2021-22 ANNUAL UPDATE

2020-2025 Strategic Plan

OCTOBER 2022

UNIVERSITY OF WATERLOO

CONNECTING IMAGINATION WITH IMPACT

INTRODUCTION

The 2021-2022 Strategic Plan Annual update offers information about progress on selected initiatives in the three key theme areas covered by the University of Waterloo's 2020-2025 plan: Developing Talent for a Complex Future, Advancing Research for Global Impact and Strengthening Sustainable and Diverse Communities. These selected initiatives offer a flavour of how we are addressing each of the theme areas and eleven goals. Additional work is ongoing in most areas, including Faculty contributions. More detail about these selected Faculty highlights are available at the strategic plan's action and progress website.

The report also offers relevant, high level, indicators that can be meaningfully connected to desired strategic goals. These indicators are important to help monitor Waterloo's longer-term progress. Where available, data includes benchmarks for comparison to Ontario, Canadian, or international contexts. Again, only selected indicators are shown here with additional indicators available on the strategic plan action and progress website.

For additional detail on our strategic plan, and our progress, please visit the Strategic Plan Action and Progress website. This is a password-protected website. To access it, use your campus credentials.

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Developing talent for a complex future

GOAL T1: EDUCATE GLOBAL CITIZENS FOR THE FUTURE OF WORK AND LEARNING TO THRIVE IN AN AGE OF RAPID CHANGE BY PUTTING LEARNERS AT THE CENTRE OF EVERYTHING WE DO

OBJECTIVES

T1A INCREASE FLEXIBLE CURRICULA

T1B PROMOTE TEACHING AND LEARNING INNOVATION AND REDUCE SYSTEMIC BARRIERS

T1C REMOVE BARRIERS TO COLLABORATION, INTERDISCIPLINARITY, AND KNOWLEDGE INTEGRATION

T1D ADVANCE TECHNOLOGY-ENABLED LEARNING

T1E ENHANCE "BUSINESS AT WATERLOO" MODEL

SELECTED INITIATIVES

CLICK ON THE TITLES TO LEARN MORE ABOUT EACH INITIATIVE.

Progress legend

Started | In progress | Completed

T1B T1C

Designing a Teaching Innovation Incubator (TII) to develop transformative pedagogy and programs

The TII is an exploratory testbed for new, potentially transformative, approaches to teaching. The TII hub is in development. The Beta TII project focuses on engaging graduate students from each Faculty to create a team-taught interdisciplinary course on complex, intractable problems like climate change.

T1B

Focusing on equity, diversity, inclusion, and anti-racism (EDI-R) in curriculum

Waterloo is decolonizing curriculum, addressing equity, and embracing anti-racist pedagogies by: creating new training modules, hiring Indigenous elders, and revising existing and creating new curriculum. The Associate Vice-President Academic office, Centre for Extended Learning (CEL), and faculties are working together with the offices of equity, diversity, inclusion and anti-racism and Indigenous relations to do this important work.

T1A

Removing barriers to innovation: non-credit credentials

Waterloo is developing a new approach to facilitate credentialling of new non-credit and credit courses to support curriculum innovation. The Senate, through the Alternative Credits Approval Committee, has initiated work on this project.

T1A T1B T1D

Advancing an agile, technology–enabled learning ecosystem

The Digital Learning Strategy Working Group is developing a comprehensive strategy that will help Waterloo prepare for the educational marketplace of the future and to position itself as a leader in digital learning. Consulting with key stakeholders, the group will report in late 2022 with recommendations on how Waterloo can best support the creation of exceptional, learner-centred, digitally-enabled learning opportunities, including flexible delivery modes and learning pathways. The development of a digital learning strategy will follow this important work.

T1A T1D

Leveraging online learning to build active learning opportunities

The Blended Learning Initiative (BLI) is a joint project launched in 2021 by the Centre for Teaching Excellence, CEL, and Waterloo's Faculty-based teaching fellows to help instructors leverage technology-enabled strategies that will optimize in-person instruction. Workshops to support these strategies have been developed. The ultimate objective of this work is to improve student learning outcomes and faculty satisfaction, while also reducing pressure on use of classroom space.
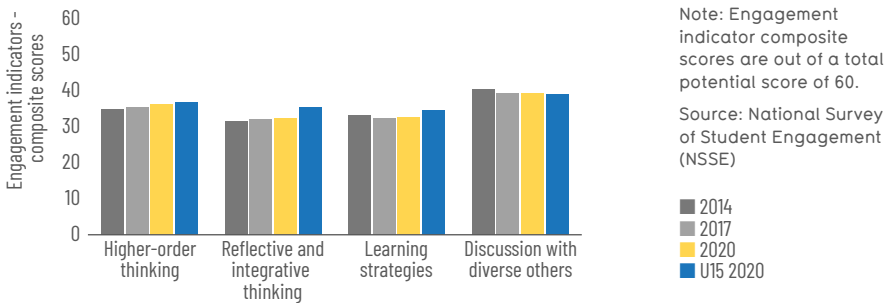
T1D

Optimizing student outcomes for better instructor supports

CEL launched the Agile Development Team in fall 2021 as a two-year pilot to deploy resources to support faculty members interested in adapting or developing online learning materials and courses. As a result of this project's success, it has been extended beyond the two-year pilot period.
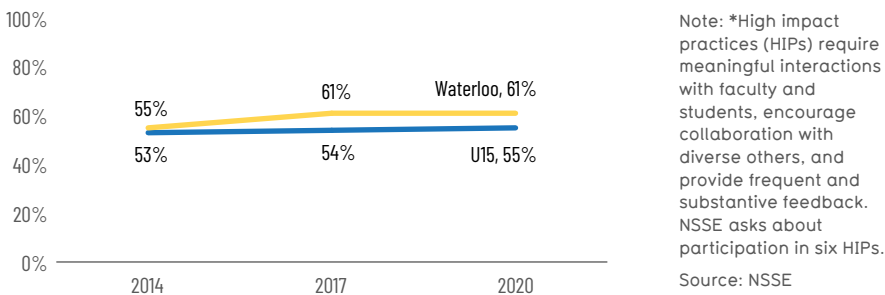
SELECTED INDICATORS

Waterloo graduating year students' perception of their exposure to engaging learning practices remained relatively constant T1A T1B

Note: Engagement indicator composite scores are out of a total potential score of 60.

Source: National Survey of Student Engagement (NSSE)

■ 2014
■ 2017
■ 2020
■ U15 2020

A greater proportion of Waterloo graduating year students report participating in two or more high impact practices compared to the U15 T1A

Note: *High impact practices (HIPs) require meaningful interactions with faculty and students, encourage collaboration with diverse others, and provide frequent and substantive feedback. NSSE asks about participation in six HIPs.

Source: NSSE

In 2020, 63% of Waterloo graduating year students reported that their education contributed to solving complex, real-world problems compared to 55% among U15 comparators T1A T1C

Source: NSSE
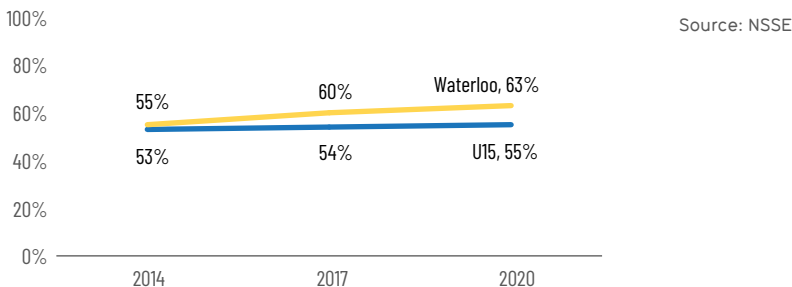
Over the past four years, around 85% of non co-op alumni reported that skills gained at Waterloo were related to their employment compared to around 96% of co-op alumni T1A T1C

Source: Ontario University Graduate Survey
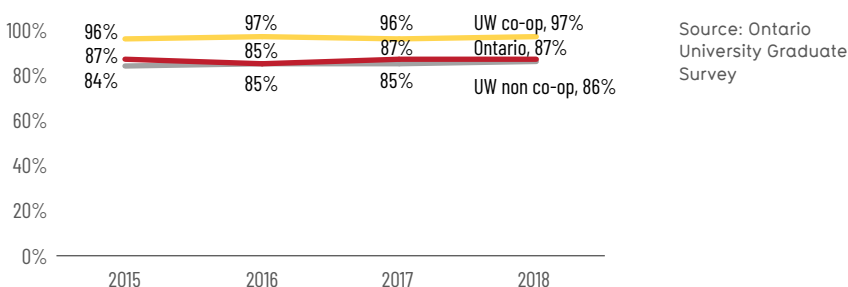
A DEEPER DIVE ON TECHNOLOGY-ENABLED LEARNING

Waterloo's strategic plan makes a direct commitment to advance technology-enabled learning. A working group was formed in 2022 to inform the development of a digital learning strategy. Waterloo has been a leader in digital learning, but the concept of technology-enabled learning is evolving, and Waterloo's approach is evolving with it.

Today, opportunities for using technology in learning are more available than ever, in part because remote learning during the pandemic created more exposure to online learning. The emerging approach makes use of technology to improve student experience in in-person courses by offering many of the online learning advantages (the ability to work at their own pace, watching lectures more than once to review material). This allows in-person components to focus on more interactive activities like problem solving or discussion. Technology also offers new possibilities for the University to reach mid-career professionals who are not interested or able to take on-campus courses, create joint courses and programs with other universities, and offers more opportunities for international students.

While good work in this area is happening across campus, sometimes it is occurring in siloes. The new Digital Learning Strategy coming in late 2022 will provide an umbrella for coordinating these activities, limiting inefficiency and duplication, while still allowing for creativity afforded by local experimentation.

GOAL T2: ENHANCE GRADUATE AND POST-DOCTORAL STUDIES BY EMPHASIZING THE UNIQUE ATTRIBUTES OF THE UNIVERSITY OF WATERLOO AND OUR TALENTED AND DIVERSE GRADUATE STUDENT COMMUNITY

OBJECTIVES

T2A GROW GRADUATE WORK-INTEGRATED LEARNING

T2B INCREASE EXTERNAL PARTNERSHIPS FOR GRADUATE LEARNING

T2C FOSTER AN INTERDISCIPLINARY ENVIRONMENT FOR GRADUATE STUDENTS

T2D STRENGTHEN GRADUATE STUDENT SUPPORT

T2E STIMULATE FLEXIBLE, INTERDISCIPLINARY GRADUATE PROGRAMS

SELECTED INITIATIVES

CLICK ON THE TITLES TO LEARN MORE ABOUT EACH INITIATIVE.

Progress legend

Started · In progress · Completed

T2A

Growing graduate work-integrated learning (WIL)

Waterloo's goal is to build GradWIL to be a prominent differentiator for graduate studies. In 2021 Graduate Students and Postdoctoral Affairs (GSPA) formed a working group with Co-operative and Experiential Education to explore structures and models for GradWIL, build a menu of experiential options for faculties and programs to use, and develop a communication plan.

T2B T2C

Increasing thematic research funding and partnerships available for graduate students, post-doctoral fellows, and faculty

Through 2021-2022, GSPA worked with Institutional Analysis and Planning and Information Systems Technology to identify graduate student financial metrics, including research funding and productivity. These efforts will inform future decisions for growing Waterloo's graduate student programs.

T2C T2E

Developing new interdisciplinary graduate programs based on recommendations from the Interdisciplinary Task Force

Building on recommendations from the Interdisciplinary Task Force, and with support from the Teaching Innovation Incubator (TII), GSPA seeds concepts and facilitates administrative hurdles to support faculties developing interdisciplinary programs. Faculties developed and / or implemented four programs over

2021-2022 and the provost office committed $2.1M to support an interdisciplinary postdoctoral scholars' program for 2022-2025.

T2C T2E

Implementing novel, interdisciplinary courses delivered by PhD students

Emerging scholars are working with the TII on the "wicked problem" course development initiative, aiming to solve similar issues from different, interdisciplinary perspectives. In 2021-2022 a senior doctoral student from each Faculty was selected to collaborate and develop an interdisciplinary, team-taught course on addressing climate change. The course will be launched in 2023, along with new opportunities identified to advance the program.

T2D

Developing and enhancing graduate student supports

Waterloo's Task Force on Graduate Student Supervision will report their findings in 2022-2023, and combined with results from the 2022 Canadian Graduate and Professional Student Survey (CGPSS), will inform the University's strategic directions on improved graduate student experience. Building on this work, Policy 30 is being revised. Policy 30 governs relationships between teaching assistants (TAs) and the University at all levels and will be implemented to provide greater clarity and support to instructors, students, and TAs.
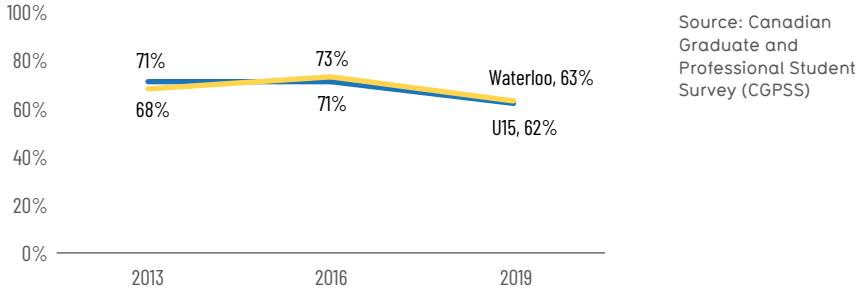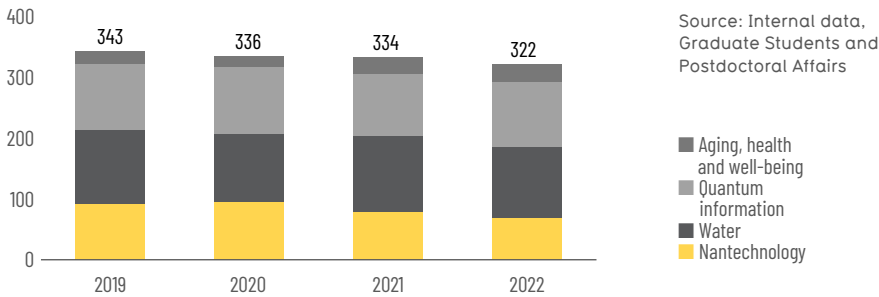
SELECTED INDICATORS

TO READ MORE ABOUT THE INDICATORS BELOW, VISIT THE STRATEGIC PLAN ACTION AND PROGRESS WEBSITE.
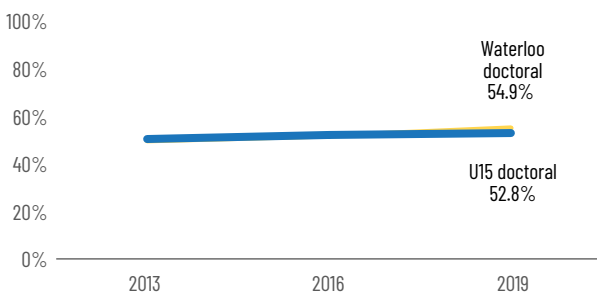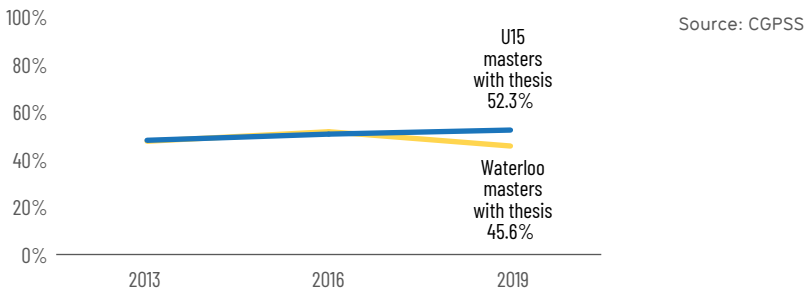
Both Waterloo and the U15 have seen a decline in graduate students' rating of the opportunities for support and training for internships, practicums, and experiential learning as good, very good, or excellent T2A T2D

Source: Canadian Graduate and Professional Student Survey (CGPSS)

- 2013: 71%, 68%
- 2016: 73%, 71%
- 2019: Waterloo, 63%; U15, 62%

Enrolment in four Waterloo interdisciplinary graduate programs has remained relatively steady since 2019 T2C T2E

Source: Internal data, Graduate Students and Postdoctoral Affairs

- 2019: 343
- 2020: 336
- 2021: 334
- 2022: 322

Legend:
- Aging, health and well-being
- Quantum information
- Water
- Nanotechnology

About half of both Waterloo and U15 masters with thesis and doctoral students would definitely select the same faculty supervisor if they were to begin their studies again T2D

Source: CGPSS

- U15 masters with thesis 52.3%
- Waterloo masters with thesis 45.6%

- Waterloo doctoral 54.9%
- U15 doctoral 52.8%

GOAL T3: CONTINUE TO LEAD THE WORLD IN CO-OPERATIVE EDUCATION AND SUPPORT THE WORKFORCE OF THE FUTURE THROUGH FULLY INTEGRATED ACADEMIC AND EXPERIENTIAL LEARNING OPPORTUNITIES

OBJECTIVES

T3A LEVERAGE EMPLOYER, INDUSTRY, GOVERNMENT, AND ALUMNI NETWORKS

T3B RECRUIT AND RETAIN FUTURE READY TALENT

T3C INCREASE INTERDISCIPLINARY RESEARCH OPPORTUNITIES FOR CO-OP STUDENTS

SELECTED INITIATIVES

CLICK ON THE TITLES TO LEARN MORE ABOUT EACH INITIATIVE.

Progress legend

Started | In progress | Completed

T3A T3B T3C

Implementing the Future Ready Talent Framework (FRTF) to increase impact

Waterloo's Office of Co-operative and Experiential Education (CEE) created the FRTF in 2020 to lead in a volatile working environment and contribute to a sustainable world. In 2021-2022 CEE integrated new learning competencies identified through this framework throughout co-op evaluations, work term consultations with employers, professional development courses, and career workshops for students. CEE uses the FRTF model to identify evolving competencies through student employment evaluations which are then integrated into student and employer engagement efforts.

T3B

Embedding equity in work-integrated learning (WIL)

To support equity approaches in WIL, CEE is investigating new, more flexible forms of WIL, examining embedded processes and approaches that underpin WIL programs, and hired two new associate directors — one with responsibilities for equity, inclusion, diversity, and anti-racism and one with responsibilities for Indigenous relations.

T3A T3B T3C

Diversifying WIL opportunities

Gaining employment in the first co-op work term is a historic challenge and was exacerbated by COVID-19. CEE created an honorarium-based program, co-developed with industry partners, to provide in-demand skills to students who are unable to secure first work-term jobs. Waterloo Experience (WE) Accelerate has been adopted as an ongoing program. Among WE Accelerate participants who completed the program in spring 2021 and also had a work term in winter 2022, 94 per cent were employed, compared to 90 percent of first work term students who did not participate in WE Accelerate.

T3A T3B

Securing and advancing Waterloo's global leadership

Waterloo's Work-Learn Institute is the only institute in the world dedicated to researching co-operative and work-integrated learning, helping to propel Waterloo's global leadership in these domains. Three members of the CEE leadership team hold key leadership roles in each of the three national and international groups focused on co-operative and experiential learning. One of these, the World Association for Co-operative Education (WACE) moved its secretariat to Waterloo and in 2023 Waterloo will host the global WACE conference.

SELECTED INDICATORS

TO READ MORE ABOUT THE INDICATORS BELOW, VISIT THE STRATEGIC PLAN ACTION AND PROGRESS WEBSITE.

Co-op employment has now almost returned to pre-pandemic rates as the number of co-op work terms required continues to increase T3A T3B
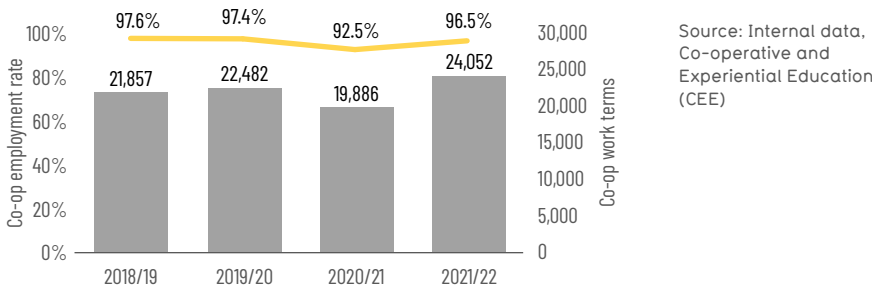
Source: Internal data, Co-operative and Experiential Education (CEE)

Waterloo continues to increase its co-op employer base T3A T3B

Source: Internal data, CEE
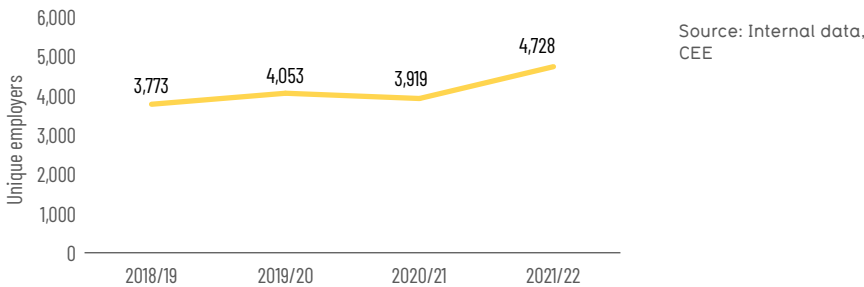
Waterloo continues to rank as one of the world's top institutions for producing job-ready students T3A T3B

INDICATOR	RANK IN CANADA	SCORE
Employer reputation	2 (2)	75.5 (70.1)
Partnerships with employers	2 (2)	98.5 (97.8)
Alumni outcomes	2 (2)	87.4 (84.8)
Employer / student connections	2 (1)	88.0 (85.9)
Graduate employment rate	1 (1)	86.2 (81.8)

Note: previous year rank and score is supplied in brackets.

Source: QS Employability Ranking

INSTITUTION	2022
MIT	1
Stanford	2
UCLA	3
U of Sydney	4
Harvard	5
Toronto	21
Waterloo	24

Enrolment in new forms of work-integrated learning, like EDGE, is increasing T3A T3B
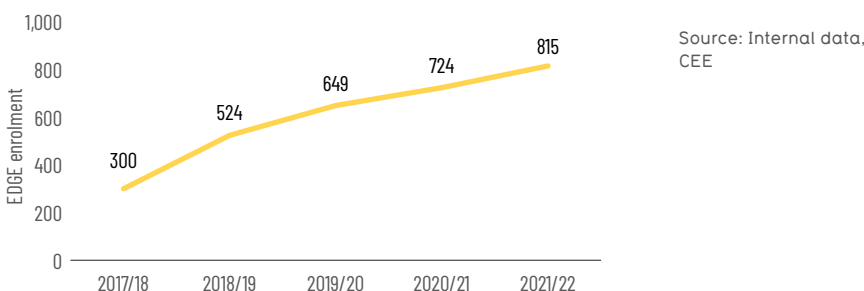
Source: Internal data, CEE

BUILDING ON UNDERGRADUATE SUCCESS TO DEVELOP GRADUATE STUDENT EXPERIENTIAL OPTIONS

Leveraging Waterloo's global leadership in work-integrated learning for graduate students is a major innovation for the University, and vital to strengthen the University's commitment to develop talent for a complex future. Working collaboratively, CEE and Graduate Studies and Postdoctoral Affairs (GSPA) have a goal to offer all Waterloo graduate students an opportunity to participate in WIL, either as a part of the graduate program or an additional experience.

Using its expertise in WIL pedagogy and student support, CEE will develop meaningful WIL experiences for graduate students, with input from GSPA and each Faculty. A GradWIL curriculum development team can support academic programs, ensuring that there are models to build WIL into graduate level curricula. CEE will work with existing employers to articulate the value proposition for employers to engage with graduate students.

These collaborative efforts are paying off. The School of Environment, Resources, and Sustainability launched a new internship program and CEE has developed new supports for graduate students in three Engineering and Math programs. A pre-pilot of enhanced co-op with individualized support in the Master of Management Sciences program is building positive graduate student experiences in WIL. To ensure that the GradWIL initiative is aligned with the interests of the graduate community, consultations will continue this fall.

OBJECTIVES

T4A ESTABLISH A LIFELONG LEARNING CENTRE

T4B LEVERAGE PARTNERSHIPS AND ENGAGE ALUMNI IN LIFELONG LEARNING

GOAL T4: ESTABLISH A UNIQUE WATERLOO APPROACH TO SUPPORT LEARNING AT VARIOUS STAGES OF INDIVIDUALS' PROFESSIONAL LIVES

SELECTED INITIATIVES

CLICK ON THE TITLES TO LEARN MORE ABOUT EACH INITIATIVE.

Progress legend

Started | In progress | Completed

T4A T4B

Launching WatSPEED to full operation

WatSPEED was developed in 2020 and launched in 2021, in direct response to the strategic plan's goal to establish a lifelong learning centre. The new business unit leverages Waterloo's faculty strengths, learning models, and alumni connections to serve the growing need for upskilling. In 2021-2022 WatSPEED launched three pilots in partnership with professional associations while building operational capacity. WatSPEED's initial business model leverages these partnerships to build initial learning opportunities. Current partners are: Chartered Professional Accountants of Ontario, Canadian Institute for Health Information, and Ontario Society of Professional Engineers. Continuing to build robust partnerships with professional associations and other business partners will remain a cornerstone of WatSPEED's business practice.
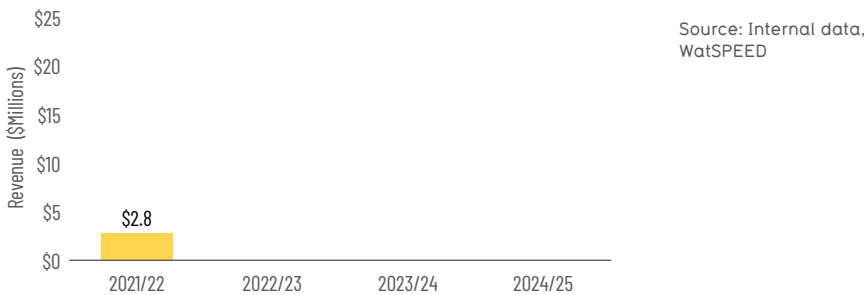
SELECTED INDICATORS

WatSPEED secured three business partners in its first year of operation

Source: Internal data, WatSPEED
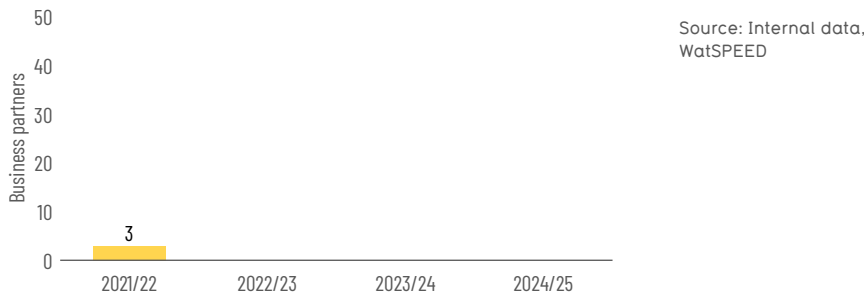
In its initial year, WatSPEED had a revenue of $2.8M

Source: Internal data, WatSPEED

By the end of May 2022, WatSPEED had a complement of approximately 30 resources represented by a mix of ongoing full-time, full-time contingent of funding, secondments, and contracted roles

Source: Internal data, WatSPEED

WATSPEED PARTNERSHIP TO UPSKILL HEALTHCARE EMPLOYEES IN DATA SCIENCE

For more than 20 years, Waterloo worked with the Canadian Institute of Health Information (CIHI) – an organization that provides reliable data to accelerate improvements in health care, health system performance, and population health across Canada. Today, WatSPEED and CIHI's relationship has expanded and deepened as they work towards a mutual goal of upskilling professionals.

Working with Waterloo faculty, WatSPEED created a series of customized online programs to advance the skills of more than 200 data analysts and managers. These offerings are designed to teach CIHI employees data science techniques using modern programming languages, along with the fundamentals and responsible use of data science. CIHI also recognizes the need for upskilling among their stakeholders who work across Canada's health systems. As such, CIHI has supported WatSPEED's application for $1 million in funding Sector Workforce Solutions Program to develop an open artificial intelligence program that leverages CIHI's insights and data.

Discussion for additional collaboration between WatSPEED and CIHI is underway, including experiential learning support for CIHI program participants that leverages Waterloo co-op students. To learn more about this multi-disciplinary partnership, visit **WatSPEED's website**.

GOAL R1: WATERLOO WILL USE ITS DISCIPLINARY AND INTERDISCIPLINARY STRENGTHS TO SOLVE INCREASINGLY COMPLEX, REAL–WORLD PROBLEMS

OBJECTIVES

R1A LEAD NATIONALLY AND GLOBALLY AT THE INTERFACE OF SOCIETY, HEALTH, AND TECHNOLOGY

R1B ATTRACT AND RETAIN TOMORROW'S RESEARCH LEADERS

R1C EXPLORE INTERDISCIPLINARY, CROSS-FACULTY RESEARCH OPPORTUNITIES

R1D PRIORITIZE INTERNATIONAL PARTNERSHIPS FOR THE GLOBAL GOOD

SELECTED INITIATIVES

CLICK ON THE TITLES TO LEARN MORE ABOUT EACH INITIATIVE.

Progress legend

Started   In progress   Completed

R1A R1C

Creating a health innovation hub

Waterloo is building an **Innovation Arena** to fast track the development of health technologies. Federal funding for the health innovation partnership was announced in August 2021 and renovation of existing facilities in downtown Kitchener began in early 2022. It is anticipated that the Innovation Arena will be completed in 2023. To attract investment to fuel research and invest in talent, Waterloo engaged with regional partners to develop two national proposals:

• a proposal for the federal government's Canadian Biomanufacturing Research Fund (CBRF) program to establish a hub for biomanufacturing related to pandemic preparedness in conjunction with institutions in Ontario as well as participation in one other CBRF proposal, and

• a Canada First Research Excellence Fund (CFREF) proposal on Transformative Health Technologies in virtual care, point of care diagnostics, therapeutic robotics, assistive technology, and secure data-informed technologies.

R1B

Increasing faculty awards and recognition

Faculty awards and recognition build Waterloo's research profile and increase research capacity. The Waterloo Awards Committee contracted a consultant to identify how to better promote and facilitate the submission of high-quality nominations of Waterloo scholars across all disciplines for prestigious awards and honours, with an equity, diversity, and inclusion lens. This report will be finalized in fall 2022 and an implementation plan will follow.

SELECTED INDICATORS

The field-weighted citation impact (FWCI)* for Waterloo and all selected international comparator institutions is above the expected average of 1.0 (2016-2020) R1A R1B R1C R1D
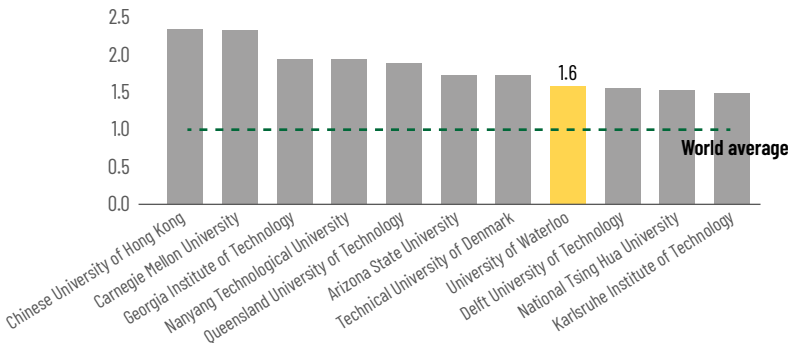
Note: *FWCI is an indicator of research impact. It normalizes for year, subject area, publication type, and size of the dataset. The global (or world) average is the expected value of 1.0.

Source: 2022 University of Waterloo Library update (2016–2020)

Waterloo's CIHR funding has almost doubled in the last five years, but considered as a share of U15 CIHR funds, Waterloo's proportional share has remained steady at ~1.2% R1A
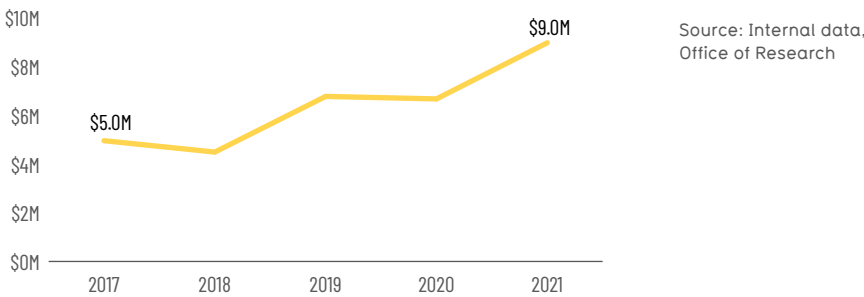

Source: Internal data, Office of Research

Between 2016 and 2020, 10.5% of Waterloo's publications were among the top 10 percent most interdisciplinary publications, consistent with international and national comparators R1B R1C
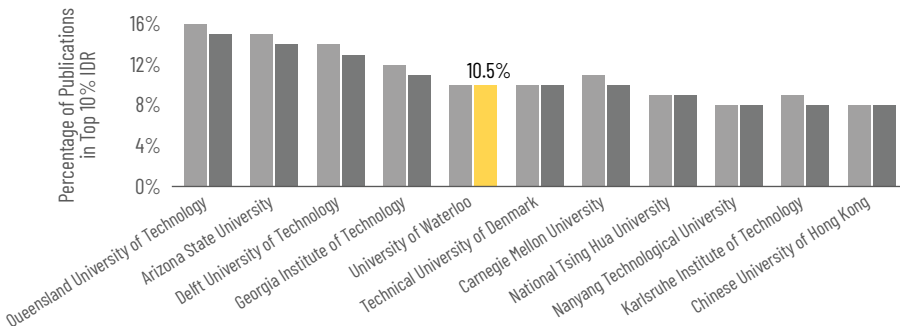
Note: *The interdisciplinarity (IDR) score is used to understand the diversity of research fields cited in publications from a given university.

Source: 2018 Elsevier report (2012–2016) with 2022 update from Elsevier: (2016–2020)

- ■ 2012–2016
- ■ 2016–2020
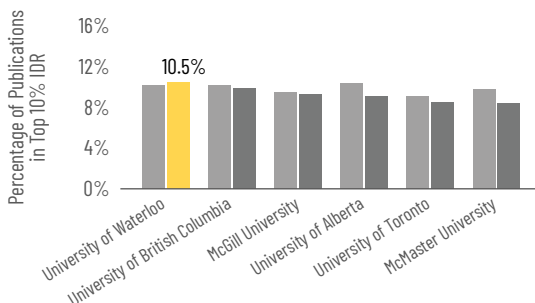
THE RIGHT STUFF: HEALTH INNOVATION AT WATERLOO

The underpinnings of investment, infrastructure, and talent have started to shape organization of health innovation at Waterloo, building on Waterloo's academic, research, and commercialization strengths.

In August 2021, FedDev Ontario funded the **Southern Ontario Health Innovation Partnership**, led by Waterloo's Velocity program. The investment is vital to developing the Innovation Arena. This infrastructure will co-locate health tech founders at the earliest stages of business building in an environment singularly focused on equipping and guiding new enterprises. New funding proposals that are already in progress are expected to amplify health tech capabilities at the Innovation Arena.

Sixteen existing health tech startups, many connected to research initiatives at Waterloo, are already working at Velocity, using their combined talent to advance health technology solutions. Meanwhile, Velocity is further refining supports for medical device and biotechnology startups by commissioning workflows to support commercialization of existing startups. More heath tech founders are on track to locate at the Innovation Arena, which is on schedule to open late 2023.

Spotlight on existing health tech Innovation Arena startups

HyIvy Health: using tech to support women's pelvic health
Cobionix: using robots to improve health care productivity
Aiimsense: bringing diagnostic to first response for stroke treatment

GOAL R2: GLOBAL LEADERSHIP IN INNOVATION AND ENTREPRENEURSHIP

OBJECTIVES

R2A CREATE INTERDISCIPLINARY TEAMS TO SOLVE PROBLEMS RELEVANT TO CANADA'S ECONOMY

R2B INCREASE INFRASTRUCTURE FOR RESEARCH COMMERCIALIZATION AND POLICY APPLICATION

R2C ESTABLISH A COMMERCIALIZATION FUND

R2D LEVERAGE NETWORKS TO EXPAND ENTREPRENEURIAL OPPORTUNITIES

R2E FOSTER AN ENVIRONMENT THAT STIMULATES ENTREPRENEURIAL PURSUITS

SELECTED INITIATIVES

CLICK ON THE TITLES TO LEARN MORE ABOUT EACH INITIATIVE.

Progress legend

Started   In progress   Completed

R2B R2E

Organizational restructuring to support commercialization and entrepreneurship

Waterloo brought together Waterloo Commercialization Office (WatCo) and Velocity under the new position of associate vice-president, commercialization and entrepreneurship, consolidating responsibilities and creating a "low-friction" user experience for innovators and entrepreneurs.

R2B R2E

Creating a roadmap for the entrepreneurship / commercialization support ecosystem

In 2022 the University completed an **online roadmap** outlining the numerous supports, resources, and opportunities available for Waterloo community members pursuing entrepreneurship / commercialization studies or related activities.

R2E
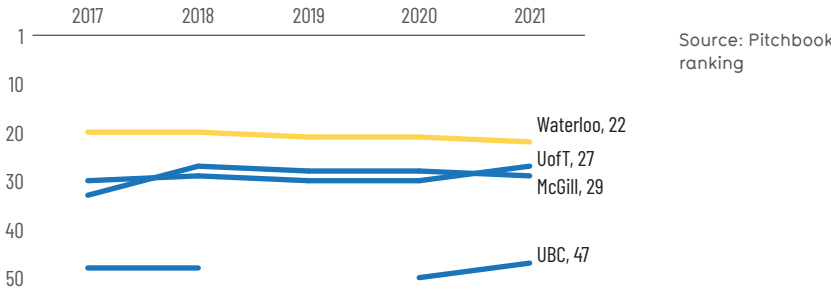
Incorporating equity, diversity, inclusion, and anti-racism (EDI-R) focus in commercialization and entrepreneurship

In 2022, WatCo commissioned an external agency to study Waterloo's commercialization ecosystem through an EDI-R lens with the intent to identify and understand any barriers for broader inclusivity in campus commercialization and entrepreneurship activities.
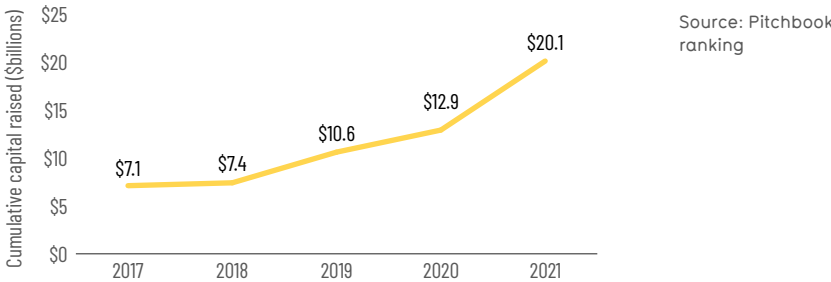
SELECTED INDICATORS

TO READ MORE ABOUT THE INDICATORS BELOW, VISIT THE STRATEGIC PLAN ACTION AND PROGRESS WEBSITE.
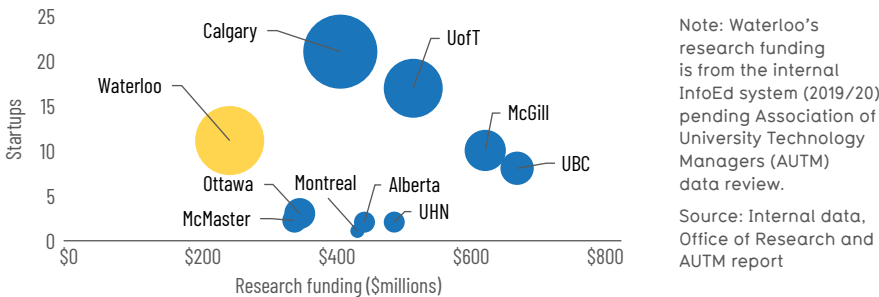
Waterloo continues to rank among top global institutions, and remains the best in Canada, in Pitchbook's overall ranking of universities producing venture capital-backed entrepreneurs R2A R2B R2D R2E

Source: Pitchbook ranking

Waterloo, 22
UofT, 27
McGill, 29
UBC, 47

Waterloo ventures have raised over $20B since 2006 R2A R2B R2D R2E

Source: Pitchbook ranking

Cumulative capital raised ($billions)

$7.1 — 2017
$7.4 — 2018
$10.6 — 2019
$12.9 — 2020
$20.1 — 2021

By intensity of startup creation (number of startups per $100M in total research expenditure), Waterloo's performance is among the top in the U15 R2A R2B R2D R2E

Startups vs Research funding ($millions): Calgary, UofT, Waterloo, McGill, UBC, Ottawa, Montreal, Alberta, UHN, McMaster

Note: Waterloo's research funding is from the internal InfoEd system (2019/20) pending Association of University Technology Managers (AUTM) data review.

Source: Internal data, Office of Research and AUTM report

CREATING SPACE AND OPPORTUNITY FOR INNOVATION

Three Waterloo students, Engineering's Adrian Simone, Masters of Business, Entrepreneurship and Technology student Rania Al-Sheikhlv, and Science's Krystal Yang, worked with faculty advisor Brian Ingalls to create **MicroBuild**, a company that uses recycled aggregate and a natural microbial process to form the bio-brick. This masonry unit is lighter and more durable than standard bricks providing an important new carbon-neutral raw material solution.

This project showcases Waterloo's **innovation ecosystem**. Simone began working on the idea while on a co-op work term in the construction industry. A second co-op term, an **Enterprise co-op term** with the Conrad School of Entrepreneurship and Business, allowed the team to further develop their enterprise. Competitions with Conrad and Velocity provided an opportunity to hone concepts and raise interest. Faculty advisors with experience in commercializing research innovations provided leadership and guidance. Finally, **Velocity Science** provides space, mentorship, collaboration opportunities, and access to potential investors and customers.

In September 2022, Simone and Al-Sheikhlv were announced as a national runner-up in the **2022 James Dyson Award competition**. Simone will be speaking on a panel of early-stage start-ups at Waterloo's **Innovation Ecosystem** event and MicroBuild will return to **Velocity Science** to continue working.

GOAL R3: ACHIEVE GREATER RESEARCH IMPACT BY LEVERAGING WATERLOO'S PARTNERSHIPS

OBJECTIVES

R3A STRENGTHEN AND INCREASE STRATEGIC PARTNERSHIPS WITH RESEARCH PARTNERS

R3B INCREASE PRIVATE-SECTOR PARTNERSHIPS TO ENHANCE COMPETITIVENESS AND INNOVATION

R3C INCREASE PARTNERSHIPS WITH PUBLIC AND NOT-FOR-PROFIT SECTORS FOR POLICY DEVELOPMENT

SELECTED INITIATIVES

CLICK ON THE TITLES TO LEARN MORE ABOUT EACH INITIATIVE.

Progress legend

Started · In progress · Completed

R3C

Creating a knowledge mobilization strategy

Waterloo's institutional research knowledge mobilization strategy is an effort to engage with government and the public sector more effectively around policy issues, creating links between new knowledge and affecting change.

A priority of the knowledge mobilization strategy initiative is to increase partnerships with private and public sector organizations to support translating research into action with government and not-for-profit sectors. In 2021-2022, the Office of Research completed a review and analysis of existing industry partners to identify risks, opportunities, and potential sectors for this work.

R3A

Developing a "whole-of-university" approach for international engagement

Waterloo International (WI) is working with partners across campus to ensure that Waterloo's engagement with priority areas in the world is coordinated, purposeful, and tailored to needs and opportunities. This will help to ensure that Waterloo's presence in the world gives global prominence to Waterloo's activities and achievements, offers effective international opportunities for Waterloo's members, and builds strategic partnerships-for-impact with outstanding peer universities globally.

WI is implementing a new post-pandemic international engagement strategy using virtual, digital, and in-person connection strategies (both abroad and within Canada). This includes meetings with key government representatives and priority university partner members.

SELECTED INDICATORS

While Waterloo's sponsored research funding from industry has been relatively stable over time, the amount of funding received by government to match industry funding has decreased R3A R3B R3C

Source: Internal data, Office of Research

Industry funding ($millions)

- Industry funding
- Government match of industry funding
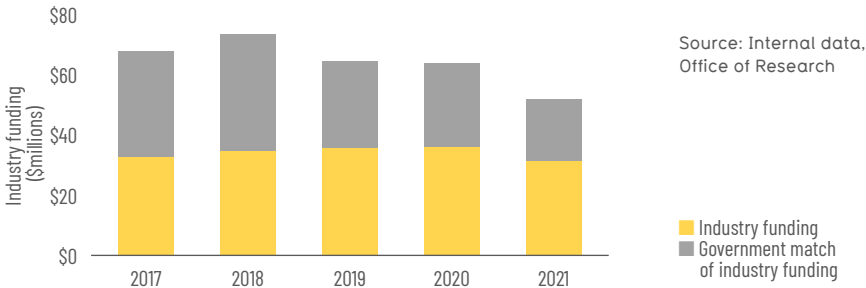
Waterloo's academic collaborations with industry partners, viewed through publications, has remained stable over time and ranks eighth among the U15 in 2021, which is at the U15 average (range is 5.6% to 7.7%) R3A R3B R3C
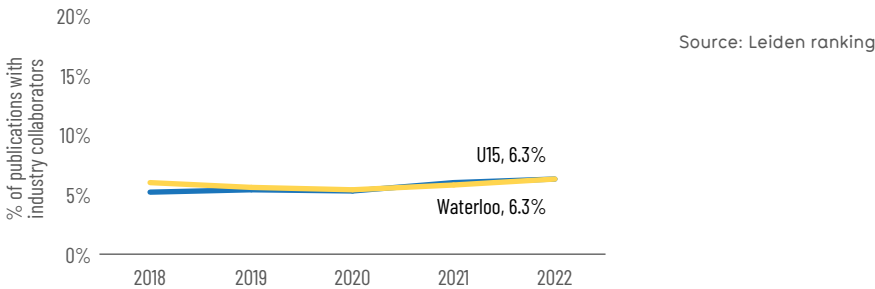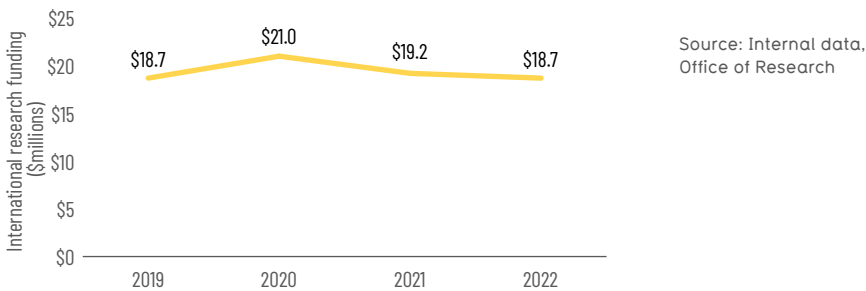

Source: Leiden ranking

% of publications with industry collaborators

U15, 6.3%
Waterloo, 6.3%

Research funding from international sources has remained relatively constant over time R3A

Source: Internal data, Office of Research

International research funding ($millions)

$18.7 $21.0 $19.2 $18.7

Waterloo's academic publishing collaborations with international partners has increased by about nine percentage points in the last five years and ranks third among the U15 in 2021, which is at the U15 average (range is 51.2% to 62.6%) R3A R3B R3C

Source: Leiden ranking

% of publications with international collaborators

Waterloo, 59.4%
U15, 57.7%
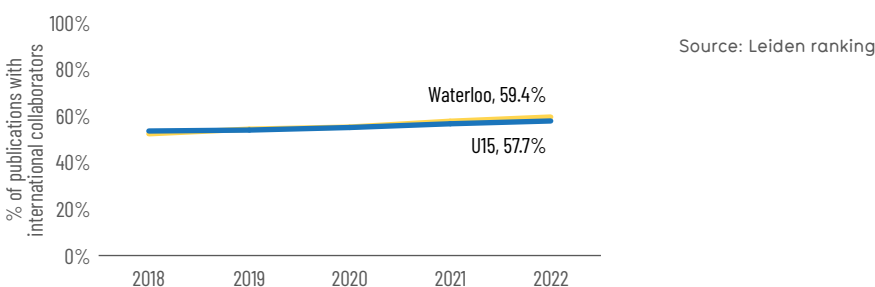
MAGNIFYING IMPACT THROUGH PARTNERSHIPS

The University of Waterloo's relationship with the University of Strathclyde (in the United Kingdom) is an example of how whole-of-university engagement between two committed institutions can lead to impact in multiple ways. Built first on the **universities' shared scholarship strengths**, the partnership has since evolved, cutting across talent, research, and community domains of each university's strategic priorities.

In October 2021 the universities announced the newly formed **Strathclyde and Waterloo Joint Transatlantic Funding Call** to catalyze collaborative work between members and advance the two universities' strategic plans. Thirty-five applications involving more than 100 colleagues from the two universities were received. **Five awards** were made addressing artificial intelligence, biosensors, penal environments, public health, and sustainable energy. Some of the unfunded applicants have continued their collaborations. Staff from each universities' libraries, for instance, have continued to share perspectives on how open access publishing is evolving within each of their communities.

Work is continuing to sustain this momentum – student exchanges are scheduled, efforts to engage business and civil society in collaborative research are planned, and the two universities' vice-chancellors are facilitating leadership dialogues on the role of universities in society. With dedication and purpose, universities working together internationally can magnify their impact.

Strengthening sustainable and diverse communities

GOAL C1: BE A PEOPLE-CENTERED INSTITUTION COMMITTED TO GENUINE CARE, CONCERN, RESPECT, INCLUSIVITY AND WELL-BEING FOR ALL

OBJECTIVES

C1A MOBILIZE THE WELLNESS COMMITMENTS FROM THE OKANAGAN CHARTER AND HEALTHY WORKPLACE STATEMENT

C1B NURTURE RELATIONSHIPS AND CREATE A COMMUNITY OF LEARNERS

C1C CREATE A SUPPORTIVE ENVIRONMENT FOR INTERNATIONAL STUDENTS

SELECTED INITIATIVES

CLICK ON THE TITLES TO LEARN MORE ABOUT EACH INITIATIVE.

Progress legend

Started | In progress | Completed

C1A

Informing the Wellness Collaborative

Waterloo's Wellness Collaborative's work is informed by results from the Canadian Campus Wellbeing Survey and a new internal student experience survey, which was developed using the Waterloo Student Experience and Engagement (WatSEE) framework. In 2021-2022 the Wellness Collaborative worked on several priority areas including a Thrive campus-wide health promotion campaign, an integrated wellness framework, food security, a healthy learning environment, and mental health literacy.

C1B

Creating a student-driven food security strategy

In the area of food security, Campus Wellness and Food Services collaborated with the University of Guelph and the University of British Columbia to successfully recruit racialized students for a digital storytelling workshop — Elevating Voices of Food Insecurity. Once produced, these stories will be screened with target audiences.

C1B

Building wellness into the learning envrionment

In 2021-2022, the Wellness Collaborative consulted with academic support units and senior leaders and identified Universal Design for Learning (UDL) as a key approach for achieving an overall positive experience and equal access for all students. UDL is the purposeful design of course outcomes, materials, and assessments that promote equity, diversity, and inclusion.

C1B

Creating a supportive community around mental health

Campus Wellness (CW), Organizational and Human Development and Centre for Teaching Excellence (CTE) partnered to create the Mental Health Literacy Program, which was implemented by CW in fall 2021. After taking the program, 92 per cent of pilot participants felt they can recognize someone in distress and 100 per cent of pilot participants felt confident in supporting someone facing mental health concerns or in mental distress. Program components were also embedded into CTE's tutorial assistant's training program and the Student Success Office's Student Leadership training program.

C1C

Developing international student supports

International student support is a priority at Waterloo. Space for a new international student hub in Needles Hall has been allocated and design is underway. The dedicated, welcoming space for international students will house existing support services for international students, promote awareness within the University of Waterloo community, and cultivate a sense of belonging for everyone.
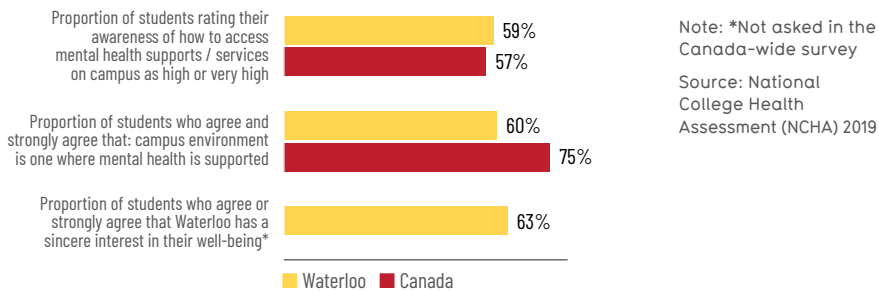
SELECTED INDICATORS

TO READ MORE ABOUT THE INDICATORS BELOW, VISIT THE STRATEGIC PLAN ACTION AND PROGRESS WEBSITE.

Since 2014, the proportion of Waterloo and U15 graduating year undergraduate students who reported that the University supports their overall well-being quite a bit and very much, has declined C1A

Source: National Survey of Student Engagement (NSSE)
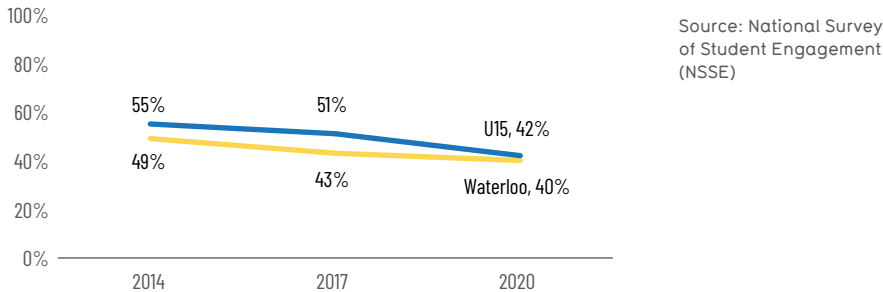
About six out of 10 Waterloo students reported that they are aware of mental health supports, believe that the campus environment supports mental health, and believe that the University has a sincere interest in their well-being C1A

Note: *Not asked in the Canada-wide survey

Source: National College Health Assessment (NCHA) 2019

Proportion of students rating their awareness of how to access mental health supports / services on campus as high or very high — 59% (Waterloo), 57% (Canada)

Proportion of students who agree and strongly agree that: campus environment is one where mental health is supported — 60% (Waterloo), 75% (Canada)

Proportion of students who agree or strongly agree that Waterloo has a sincere interest in their well-being* — 63% (Waterloo)

■ Waterloo ■ Canada

Since 2014, the proportion of Waterloo international undergraduate students who reported their entire educational experience at Waterloo was good or excellent, has declined C1C

Source: NSSE
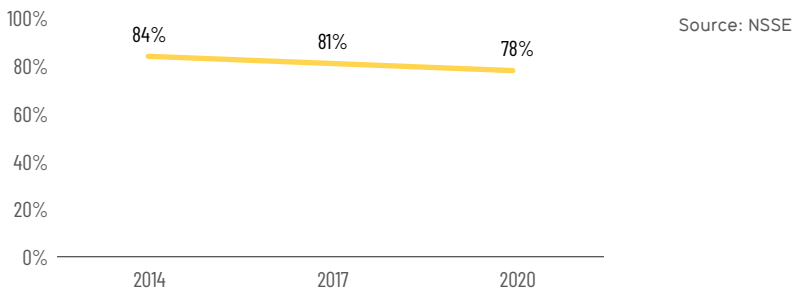
CREATING SPACE TO BUILD A PEOPLE-CENTERED INSTITUTION

Being a people-centered institution means responding to people's needs, in real-time. The shift to remote student life during the pandemic created new challenges for graduate students, especially international graduate students. The same struggles that many graduate students faced in regular life – managing academic and personal demands, concerns about belonging and caring for themselves and others, all while balancing the rigors of graduate student life – were intensified with the shift to virtual learning.

Counselling Services saw the need for a novel approach to community-building and support for mental health and wellness. The **Grad Student Community and Conversation Circle** offered graduate students an opportunity to connect with one another in an informal and confidential environment to talk about the stressors in school and life including relationships, wellness, worries about academic competence, loneliness, stress management, and emotional resilience. Through the facilitated group, students give one another encouraging feedback and explore new ways to manage issues unique to graduate students.

The group meets weekly with consistent engagement of graduate students, virtually and across many time zones – something that is not possible in person. Connections have transcended the group and friendships have formed as a result – an example of true community building and support.

GOAL C2: FOSTER A CONNECTED AND SUPPORTIVE COMMUNITY THAT INSPIRES STUDENTS, FACULTY, STAFF AND ALUMNI TO ACHIEVE THEIR PERSONAL, ACADEMIC AND PROFESSIONAL GOALS WHILE FEELING VALUED

OBJECTIVES

C2A INSPIRE COLLABORATION ACROSS THE INSTITUTION

C2B DEVELOP A CULTURE OF INVOLVEMENT THAT FOSTERS INCLUSIVITY AND A SENSE OF BELONGING

C2C SUSTAIN A MEANINGFUL RELATIONSHIP WITH ALUMNI WORLD-WIDE

C2D ENSURE CONTINUED CONNECTION WITH CO-OP STUDENTS

C2E BROADEN UNDERSTANDING AND ENGAGEMENT OF CAMPUS COMMUNITIES, ALUMNI, AND PARTNERS

Progress legend

Started | In progress | Completed

SELECTED INITIATIVES

CLICK ON THE TITLES TO LEARN MORE ABOUT EACH INITIATIVE.

C2B C2E

Creating engaging, collaborative, efficient communications that demonstrate care and concern for students

In spring 2022 the associate provost students portfolio created a dedicated team, UWaterlooLife. The purpose of this team is to streamline student communications and insights across units using a structured form of collaboration, creating a coordinated approach to communicating and engaging with the student community. The new communication strategy will begin in fall 2022.

C2A

Bringing to life the Student Experience and Engagement (WatSEE) Framework for thriving students

In December 2021 Waterloo's special advisor on student experience delivered the WatSEE which provides a holistic approach to student experience. During 2021-2022, the WatSEE Framework was socialized with faculties and academic support units. Discussions with internal stakeholders are ongoing to identify new and optimize existing resources that align with the WatSEE Framework.

C2B

Embracing equity through academic advising

In 2021-2022, a new, purposeful training and development proposal was created focusing on anti-racism training for academic advisors. This will enhance advisors' ability to support equity-deserving students. Outcomes from these measures will be seen in time through changes in student perceptions of sense of belonging, feeling respected, and safety.

C2A C2B

Fostering a supportive employee community

To address Waterloo's talent needs based on inputs from the employee engagement survey, and expert reports on the performance appraisal process and career progression, the office of the associate provost, human resources initiated a project to create a staff Strategic Talent and Performance Framework.

C2C

Exploring robust alumni engagement in remote environments

Working with faculties, Alumni Relations transformed traditional events to an online platform and developed a new LinkedIn Learning pilot to enhance engaging, bite-sized learning opportunities for alumni to stay connected to the University. New engagement metrics and enhanced data tracking processes were implemented. These efforts improve the quality and availability of data for decision-making focused on building relevant and meaningful programming.

SELECTED INDICATORS

TO READ MORE ABOUT THE INDICATORS BELOW, VISIT THE STRATEGIC PLAN ACTION AND PROGRESS WEBSITE.

*About the same proportion, two-thirds, of Waterloo and U15 international and graduating year students report that they feel a part of a community at Waterloo* C2B

Proportion of international graduating year students who feel a part of a community at Waterloo
- Waterloo: 68%
- U15: 69%

Proportion of graduating year students who feel part of a community at Waterloo
- Waterloo: 64%
- U15: 64%

Source: National Survey of Student Engagement 2020

■ Waterloo ■ U15
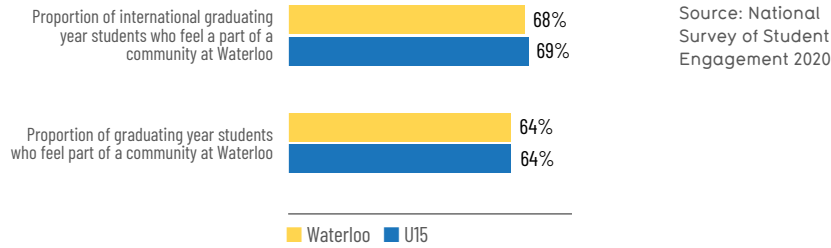
Alumni engagement scores were maintained throughout the pandemic with just under 15% of alumni engaged through activities such as volunteering, mentoring, outreach, and philanthropy C2C

Source: Internal data, Alumni Relations

% of alumni engaged

	2019/20	2020/21	2021/22
	14.9%	14.0%	14.0%
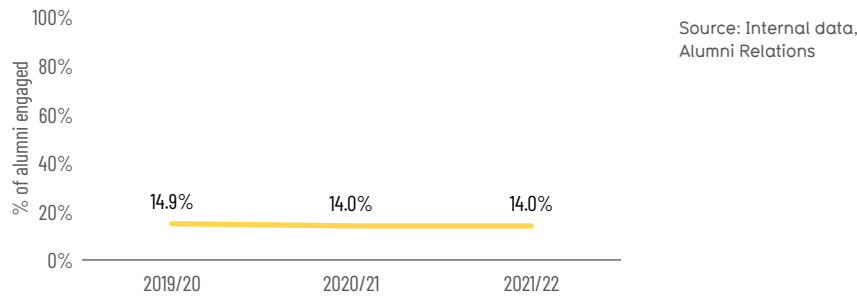
EMBRACING EQUITY TO FOSTER CONNECTION AND BUILD SUPPORT

Fostering an inclusive community and creating a sense of belonging is a well-communicated University priority. In 2021, Waterloo's Student Success Office (SSO) worked to support students who feel disconnected from the Waterloo experience, let them know that those feelings are valid, and reinforce that there are opportunities to find community on campus.

In a **short video**, Waterloo undergraduate student Rania shares how she found a *"home far away from home"* at Waterloo. As a Warrior, Rania says *"acknowledging how our experiences are unique allows us to address the gaps that exist on campus and beyond. Through community activism, students have created clubs and advocated for services offered through Waterloo's student associations that actively work to address some of these gaps and create safer, more inclusive spaces on campus."* This video acknowledges that students' everyday experiences at Waterloo are shaped by their intersecting identities.

The *"show, not tell"* approach used by the SSO marketing and communications team identified gaps where communications were not highlighting an intersectional approach to experiences that students may face on and/or off campus. This video highlights the crucial role student activism and leadership on EDI-R plays in moving this work forward and informing incoming students about campus services and resources.

GOAL C3: CONTINUE TO LEVERAGE OUR RESOURCES TO ENGAGE, DEVELOP AND BUILD OUR CAPACITY AND INFRASTRUCTURE TO CREATE A SUSTAINABLE AND EFFECTIVE INSTITUTION

OBJECTIVES

C3A BECOME A ROLE MODEL BY FULLY IMPLEMENTING THE ENVIRONMENTAL SUSTAINABILITY STRATEGY

C3B LEVERAGE OUR ENTREPRENEURIAL SPIRIT AND MODEL ORGANIZATIONAL EFFICIENCY AND SUSTAINABILITY

C3C ENSURE ALL CAMPUS MEMBERS CONTRIBUTE TO A POSITIVE STUDENT EXPERIENCE

SELECTED INITIATIVES

CLICK ON THE TITLES TO LEARN MORE ABOUT EACH INITIATIVE.

Progress legend

Started | In progress | Completed

C3A

Building awareness of our Sustainable Development Goals progress

In April 2022 the University launched its first report explicitly tracking how it is contributing to the United Nations Sustainable Development Goals through a dedicated **website**. This report builds an important preliminary understanding of how Waterloo is aligning its academic mission and operational practices to solving global challenges. Waterloo is the host of the Sustainable Development Solutions Network in Canada.

C3A

Implementing the Shift:Neutral climate action plan

Waterloo's **Shift:Neutral** climate action plan is a multi-year framework with targets to reduce direct and indirect emissions at Waterloo. In 2021-2022 these actions included developing guidelines for carbon-neutral building design and lifecycle costing, as well as completing a campus-wide energy audit. Waterloo initiated five pilot projects to help reduce carbon emissions and build institutional capacity for further action.

C3B

Completing a next-generation data infrastructure project to facilitate planning and decision-making on graduate student financial support

An integrated central data repository will allow the University to answer strategic questions. Improvements to the institutional data governance structure, policies, and data management guidelines were initiated in 2021. An initial next-generation collaborative data project is underway to facilitate evidenced-based planning and decisions related to graduate student financial support. Project requirements have been finalized as a precursor to developing a technical solution.

C3B

Building a continuous improvement environment and managing institutional change

The associate provost human resources team leads a University-wide steering committee to implement continuous improvement built on Lean principles, building awareness and knowledge about the benefits and application of continuous improvement (CI) methodology. An internal Change Management Community of Practice was established in April 2021. The Change Management Program embraces CI processes and offers a campus-wide, streamlined approach to manage change initiatives and support employees. In 2021-2022, change management principles were used to support preparations for return to campus, establishment of a campus rapid testing centre, and building effective change management principles learning sessions for campus.
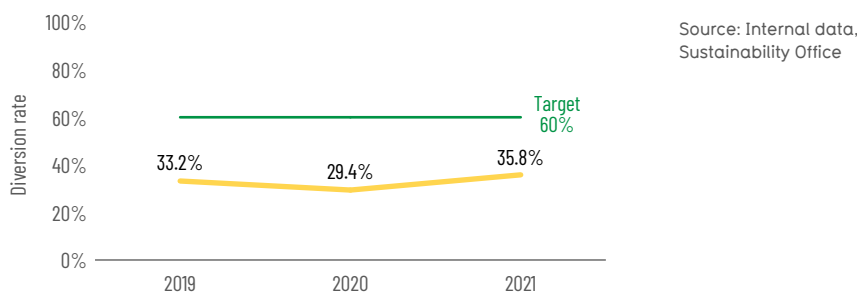
SELECTED INDICATORS

TO READ MORE ABOUT THE INDICATORS BELOW, VISIT THE STRATEGIC PLAN ACTION AND PROGRESS WEBSITE.

Since 2018, Waterloo's greenhouse gas emissions have declined C3A

Source: Internal data, Sustainability Office
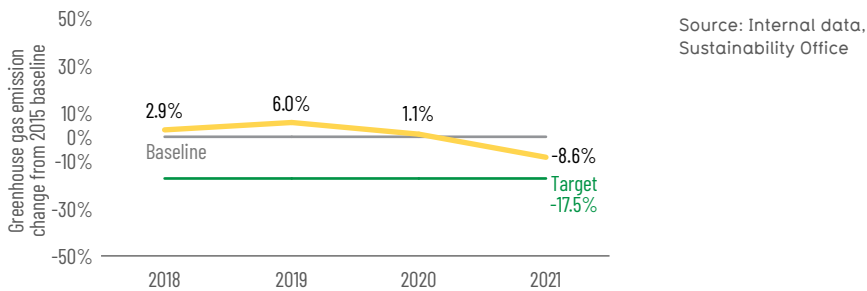
Waterloo's waste diversion rate improved from pre-pandemic rates in 2021 C3A

Source: Internal data, Sustainability Office

The proportion of Waterloo employees and students using sustainable transportation has increased C3A

Source: Internal data, Sustainability Office
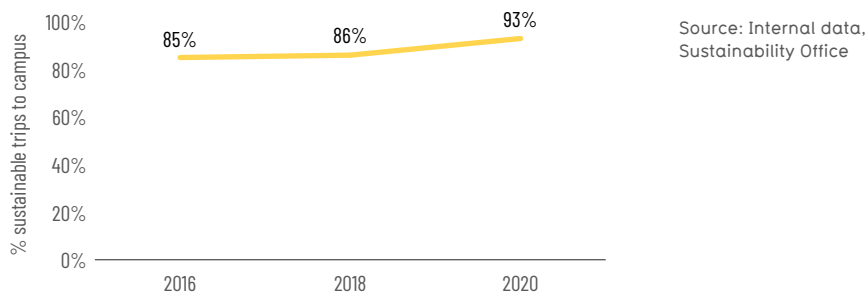
LEADING IN SUSTAINABLE DESIGN

Higher education institutions have been leaders in the effort to integrate sustainability into the design of campus buildings. As part of Waterloo's commitment to addressing climate change in operations, operationalized through the *Shift*:Neutral climate action plan, the University needed to update its existing commitment to LEED Silver to be more ambitious, and place greater emphasis on energy and greenhouse gas emissions reduction.

Throughout 2021 and 2022, the Sustainability Office and Plant Operations consulted with industry experts, peer institutions, and internal stakeholders to compile the **Net Neutral New Building Guideline**. This is the University's first performance-focused design requirement for new buildings, and is meant to direct campus growth to utilize leading practices for highly-efficient and low carbon design.

The guideline emphasizes efficiency-first approaches with passive principles such as excellent insulation and airtightness, efficient ventilation, and appropriate use of natural lighting. Targets are in place for absolute energy and carbon intensity, pushing buildings to be net-zero or net-zero ready, with flexibility for the variety of lab, classroom, office, and residential buildings at Waterloo.

New buildings constructed under the guideline will mark a key shift on the campus, creating attractive, comfortable, highly-efficient, low carbon, and well-ventilated spaces in which students and employees can thrive.

GOAL C4: PROMOTE AND SUPPORT INDIGENOUS INITIATIVES AND A CULTURE OF EQUITY, DIVERSITY, INCLUSION, AND ANTI-RACISM

OBJECTIVES

C4A ACT UPON THE TRUTH AND RECONCILIATION COMMISSION'S RECOMMENDATIONS AND CALLS TO ACTION, AND BUILD RELATIONSHIPS WITH THE LOCAL INDIGENOUS COMMUNITY

C4B IMPROVE THE REPRESENTATION, PARTICIPATION, AND ENGAGEMENT OF EQUITY-DESERVING GROUPS

C4C ADVANCE POLICIES AND PROGRAMMING TO FOSTER EQUITY, DIVERSITY, INCLUSION, AND ANTI-RACISM

SELECTED INITIATIVES

CLICK ON THE TITLES TO LEARN MORE ABOUT EACH INITIATIVE.

Progress legend

Started | In progress | Completed

C4A

Developing strategic direction for the Indigenous relations portfolio

In 2021-2022, the newly formed Office of Indigenous Relations began developing Waterloo's Indigenous strategic plan. This involves integrating the Truth and Reconciliation Commission's recommendations with institutional priorities, creating the office's strategic direction. The plan also outlines a full suite of initiatives. While the plan is being finalized, the focus of the current year has been on building capacity across the institution to support both Indigenous initiatives and new Indigenous faculty and staff.

C4A C4B C4C

Transforming Waterloo's approach and action on equity, diversity, inclusion, and anti-racism (EDI-R)

Like Indigenous relations, the EDI-R Office developed an internal strategic plan to guide their efforts. A key component of these efforts is addressing recommendations from the President's Anti-racism Task Force (PART), reviewing existing policies, practices and procedures, and developing policy and guidelines to identify and remove systemic barriers that contribute to inequitable racial outcomes.

C4B

Supporting transition to post-secondary for Black students

In 2021-2022, the EDI-R Office began creating the Transitional Year Program to offer Black and Indigenous youth in Waterloo Region the opportunity to earn two half-credit courses to increase the likelihood that they will pursue post-secondary studies. A program proposal was developed and is awaiting approval.

C4B C4C

Creating inclusive physical campus space

Ensuring that space, including washroom space, is accessible for diverse genders is important to create an inclusive and welcoming environment. Waterloo continued to convert single-stall gendered washrooms to single-stall gender-neutral washrooms.

C4B C4C

Embedding EDI-R across campus

The EDI-R Office created the program area leads (PALs) to build EDI-R competencies and skills across the institution. The EDI-R Office partnered with the Centre for Extended Learning's Agile Development Team to develop EDI-R micro-credential training for PALs. Thirty-three leaders have been identified for the initial pilot of this program, across faculties and academic support units.
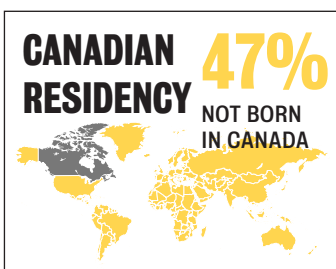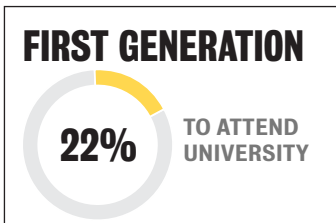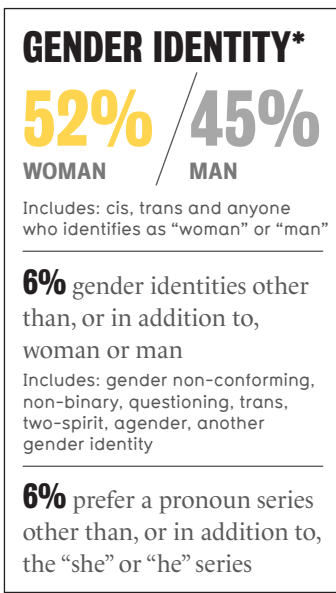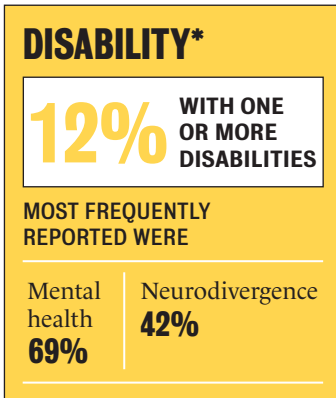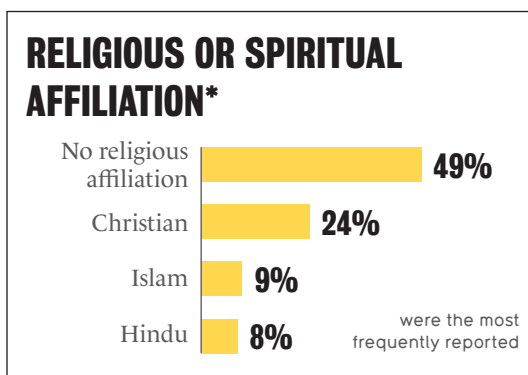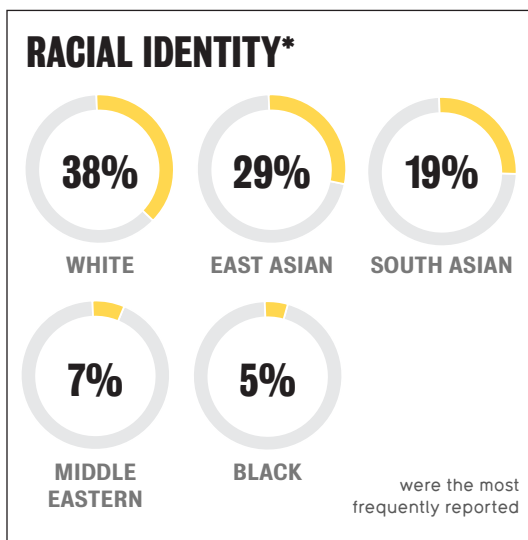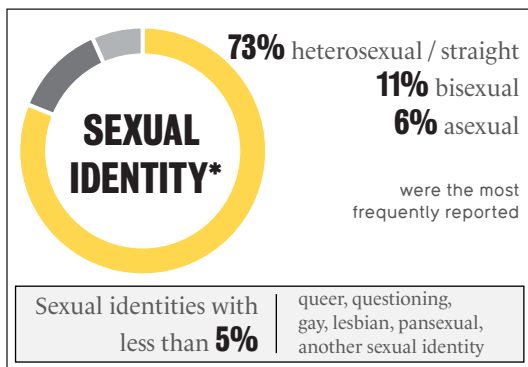
SELECTED INDICATORS

TO READ MORE ABOUT THE INDICATORS BELOW, VISIT THE STRATEGIC PLAN ACTION AND PROGRESS WEBSITE.

Selected Waterloo baseline student equity demographics C4A C4B C4C

In 2021, the first Waterloo equity demographics survey collected equity dimensions for students and employees. The following are the results from the student survey.

TO READ MORE ABOUT THE EQUITY SURVEY DATA, VISIT THE EQUITY OFFICE WEBSITE.

1% INDIGENOUS PERSONS
61% Indigenous persons from Canada and **36%** from outside Canada

SEXUAL IDENTITY*
73% heterosexual / straight
11% bisexual
6% asexual

were the most frequently reported

Sexual identities with less than **5%**	queer, questioning, gay, lesbian, pansexual, another sexual identity

RACIAL IDENTITY*

38% WHITE

29% EAST ASIAN

19% SOUTH ASIAN

7% MIDDLE EASTERN

5% BLACK

were the most frequently reported

RELIGIOUS OR SPIRITUAL AFFILIATION*

No religious affiliation **49%**
Christian **24%**
Islam **9%**
Hindu **8%**

were the most frequently reported

DISABILITY*
12% WITH ONE OR MORE DISABILITIES

MOST FREQUENTLY REPORTED WERE

Mental health **69%**	Neurodivergence **42%**

GENDER IDENTITY*
52% WOMAN / **45%** MAN

Includes: cis, trans and anyone who identifies as "woman" or "man"

6% gender identities other than, or in addition to, woman or man

Includes: gender non-conforming, non-binary, questioning, trans, two-spirit, agender, another gender identity

6% prefer a pronoun series other than, or in addition to, the "she" or "he" series

FIRST GENERATION
22% TO ATTEND UNIVERSITY

CANADIAN RESIDENCY
47% NOT BORN IN CANADA

NOTE: Survey results are accurate to within +/- 2 percentage points, 99 times out of 100.

*Multiple response question; respondents could select more than one response option

26% overall response rate

BEGINNING TO ADDRESS HISTORIC UNDER-REPRESENTATION IN THE ACADEMY

In 2021, Waterloo announced cluster hiring initiatives as one step to address historic under-representation by committing a minimum of 12 positions for Black faculty and 12 for Indigenous faculty. Thus far, eight faculty have been hired through the Black Excellence cluster and three through the Indigenous Excellence cluster.

The Equity, Diversity, Inclusion, and Anti-Racism (EDI-R) Office and Office of Indigenous Relations developed a Black and Indigenous Faculty Mentorship Program to create a mutually beneficial learning environment to support retention and learning. A monitoring program will ensure that program meets key objectives. Two recent examples of the Black and Indigenous excellence cluster hires are highlighted here.

Zelalem Negeri: **Dr. Negeri** joined the Department of Statistics and Actuarial Science as an Assistant Professor. His research interests are developing and validating statistical methods for applications in public health research, with an emphasis on aggregate data and individual participant data meta-analyses of diagnostic and screening test accuracy studies.

David Fortin: **Dr. Fortin** joined the School of Architecture as a professor. He is a member of the Royal Architectural Institute of Canada, a LEED accredited professional, and a registered architect in four provinces. Dr. Fortin developed and taught a building science course emphasizing the impact of climate change on architectural thinking and maintains research interests in speculative thinking in design.

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