Partnering with Municipalities to Drive Regional Talent Development

AUGUST 2024

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INTRODUCTION

Talent development in Ontario's communities is essential for economic growth, and Ontario's universities are pivotal in this effort. As municipalities look ahead to address labour shortages, retain and develop a highly skilled workforce and tackle local workforce challenges, Ontario's universities remain committed to developing the creative, adaptable talent that spurs investment and drives regional prosperity.

By developing tailored programs with local businesses to meet the unique demands of local economies, and by partnering with industries to ensure they have talent with the right skillsets, universities are working across sectors to ensure our province's regions have the local workforces they need to prosper.

Additionally, universities' research and innovation efforts, such as AI-driven decision-making tools and workforce integration labs, continue to provide practical solutions to community challenges, making local economies more competitive and attractive to skilled talent.

Universities will continue to work with municipalities and industry to advance regional workforce development and strengthen Ontario's talent pipeline with graduates that are ready for the job market, ultimately leading to increased economic growth for both our communities and the province.

This booklet features many examples of the work underway at universities that can help towns and cities continue to drive workforce development and find solutions that are responsive to the specific needs of their communities. To access resources to help address the unique talent challenges that your community is facing, read the Appendix at the end of this booklet to find contact information for the university program and research leads.

MEETING REGIONAL WORKFORCE DEMANDS

Local employers in Ontario are forging dynamic partnerships with universities to address specific workforce needs and gaps within their communities. By developing tailored programs that align with the unique demands of local labour markets, such as training much-needed social workers in northern regions, preparing veterinarians to serve rural and underserved areas and filling the gap for skilled innovators, universities are helping build robust and responsive local workforces.

Preparing social workers in Northern Ontario

Local employers in Northern Ontario have cited a growing need for social workers. To support this demand, **Algoma University** has introduced a Bachelor of Social Work program designed to help fulfill the need for social workers in northern, rural and remote regions.

Students examine how northern communities significantly differ from urban communities when it comes to health services, family and child welfare, and the social welfare system, while also focusing on cross-cultural learning between Indigenous communities and other communities.

As part of the program, students complete a 700-hour field placement, which offers valuable real-life experience working in a social work setting and helps students transition into a full-time career in the field, in roles such as outreach worker, health educator, guidance counsellor, substance abuse counsellor, probation officer or caseworker, among many others. Graduates of the program will be equipped to practice anti-oppressive social work and engage with individuals, families, groups, organizations and their local communities.

For more information, contact info@algomau.ca.

Addressing veterinarian shortages in rural and northern communities

To address the current veterinarian workforce shortages in rural and northern communities, the Ontario Veterinary College (OVC) at the **University of Guelph** is expanding its Doctor of Veterinary Medicine (DVM) program through a new partnership with Lakehead University. This expansion, known as the Collaborative Doctor of Veterinary Medicine Program, is designed to train veterinarians to serve Indigenous communities, rural, remote and underserved areas in northern Ontario.

The inaugural Northern Ontario cohort of 20 students will commence at OVC in the fall of 2025. These students will complete the Rural Community Practice Stream in their fourth year with options for external placement opportunities in Northern Ontario.

For further information, contact ovcdean@uoguelph.ca.

Building community partnerships to address mental health challenges in the workplace

Understanding the mental and physical health of local workers and the factors that contribute to their well-being is critical for employers. By partnering with community organizations, local businesses and individual workers, the EPID@Work (Enhancing the Prevention of Injury and Disability at Work) Research Institute at **Lakehead University** is helping to deepen employers' understanding of mental and physical health in workplaces across Northwestern Ontario.

In September 2023, EPID@Work launched the Northwestern Ontario Workplace and Worker Health Study (NOWWHS) to investigate the associations between workplace factors and mental and physical health challenges in the workplace. Ultimately, EPID@Work aims to work with employers to develop and test cost-effective interventions to improve the health of their employees.

While workers and employers from every sector are invited to participate, researchers have several areas of interest, including older workers, injured workers, Indigenous workers, immigrant workers, mining workers, paramedics, nurses, supervisors and individuals working from home.

By building community partnerships, working with local and regional businesses, and engaging with stakeholders across the region, EPID@Work prioritizes community outreach and engagement in their research process.

For more information, contact workinghealth@lakeheadu.ca.

Enhancing community growth through Extended Learning programs

To help develop employability and life-long skills in local communities, including personal and professional development, **Nipissing University** offers Extended Learning programs that contribute to the overall growth and well-being of the community. With opportunities in areas such as workforce development, continuing studies, community engagement, youth programs, leisure learning and micro-credentials, these offerings are open to all learners, including adult learners, working professionals and individuals in remote or underserved areas.

These programs support non-credit courses and learning offerings that fall outside of traditional degrees. They offer training to better prepare individuals for the needs of their local workforce, as well as provide sessions and workshops that inspire the mind, and educational programming that engages youth in hands-on, work-integrated learning opportunities.

Extended Learning provides individuals with an opportunity to maximize their skills and personal growth with accessible, affordable and achievable options that are professionally recognized and help foster a community network of life-long learners.

For more information, contact extendedlearning@nipissingu.ca.

Enhancing skills and community engagement through work-integrated learning

Connecting emerging artists and designers with local business and community projects helps foster regional collaboration and innovation. **OCAD University**'s Work/Place experiential learning program enhances skills development through hands-on learning experiences, providing students with practical skills and opportunities for civic engagement that are directly applicable to real-world scenarios, supporting the communities they serve.

For example, a recent student-led project through the Experiential Learning Program helped a research organization develop a methodology for arts and culture not-for-profits to improve data analysis associated with charitable giving, so that they could better leverage that data for fundraising.

The program focuses on empowering students to solve local challenges through creative and design-oriented approaches, leading to deep industry insight and the chance to build meaningful creative professional relationships that enhance future employment outcomes in the community.

For more information, contact ahong@ocadu.ca.

Developing employability and essential skills for the workplace

As businesses and employers seek talent with critical transferable soft skills, such as communication, critical thinking and adaptability, **Trent University**'s Foundations for Co-op Success is helping students develop the skillsets that employers are looking for.

By focusing on holistic career development, the course equips students with not only technical skills, but also the soft skills that are highly sought after by businesses and are crucial for navigating non-linear career paths. Additionally, the course's emphasis on workplace culture, diversity and inclusion prepares students to thrive in diverse professional environments.

Trent's expansion of co-op programs in 2022 led to the creation of this foundational course, covering vocational assessments and transferable skills. Assignments focus on application materials, interview skills and networking, with additional topics like workplace culture, diversity and inclusion supported by various campus services.

For more information, contact coop@trentu.ca.

Providing businesses with access to AI upskilling programs

More and more local businesses are adopting generative AI tools to grow revenue, enhance customer experiences and improve efficiencies. To further help businesses fully utilize this powerful technology, while providing employees with access to upskilling programs in AI, the **University of Waterloo**'s **WatSPEED** unit has partnered with the Ontario Chamber of Commerce (OCC) to launch a new AI Hub.

The AI Hub will help small and medium-sized businesses adopt AI technology through access to resources and talent, as well as help address ethical and data privacy concerns that could pose barriers to implementing AI across their organizations.

In addition, WatSPEED is offering programs for workers and employees to upskill their expertise in AI, including courses such as "AI and Business Strategy" and "ChatGPT and the Large Language Model Revolution", taught by university faculty subject matter experts in AI, innovation and commercialization.

With a focus on the development of cutting-edge educational resources tailored for businesses and AI training that meets the demand for skills, the AI Hub will maximize the benefits of AI for businesses, workers and communities across the province.

For more information, contact watspeed@uwaterloo.ca.

Ontario's Universities:

The Talent Pipeline for Ontario's Labour Market

As Ontario continues to build its economic future, the ability to meet the ever-shifting labour demands across sectors will be critical. From advanced manufacturing to critical minerals to life sciences, no industry or sector in the province does not rely on the highly skilled talent produced by Ontario's universities.

Universities are responding to emerging labour market needs by providing programming that ensures students have the skills and experiences they need to thrive in the future economy. They also equip students with fundamental communication and critical thinking skills that are applicable across a broad range of roles and industries, ensuring their adaptability and resilience as technology continues to transform the nature of work in all sectors.

Below are a few examples of how Ontario's universities are strengthening the workforce and responding to labour demands.

Ontario university graduates are entering the labour market ready to work.

University graduates have a **94.3%** employment rate after two years in the the workforce, according to the Ontario Blue-Ribbon Panel's report, *Ensuring Financial Sustainability for Ontario's Postsecondary Sector.*
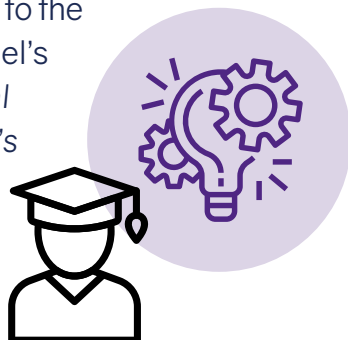
Industries across Ontario are feeling the pressure of labour shortages. According to the Ontario Chamber of Commerce's 2024 Ontario Economic Report, **40%** of respondents reported labour shortages in their organization.

When asked about policy priorities, investment in workforce development (including micro-credentials and education) ranked as the third highest priority among respondents.
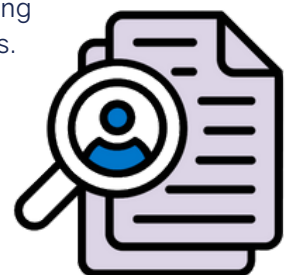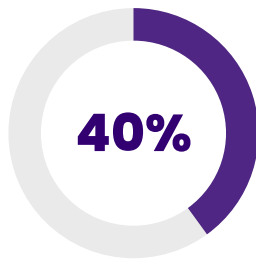
In response to severe labour shortages seen across sectors, universities have increased enrolment in key programs, delivering the highly skilled graduates that Ontario needs.
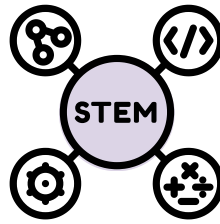
Universities awarded **37,217 STEM** credentials and **14,962 engineering** credentials in 2021–22.

74%

40%
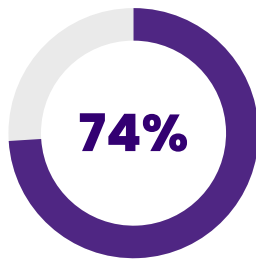
Increase in STEM enrolment since 2010

Increase in health care enrolment since 2010

Since 2010, universities have increased STEM enrolment by 74%, and health care enrolment by 40%.

Ontario's universities are job creators, employing more than **487,600** Ontarians in regions across the province through direct hiring and by driving local demand for goods and services.

They are also economic engines in their communities, contributing more than **$45 BILLION** to Ontario's GDP through the spending activities of institutions, employees, students, visitors and alumni.
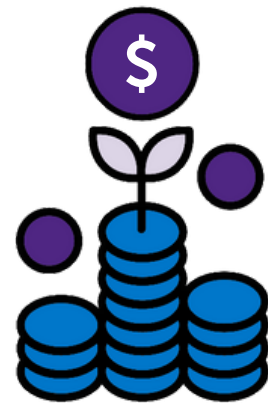
The growth of Ontario's economy across sectors is dependent on the highly skilled talent that comes from Ontario's universities.

According to Stokes Economics, Ontario is seeing a demand for a total of **928,700** jobs requiring a university education through to 2030. As industries continue to modernize, the need for skilled, adaptable workers who can keep pace with changing demands will grow.

SUPPORTING LOCAL, FAST-GROWING INDUSTRIES

From expanding mining education to addressing community health-care needs and labour shortages in clean tech, Ontario's universities are working to strengthen regional talent pipelines in critical industries. Through local industry partnerships, they will continue to ensure their graduates are helping meet the needs of growing industries to help drive regional economic development.

Expanding mining education to meet changing skills needs

As the mining industry continues to change and experience critical job shortages, the Goodman School of Mines at **Laurentian University** is collaborating to expand the scope of mining education and offering training in the fundamental skillsets that are needed in the industry.

The Goodman School of Mines has partnered with multiple universities to build a mining masterclass — an online, multi-credentialed and micro-credential program — that will leverage the best in all of the disciplines that they have to offer in mining and mining-related programming. The School focuses on programming, training and research to support and expose students to the full mining cycle.

The Goodman School of Mines is also enhancing work-integrated and cross-disciplinary learning opportunities for Laurentian students through minors, workshops, competitions, mine site tours and field trips, conferences, networking events, as well as other mining-related activities and scholarships. These efforts expose students to all facets of the industry and serve as a bridge between educational opportunities and the pursuit of career advancement in the mining industry.

For more information, contact goodmanschoolofmines@laurentian.ca.

Addressing health and community needs through unique experiential learning

To address health-care workforce needs across the region, **McMaster University** has introduced a new cross-disciplinary undergraduate program offered through a unique collaboration between the faculties of Health Sciences and Humanities.

The Bachelor of Health Sciences (Honours) Integrated Rehabilitation and Humanities (IRH) program, the first of its kind in the world, will involve a unique blend of coursework that reflects the complex nature of health and well-being.

The program will graduate professionals who are better able to address the health, social and human needs of individuals and their communities while gaining a deeper understanding of the social determinants of health — how a person's cultural background and economic situation can impact everyday life and health trajectories.

Graduates of the program will be equipped to identify and seize opportunities for innovation in health care and beyond.

For more information, contact irhbhsc@mcmaster.ca.

Upskilling full-stack web and app developers

The projected job growth for full-stack web and app developers in Ontario for the next decade is expected to be significant. To help meet the demand of local employers, **Ontario Tech University**'s Continuous Learning department and RoboGarden, an AI and software product development and consulting firm, have partnered on an innovative digital upskilling program that provides students with hands-on learning and gamified lessons from world-class instructors and mentors.

This collaboration aims to make the AI-supported Full-Stack Development Bootcamp accessible to the global learning community. Equal to teaching the technical skills required for effective programming and coding, the program equips students with the practical, real-world experience needed to pitch, present and sell their solutions in a professional programming environment through course modules and a concluding capstone project.

With a focus on cultivating a community of skilled innovators, participants in this unique learning program are prepared with adaptable skills that allow access to high-demand careers throughout Ontario and beyond.

For more information, contact continuouslearning@ontariotechu.ca or visit ontariotechu.ca.

Training future leaders for a net-zero economy

As Ontario's regions work towards reducing emissions, the Queen's Venture Creation, Experiential Learning & Net-Zero Training (QVENT) project, in partnership with the Business + Higher Education Roundtable (BHER), prepares **Queen's University** undergraduates to tackle the challenges of transitioning to a net-zero economy.

The QVENT project offers hands-on partner collaborations, net-zero business creation and learning from leading practitioners to fuel a green talent pipeline. The project includes four program streams: Course-Embedded Green Industry Projects, Certificate in Leadership Towards Net-Zero, Net-Zero Venture Creation and Net-Zero Focused Internships.

By combining hands-on experience, academic learning, industry partnerships and work-integrated learning to train students, QVENT aims to develop the future workforce, skilled in sustainability and environmental innovation.

For more information, contact netzero@queensu.ca.
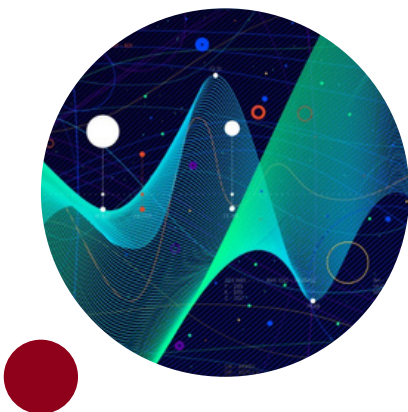
Enabling future generations of data scientists

From health care, economics and astrophysics to climate change, digital humanities and the promise of smart cities, the world is in the midst of a data revolution. To find solutions to our communities' most challenging problems, complex, massive and unique data sets are being generated and analyzed across a broad spectrum of disciplines at an unprecedented rate.

To help meet the growing need for talent in data science and machine learning, the Data Sciences Institute (DSI) at the **University of Toronto** is launching a new training initiative comprised of a series of certificates for mid-career workers to reskill and upskill their knowledge.

These new certificates in Data Science and Machine Learning Software Foundations will help prepare workers for success in fast-growing fields, offering foundational concepts in data science and machine learning knowledge and providing opportunities for practical application through employer case studies. Through the initiative, community training providers work closely with local employers to identify precise suites of skills sought by industry. Equipping workers with these skills will help create new career pathways and better position companies to compete both locally and internationally.

With the ultimate goal of helping workers transition into high-demand roles in the modern workforce – and help fast-growing companies achieve their full potential – the certificate recipients will be well-positioned for jobs that include data analysts, data managers or applied machine learning analysts.

For more information, contact info.dsi@utoronto.ca.

Addressing tech labour shortages through work-integrated learning

To help scale up the tech workforce as businesses find themselves in growing need of more workers to meet their technological needs, **York University**'s Lassonde Engineering School has introduced its first digital technologies work-integrated degree program, where students are employed full-time for four years, earning a salary while earning a Bachelor of Applied Science degree.

Businesses, public-sector organizations and industry associations helped co-design and co-develop the program that gives students the opportunity to be hired by a range of organizations looking to attract, develop and retain talent, such as software developers, cybersecurity analysts and data scientists. The first cohort of students includes professionals looking to upskill; university and college transfer students; and high-potential high-school graduates aspiring to a career in technology.

This unique work-integrated learning program allows students to make meaningful connections between academic and work-integrated learning experiences and helps address the digital skills shortage, while giving students practical hands-on experience.

For more information, contact hire@lassonde.yorku.ca.

TACKLING LOCAL WORKFORCE CHALLENGES THROUGH RESEARCH AND INNOVATION

Driving research and innovation at a regional level has ripple effects throughout Ontario's communities that help attract talent and increase competitiveness. Whether it's building an AI simulator that helps surgeons-in-training hone their skills and improve access to health care, or creating workforce integration labs that improve newcomer integration into the labour market, university researchers are conducting ground-breaking research to help find answers to local labour force challenges.

Advancing sustainable agriculture innovations in the Niagara region

Ontario's $5.5-billion grape and wine sector supports critical rural economic development, both in Niagara and across the province. Central to advancing research in this sector is a three-part Clean Agriculture for Sustainable Production (CASP) Field Infrastructure project, which includes **Brock University's agriculture research farm**, where scientists from Brock, other institutions and industry are partnering to develop and test out agricultural innovations.

The CASP project consists of three parts: the Clean Plant Program, which helps protect Ontario's grape and wine industry from viral diseases; Precision Agriculture and Ecological Interactions, which improves crop yield and resilience while reducing environmental impact; and Urban Applications, which integrates clean plants and sustainable agriculture practices into urban ecosystems.

This state-of-the-art research farm is helping reshape the future of local and sustainable agriculture in Ontario.

For more information, contact Dr. Sudarsana Poojari, Principal Scientist, Grapevine Virology at spoojari@brocku.ca.

Preparing new surgeons for the operating room with an AI simulator

To help train the next generation of pediatric surgeons, researchers at Children's Hospital of Eastern Ontario (CHEO) have partnered with **Carleton University** engineering students to build an AI simulator that will help surgeons-in-training hone their skills for highly technical laparoscopic procedures.

Rather than practicing on humans, the AI simulator allows surgical trainees unlimited hands-on training, performing tasks guided by a computer monitor, mimicking what happens inside a patient's body. Each gesture is recorded, analyzed and assessed using AI.

As CHEO and Carleton work towards a final prototype, the simulator has the potential to better prepare surgeons for hospital operating rooms, paving the way towards enhanced training, less complications in surgeries and improved access to health care.

For more information, contact Carlos Rossa, Associate Professor, Carleton University at rossa@sce.carleton.ca.

Developing a cybersecurity-aware workforce

As cyberthreats continue to evolve in complexity and scale, many organizations face challenges in updating their employees' cybersecurity skills. To help grow Ontario's cybersecurity and cyber safety workforce across government, academia and industry, the **University of Ottawa** has partnered with IBM to create uOttawa-IBM Cyber Range, a space to train employees and spur research and talent acquisition.

The Cyber Range is a fully immersive, interactive facility that provides organizations with hands-on experience to strengthen their cybersecurity defenses. Staff members at all levels within the organization can take part in simulations of cyber incident responses or a hacking crew. Simulations can be customized to suit the requirements of different sectors and are designed to ensure teams are prepared to deal with the unexpected.

The space will bring together more than 40 of the university's top academics from numerous disciplines, including engineering, law and business, to pursue research and innovation in cybersecurity. It also offers training programs and industry certifications, covering issues, such as upskilling current employees or onboarding new talent. Microprograms and micro-credentials offered by the Faculty of Engineering are also available and training can lead to industry certification.

In the evolving landscape of technology and business, the Cyber Range is helping organizations assess their cybersecurity infrastructure and processes, identify potential vulnerabilities and redefine how they address cybersecurity in an increasingly digital world.

For more information, contact info@uottawacyberrange.ca.

Integrating newcomers into the workforce

Toronto Metropolitan University's Canada Excellence Research Chair (CERC) in Migration and Integration is led by Anna Triandafyllidou and supports a diverse research team conducting projects across key research areas, including Labour Migration, which is led by Marshia Akbar, Director of the BMO Newcomer Workforce Integration Lab.

The lab is developing research to improve newcomer integration into the labour market, including addressing challenges around the recognition of international skills. It will provide employers with the tools and knowledge to attract, hire, integrate and retain newcomers. The lab will develop evidence-based resources, training and policy recommendations that employers of all types and sizes can adopt to better leverage the skills and talents of newcomers, from recruitment strategies to hiring and onboarding practices.

The research focuses on the challenges migrants face, the resources and services available to them, and the community resources and social networks available to help them access the labour market and move upwards in the market. The Lab also looks at migration policies and governance at both the federal and provincial levels, along with any gaps between the policies, practices and the lived experiences of migrants.

Initially, the team of researchers at the Lab will focus on ways of integrating Canada's immigrant workforce into the finance and banking sectors, with plans to expand to other industries.

For more information contact Director and Research Area Lead on Labour Migration, Marshia Akbar at cerc.migration@torontomu.ca.

Fostering research partnerships to address challenges

To help cross-sector innovation and solutions-based policy development, **Western University** has launched a new program that supports research collaborations between researchers and non-academic partners from diverse sectors, including non-profit, government, industry and corporate.

The Research Engagement Collaborative Alliance with Partners (RECAP) program is a joint effort that aims to enhance researchers' and collaborators' ability to conduct research that is mutually beneficial, and ultimately driven by societal and industry needs that will elevate uptake and impact.

The initial phase aims to help address community-based challenges, strengthen institutional collaborations and create more welcoming and inclusive experiences within research.

For more information, contact western.recap@uwo.ca.

Empowering new principals and supporting students through AI

During their first years of school leadership, new principals often report high stress and feeling under-prepared to support students with complex educational needs. Principals have access to few existing professional resources to help them effectively engage underserved and marginalized students.

Together with educators, regional innovation laboratories and principals' associations, a team of researchers from **Wilfrid Laurier University**'s Faculty of Education is using generative AI to develop a chatbot that supports principals in their decision-making. It provides quick access to important information, such as school board policies, human rights legislation and community resources, that principals can call upon when needed.

In addition, the chatbot generates realistic scenarios that principals can engage with to help them better prepare for supporting students. New principals gain real-time experience in navigating complex situations before actually experiencing them.

With their existing prototypes, the Laurier team is refining the chatbot and scenarios, evaluating their effectiveness and scaling the project so that the resources will be available to principals across Canada in both English and French. This is being done in collaboration with two of Canada's largest principals' organizations, representing nearly 8,000 principals.

For more information, contact research@wlu.ca.

Protecting homegrown intellectual property and getting products to market

To help boost innovation, commercialization and attract investment to southwestern Ontario, the **University of Windsor** is partnering with industry to bring inventions to market through its Office of Research Partnership, a key player in technology transfer and industry collaboration.

Leveraging the university's vibrant community of inventors and innovators, the Office works to enhance technology transfer and industry collaboration, and provides training for local innovators and businesses looking to learn more about intellectual property. By helping local entrepreneurs and inventors bring their products to market, the Office is fueling economic growth and job creation throughout the region.

Additionally, as part of these initiatives, the university is also partnering with Brock University to introduce a technology transfer internship that provides students – the next generation of entrepreneurs – with invaluable insights into intellectual property and commercialization.

The university will continue to provide the resources and expertise needed to help local companies, students, researchers and entrepreneurs take their ideas to the next level.

For more information, contact researchpartnerships@uwindsor.ca.

APPENDIX

Meeting Regional Workforce Demands

Algoma University
Bachelor of Social Work Program
info@algomau.ca

University of Guelph
OVC Dean's Office
ovcdean@uoguelph.ca

Lakehead University
Northwestern Ontario Workplace & Worker Health Study
www.workinghealth.ca or
workinghealth@lakeheadu.ca

OCAD University
Project Officer, CEAD
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University of Waterloo
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Supporting Local, Fast-Growing Industries

Laurentian University
Goodman School of Mines
goodmanschoolofmines@laurentian.ca

McMaster University
Integrated Rehabilitation & Humanities (IRH) Program
Faculty of Health Sciences
irhbhsc@mcmaster.ca

Ontario Tech University
Continuous Learning Department
continuouslearning@ontariotechu.ca

Queen's University
Net-Zero Experiential Learning
netzero@queensu.ca

University of Toronto
The Data Sciences Institute
info.dsi@utoronto.ca

Trent University
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coop@trentu.ca

York University
Integrated Program, Lassonde Engineering School
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Tackling Local Workforce Challenges
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