criteria covering areas such as academics, research, governance, operations, engagement, and mobilization, STARS is one of the most rigorous, transparent, and comprehensive rating systems in the field of sustainable development. It highlights and recognizes the many efforts of every member of the university community.

Fourteenth place among universities that are changing the world

Université Laval climbed from 36th to 14th place worldwide in the Times Higher Education (THE) Impact Rankings, in which more than 1,591 universities participated in 2023. It also topped the overall ranking for the French-speaking world.

Considered one of the most prestigious rankings in the world, the THE Impact Rankings are distinguished by their use of the Sustainable Development Goals as a frame of reference. As such, participating universities are assessed on their social impact and their ability to transform society through sustainable development.





PROGRESS INDICATORS

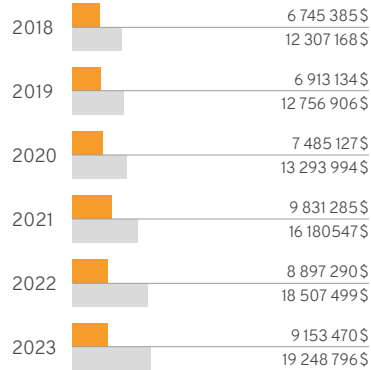
1 8 10

FINANCIAL SUPPORT GRANTED TO THE STUDENT COMMUNITY

Indicator : Salaries and bursaries paid to the students by fund from 2018 to 2023

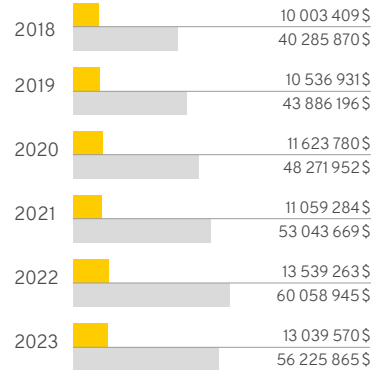
Internal funds – Operating

Salaries Bursaries



External funds – Research

Salaries Bursaries

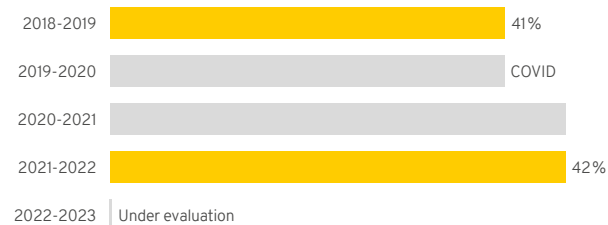


Total amount paid in thousands of dollars

2 9 12

SUSTAINABLE FOOD CHOICES

Indicator : Percentage of food purchases sources locally

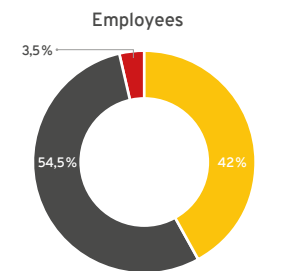
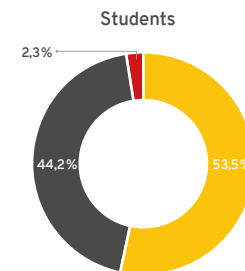
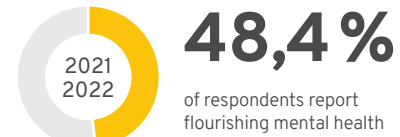


3

HEALTH AND WELL-BEING

Indicator

Percentage of ESSAIM respondents reporting flourishing mental health

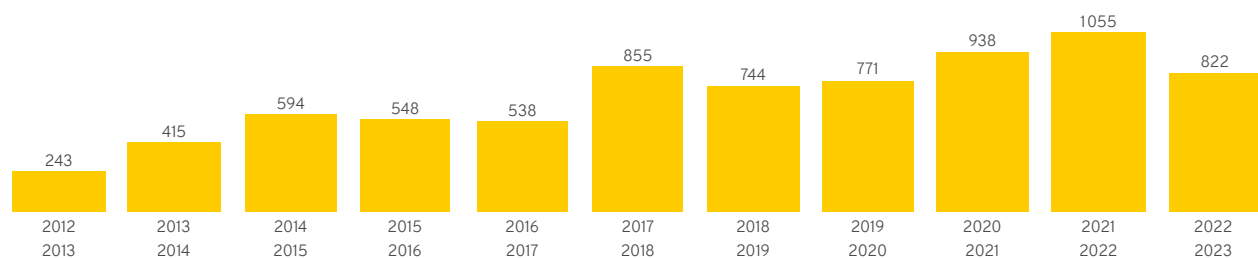


Flourishing Moderate Languishing

3 4

HEALTH AND WELL-BEING

Indicator : Number of people enrolled in a Mon équilibre ULaval credited course

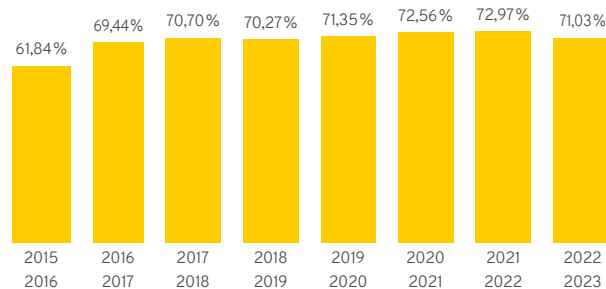


4 16 17

TEACHING AND RESEARCH

Indicator

Proportion of bachelor's and master's graduates introduced to sustainable development issues (course-based master's degrees)

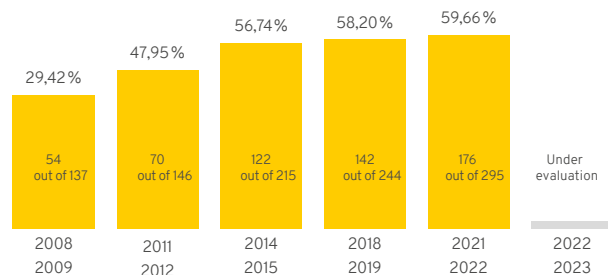


| | ODD | INDICATOR - TEACHING | INDICATOR - RESEARCH | |
|----|-----|---|---|-------------------------------|
| | | Number of courses with a major link to an SDG | Number of master's theses and doctoral dissertations by SDG | Number of publications by SDG |
| | | 2021-2022 | 2021-2022 | FROM 2017 À 2022 |
| 1 | 1 | 30 | 9 | 83 |
| 2 | 2 | 101 | 46 | 300 |
| 3 | 3 | 528 | 163 | 4 557 |
| 4 | 4 | 472 | 42 | 227 |
| 5 | 5 | 64 | 17 | 172 |
| 6 | 6 | 56 | 7 | 344 |
| 7 | 7 | 29 | 14 | 474 |
| 8 | 8 | 330 | 55 | 286 |
| 9 | 9 | 354 | 93 | 414 |
| 10 | 10 | 96 | 17 | 267 |
| 11 | 11 | 168 | 19 | 316 |
| 12 | 12 | 84 | 34 | 359 |
| 13 | 13 | 145 | 36 | 492 |
| 14 | 14 | 27 | 26 | 285 |
| 15 | 15 | 105 | 38 | 438 |
| 16 | 16 | 362 | 33 | 330 |
| 17 | 17 | 117 | 9 | N/A |
| | | OUT OF 4,994 | OUT OF 652 | |

4 9 17

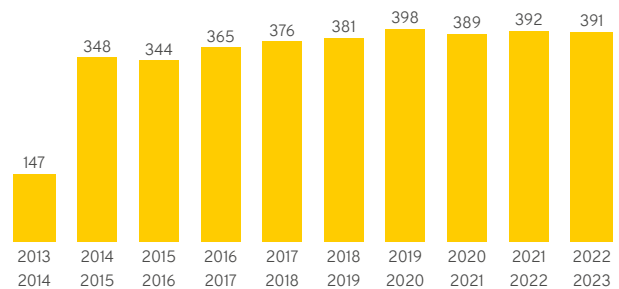
Indicator

Percentage of research entities associated with an SD issue



4

Indicator : Number of courses identified as SD



4

ACCESSIBILITY TO UNIVERSITY EDUCATION

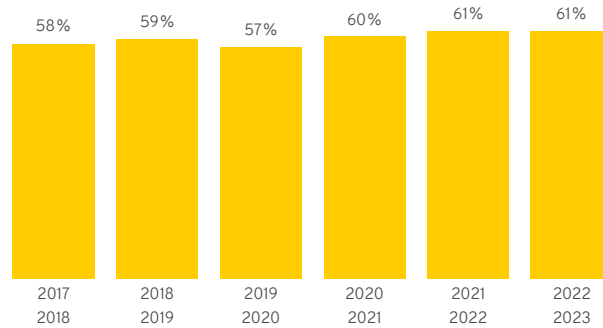
Indicator : Number of first-generation students

| | ULaval | Canada | Quebec | U15 |
|------------------|--------|--------|--------|--------|
| NSSE 2020 survey | 42,8 % | 40,0 % | 39,6 % | 33,2 % |
| NSSE 2017 survey | 47,7 % | 43,1 % | 45,5 % | 35,8 % |

5 10

GENDER EQUALITY

Indicator : Percentage of diplomas awarded to women



7 9 12

ENERGY

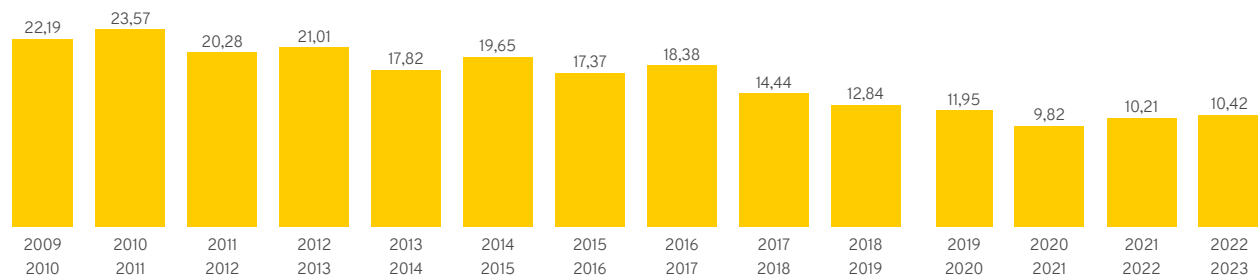
Indicator : Energy intensity in GJn/m². Data normalized to outdoor temperature

| | GJn/m ² | | GJn/m ² |
|-----------|--------------------|-----------|--------------------|
| 2013-2014 | 1,43 | 2018-2019 | 1,43 |
| 2014-2015 | 1,34 | 2019-2020 | 1,42 |
| 2015-2016 | 1,52 | 2020-2021 | 1,37 |
| 2016-2017 | 1,41 | 2021-2022 | 1,40 |
| 2017-2018 | 1,44 | 2022-2023 | 1,38 |

6 11 12

WATER

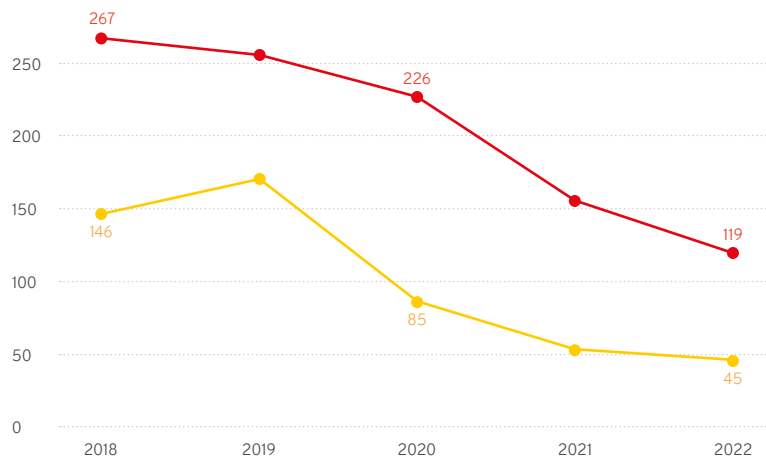
Indicator : Water consumption (m³/FTE)



8 13

RESPONSIBLE INVESTMENT

Indicator : Carbon intensity of Global Trust's equity and corporate bond portfolios



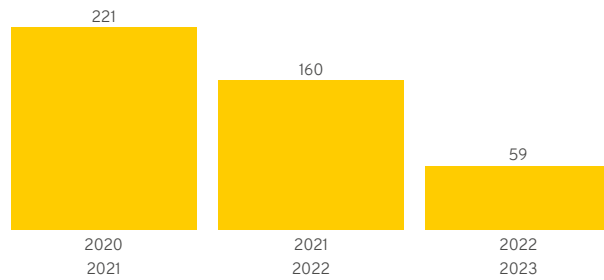
In line with best practice in the financial sector, the unit of measurement "carbon footprint" has been changed to "carbon-weighted intensity" in 2023. This is more rigorous and representative.

— Carbon intensity (tCO₂e/M\$)
— Carbon footprint (tCO₂e/M\$)

9 8 11

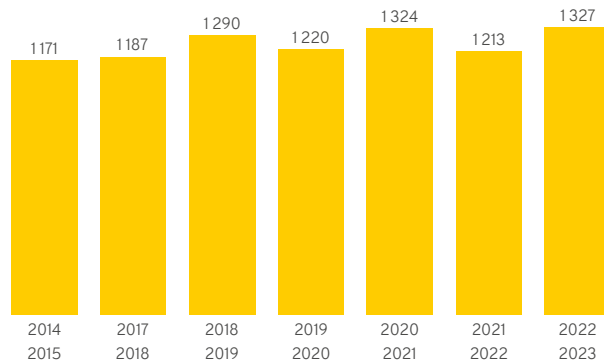
RESPONSIBLE ENTREPRENEURSHIP

Indicator : Number of entrepreneurial projects supported in an approach based on the Responsible Business Model Matrix



9 8 11

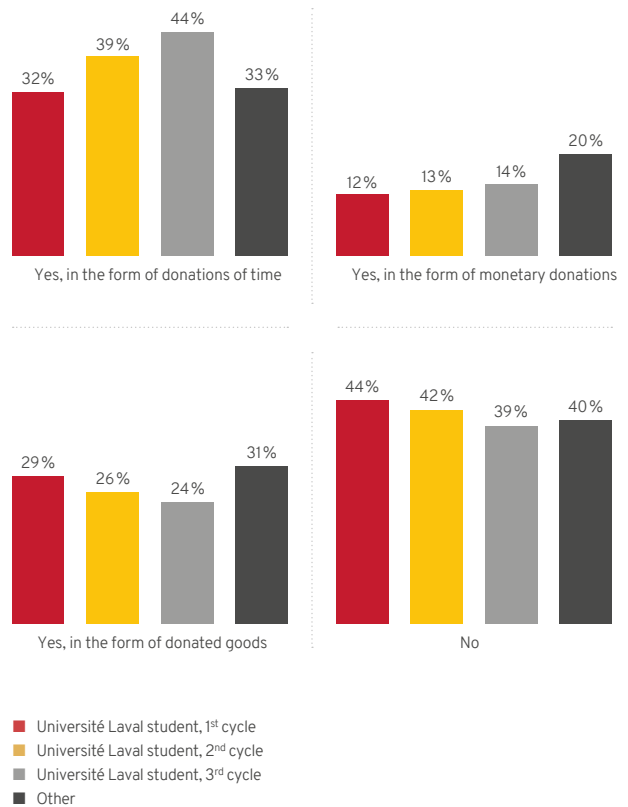
Indicator : Number of students educated in responsible entrepreneurship (ENT-1000 and ENT-6132 courses)



10 11 16

SOCIAL ENGAGEMENT

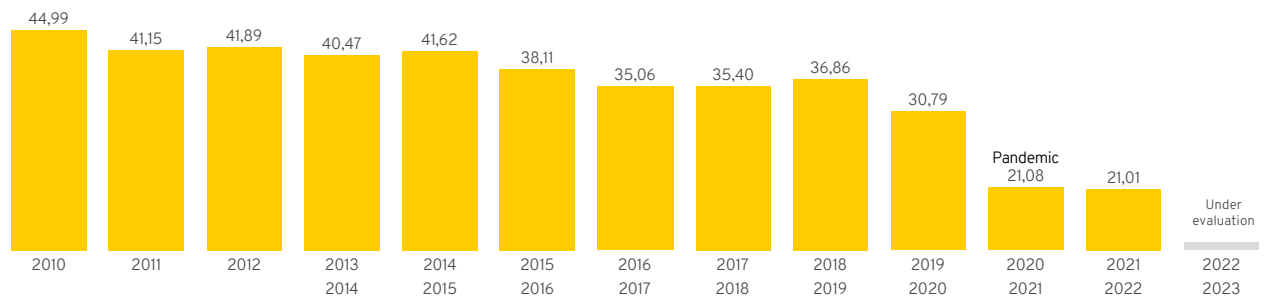
Indicator : Proportion of students involved in one or more social causes or activities, on or off campus, over the past 12 months. Results from the Sustainability Survey (Winter 2023)



12 11 14

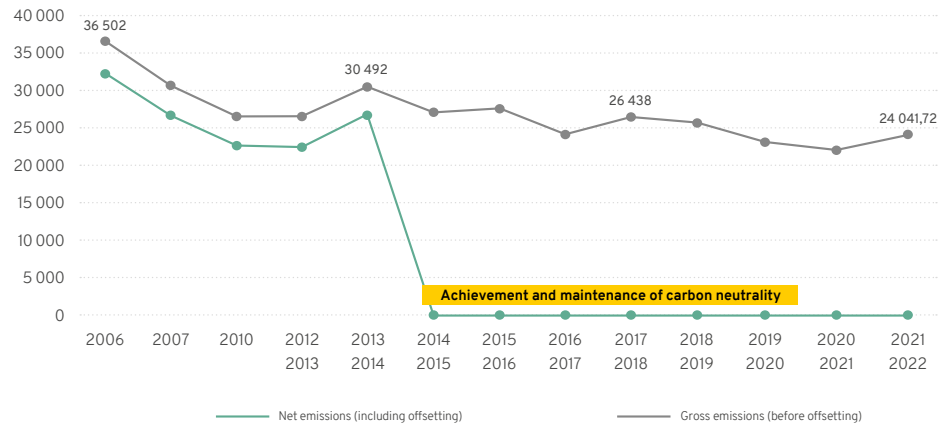
WASTE REDUCTION

Indicator : Total quantity of residual materials (waste and recycled materials), in kg/FTE



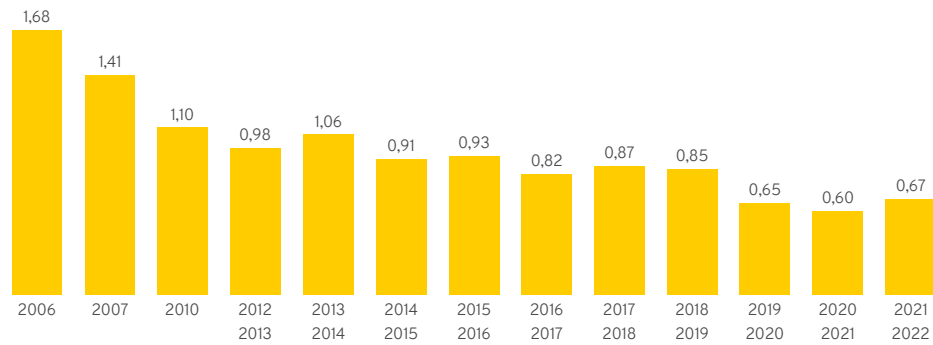
13

CLIMATE ACTION

Indicator : Annual Scope 1 and 2 GHG emissions (in tonnes of CO₂ eq.)

13

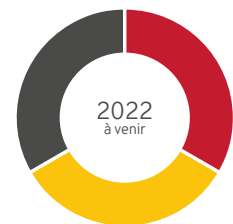
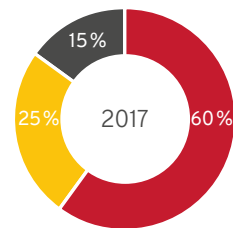
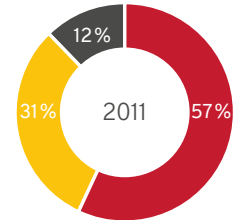
CLIMATE ACTION

Indicator : Carbon intensity, i.e. total Scope 1 and 2 GHG emissions in g CO₂ eq./m²/FTE

11 3

SUSTAINABLE MOBILITY

Indicator : Modal shares for the Cité universitaire sector, taken from the Origin-Destination survey



■ Automobile, including carpooling
 ■ Public transport
 ■ Active mobility

14

LIFE BELOW WATER

Indicator : Number of scientific publications related to sustainable development objective 14 - life below water



15

BUILT AND NATURAL ENVIRONMENT

Indicator : Number of trees planted on the campus



396
2022

329
2023

16 17

PARTICIPATORY APPROACH

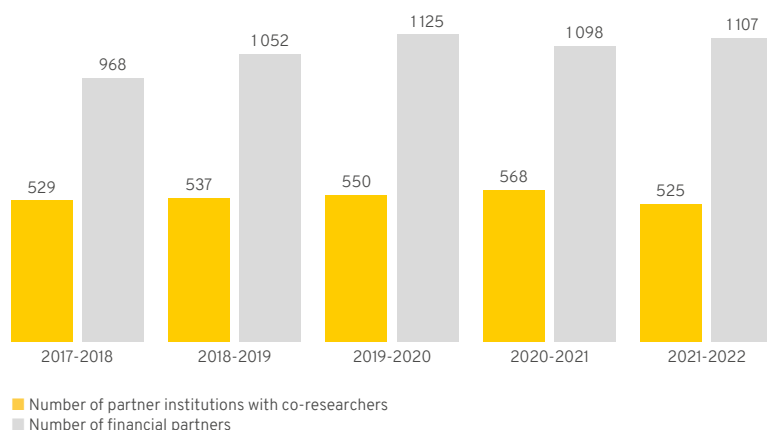
Indicator : Number of people participating in working groups on sustainable development, social commitment, responsible entrepreneurship and sustainable health.

244
2022-2023

17

RESEARCH PARTNERS

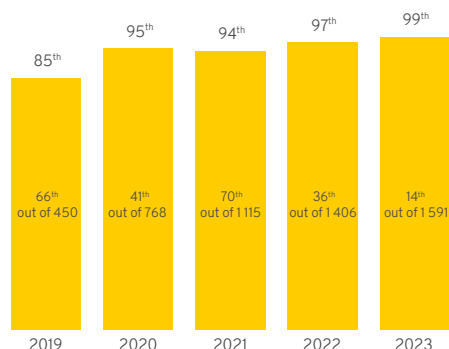
Indicator : Number of partner institutions with co-researchers and financial partners



16 17

INTERNATIONAL RANKING

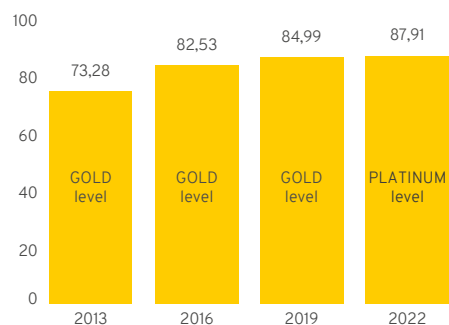
Indicator : Université Laval's percentile ranking in the Times Higher Education Impact Ranking



Times Higher Education
Impact Rankings
2023 TOP 20



Indicator : Rating achieved in the international STARS® (Sustainability Tracking, Assessment & Rating System™) supported by the Association for the Advancement of Sustainability in Higher Education.





Office of the Vice Rector, International
Affairs and Sustainable Development
info@developpementdurable.ulaval.ca
ulaval.ca/dd