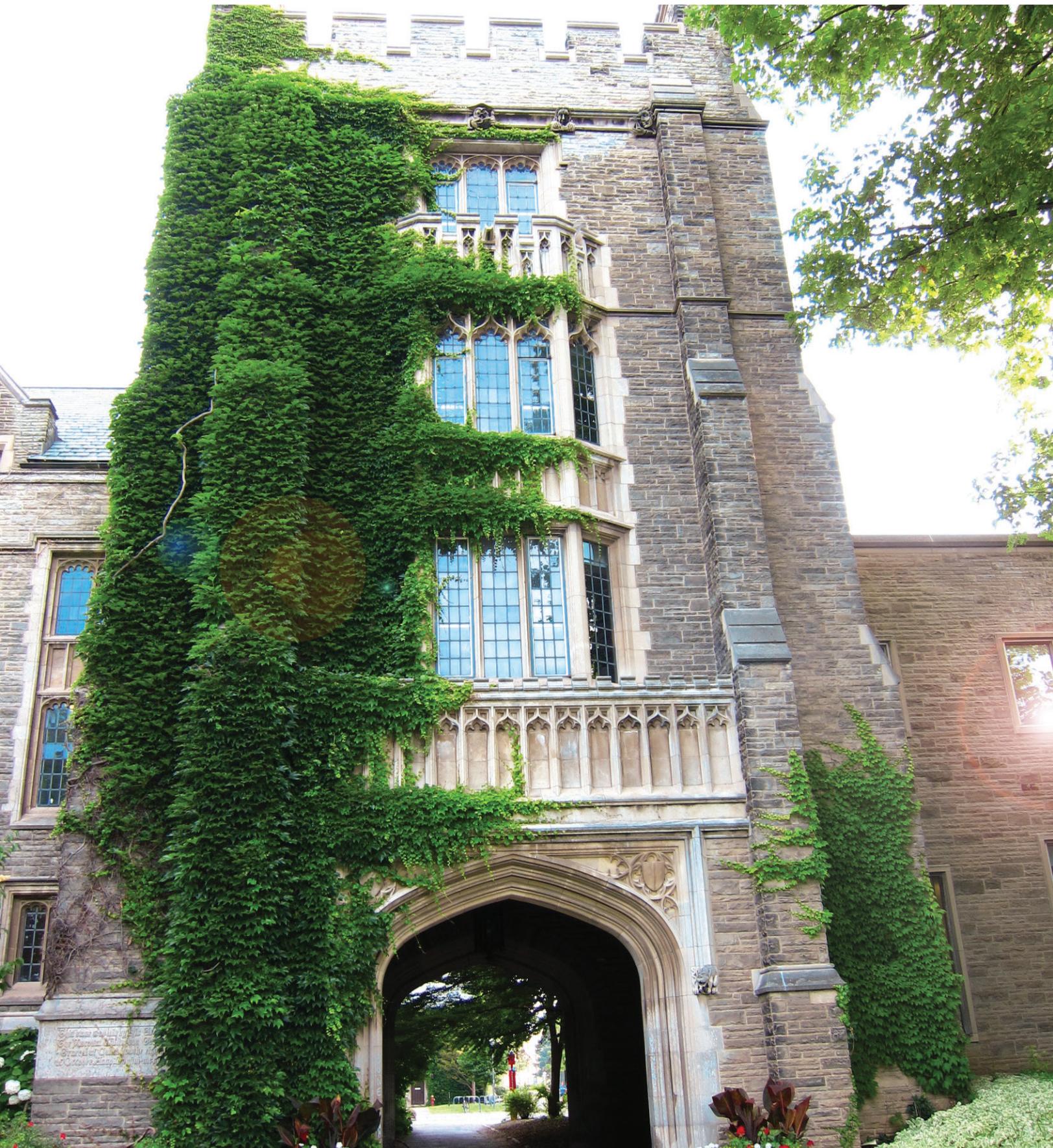


FOCUSED ON A
**BRIGHTER
WORLD**

McMaster
University 

Fact Book:
Goals and Priorities
2017 | 2018





McMaster Goals and Priorities

McMaster University was founded in 1887 and is governed by the McMaster University Act, 1976. The University has achieved an international reputation as a centre of excellence for teaching and learning, innovation, and creativity. This year, McMaster was again one of only two universities in Ontario ranked among the world's top 100 universities, and one of only four in Canada. *Research Infosource* 2017 ranked McMaster as Canada's most research-intensive university, with a total research income of \$354.6M, averaging \$405,300 per faculty member – more than double the national average.

We serve our community and society by nurturing and supporting the fulfillment of human potential: inspiring creativity and critical thinking, promoting an enduring love of learning and the habit of inquiry, and undertaking innovative research that extends the boundaries and enhances the efficacy of knowledge. We are committed to the advancement of human and societal health and well-being, and ultimately to creating a brighter world for all.

VISION STATEMENT

To achieve international distinction for creativity, innovation, and excellence.

MISSION STATEMENT

At McMaster, our purpose is the discovery, communication, and preservation of knowledge. In our teaching, research, and scholarship, we are committed to creativity, innovation, and excellence. We value integrity, quality, inclusiveness, and teamwork in everything we do. We inspire critical thinking, personal growth, and a passion for lifelong learning. We serve the social, cultural, and economic needs of our community and our society.

STRATEGIC PRIORITIES

McMaster's vision, mission, and mandate statements provide the foundation for our strategic planning and President Patrick Deane's letter, *Forward with Integrity*, outlines our priorities. At McMaster, we strive to foster the creative and intellectual potential of our students, while at the same time preparing our graduates to build successful careers. We develop innovative and entrepreneurial graduates, undertake cutting-edge research, and serve our community by leading and partnering on a variety of local and global initiatives. McMaster also has a strong track record of working with industry, successfully

outpacing our peers over the last five years in industry-sponsored research. Such industrial collaborations act as magnets, attracting businesses to our region, allowing for the incubation of new companies and creating jobs for Canada's next generation of leaders – our students.

Strategic Goals

GOAL ONE: DEVELOPING A DISTINCTIVE, PERSONALIZED, ENGAGING, AND SUSTAINABLE STUDENT EXPERIENCE

1

McMaster has transformed post-secondary teaching and learning over many decades. Our signature pedagogies, such as inquiry and problem based learning, have been incorporated into multiple programs at McMaster, and are recognized and adopted worldwide. Our goal is to build on the success of our most creative and innovative programs to provide an enriching and transformative learning experience for all students, which includes opportunities for experiential, work-integrated, and self-directed learning, and allows for the consideration of multidisciplinary perspectives. Alongside this, McMaster integrates our world-class research enterprise into teaching and learning, and connects the learning experience to our local, national, and international communities.

KEY INITIATIVES

- The multipurpose Peter George Centre for Living and Learning is under construction and scheduled for occupancy in Fall 2019. Other projects to address student need and enhance student life are underway, including plans to build a new residence. In addition, a \$60 million, 100,000 square foot Student Activity and Fitness Expansion was approved through a referendum held by the McMaster Students Union (MSU). This expansion will double the size of McMaster's fitness centre, and include a new gym, as well as more studio, study, event, lounge, and prayer spaces.
- Across the University, students continue to be offered opportunities to engage in experiential learning experiences and work-integrated learning, both within Canada and overseas. Recent initiatives include:
 - Launched in Fall 2017, the graduate option of the McMaster Engineering Co-op program gives graduate students from across the Faculty the opportunity to gain work experience prior to graduation.
 - A new Blended Learning Part-Time MBA program has been developed by the DeGroot School of Business. Due to be launched in Fall 2018, the program is a combination of online modules and weekend residences with work-integrated assignments.
 - The Faculty of Humanities launched a new Discovery Channel Canada Internship in Fall 2017 which enables students to earn course credits while working with the Channel's flagship Daily Planet program.
 - The Gerald Hatch Centre for Engineering Experiential Learning opened in Fall 2017 and provides 28,000 square feet of space for student-focused, hands-on learning initiatives, including building spaces, shared work areas, and collaboration rooms.
- The University's focus on experiential learning has been bolstered by the Career Ready Fund made available by the Ministry of Training, Colleges and Universities. Some of the initiatives made possible through the fund include:
 - The Office of Community Engagement and Paul R. MacPherson Institute for Leadership, Innovation and Excellence in Teaching have partnered to make \$150,000 available to successful applicants to increase experiential learning opportunities in undergraduate and graduate program offerings. The first call for applications resulted in 17 grants being awarded and a second call is planned during 2018-19.
 - McMaster is collaborating with the community of Akwesasne to expand the experiential learning, leadership training, and rite of passage program, Ohero:kon (Under the Husk). One of the outcomes is the new Engineering 41D3 course, in which students will work with the community to construct a new learning space.
- McMaster's Student Career Access Program provides students with disabilities and those from other underrepresented groups with access to a full range of career learning opportunities. Students work with a Career Advisor to develop an individualized employment plan and map out experiential activities that will help them achieve their career goals.
- The Student Open Circles program trains students to manage volunteer teams on behalf of not-for-profit organizations without the resources to do so. Students learn about issues impacting Canadian communities, develop valuable leadership skills, and have the opportunity to reflect on their career aspirations.
- To meet societal and labour market needs and student demand, McMaster continues to develop innovative inter-disciplinary, and multi-disciplinary programs. Recent initiatives include:
 - The Integrated Business and Humanities (IBH) program, which was launched in Fall 2017, enrolled 49 students in its first year. The program encourages community



In 2018,
McMaster
won the Global
Teaching
Excellence
Award.

engagement and sustainable business practices.

- Through the MacChangers program, led by the Faculty of Engineering and MacPherson Institute, interdisciplinary teams of McMaster students from all Faculties develop extracurricular research projects and propose innovative solutions to local and global societal issues.
- The Makerspace at Thode Library, launched in 2017, is a new interdisciplinary experiential learning space. By providing access to tools, technology, expertise and social connections, students have an opportunity to explore new technologies, learn technical skills and work collaboratively to transform ideas into tangible prototypes.
- In January 2018 the School of Interdisciplinary Science launched Science for the Global Citizen, a new blended-learning course which enables students from all Faculties to examine the links between science and society through live guest lectures and evidence-based online discussions.
- McMaster supports a variety of initiatives intended to equip our students with the leadership skills needed to be engaged and successful global citizens, and to transition successfully from the academy to the

workplace. Recent initiatives include:

- A campus-wide global engagement hub project was formally initiated in April 2018. The hub will foster a distinctive and sustainable culture of global citizenship and engagement for students, faculty, staff, administration, prospective partners, and alumni through the coordination of international knowledge, information, services, and programming.
- The Graduate Diploma in Engaged Research and Evaluation offers students in Social Sciences the opportunity to develop knowledge and skills in community-engaged research and evaluation, and to contribute to community and agency learning, effectiveness, and change.
- The Faculty of Humanities has developed five new concurrent certificates for McMaster Undergraduate students, which are due to launch in Fall 2018. The Certificates cover Leadership and Cross-Cultural Literacy, the Language of Medicine and Health, Ethics and Policy for Technological Innovation, International Engagement, and Practical French.
- The Wilson Leadership Scholar Award, hosted by McMaster University, supports the development of students who demonstrate exceptional leadership potential. In addition to a high-value monetary award, the program includes

a range of mentorship, professional development, and community engagement opportunities, and brings together students from a variety of disciplines to nurture their leadership skills.

KEY OUTCOMES

- In recognition of McMaster's institution-wide commitment to promoting and supporting teaching excellence and pedagogical innovation, the University was awarded the 2018 Global Teaching Excellence Award by the Higher Education Academy in partnership with Times Higher Education. McMaster was selected for the award from an international short-list of finalists on the basis of the range of experiential learning opportunities available, our commitment to global engagement, and the work of the MacPherson Institute.
- McMaster is globally recognized for its commitment to innovation and advancing human and societal health and well-being. As part of the University's continued focus on creating an environment that promotes health and wellness for students, faculty, staff, and visitors, McMaster became Ontario's first tobacco and smoke-free campus in January 2018.

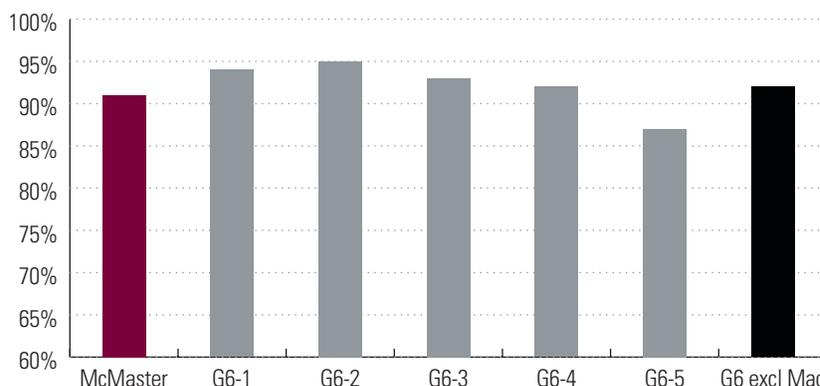
- McMaster has continued to make innovations in online and blended learning:
 - The Master’s program in Child Life and Pediatric Psychosocial Care entered its second year in Fall 2017. This unique program is a professional and practice-focused graduate degree delivered with a creative web-based online learning format and complemented by two residency periods.
 - McMaster’s Faculty of Social Sciences has collaborated with the Centre for Continuing Education over the last year to design a joint on-line degree program in Sociology that will enable students initially taking courses through CCE to enroll in a BA program. The program will be offered in Fall 2018.
 - In February 2018, a new Massive Open Online Course (MOOC) titled DNA Decoded was launched by the Faculty of Health Sciences in partnership with the MacPherson Institute. Open to the public, the course teaches students about the significance of DNA and allows them to engage in a virtual lab to perform their own forensic analysis.
 - Since 2013, the MacPherson Institute has engaged nearly 300 undergraduate and graduate students in their Student Partners Program. The Institute has also been instrumental in the redesign of over 45 online and blended courses, e-Modules, and MOOCs.

- The Honours BA in Indigenous Studies provides opportunities to explore the intellectual traditions of many Indigenous peoples, including the Haudenosaunee and Anishinaabe of Southern Ontario. The program saw a 45 per cent growth in enrolment between 2016-17 and 2017-18.
- In partnership with Mohawk College, the Faculty of Science runs two Honours Bachelor of Applied Science specialization programs. Demand for these programs is rising, with enrolment increasing from 80 to 157 between the first and second year of the programs. Graduates receive an Ontario College Graduate Certificate from Mohawk, as well as the McMaster Honours Bachelor of Applied Science degree. McMaster also offers an overarching Honours Human Behaviour program, leading to an Honours Bachelor of Applied Science Degree.

STRATEGIC MANDATE AGREEMENT METRICS

Under the 2017-18 to 2019-20 Strategic Mandate Agreement (SMA2) with the Ministry, Ontario Universities agreed to report on a common set of system-wide metrics and targets in five priority areas. The SMA2 system level metrics shown below are those related to Goal 1.

Undergraduate First Year to Second Year Retention Rates – Fall 2017

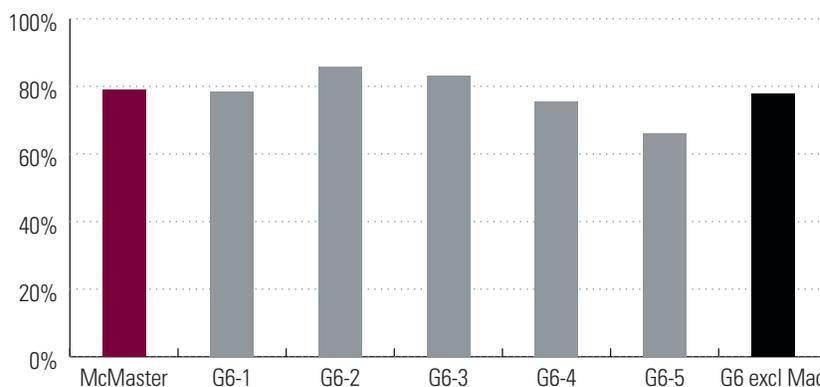


Note 1: Retention rates are based on first-time, full-time undergraduate students who commenced their studies in the previous year and have continued to study at the same institution in the reporting year.

Note 2: G6-1 to G6-5 represent McMaster’s Ontario peers who are members of the U15 (Canada’s 15 research-intensive universities).

Source: CSRDE (Consortium for Student Retention Data Exchange) 2017.

Undergraduate Six Year Graduation Rate – 2017



Note 1: The university graduation rate is calculated through the selection of all first year, new to the institution, undergraduate students from the Fall enrolment file 6 years prior, who received a bachelor or first professional degree.

Note 2: G6-1 to G6-5 represent McMaster’s Ontario peers who are members of the U15 (Canada’s 15 research-intensive universities).

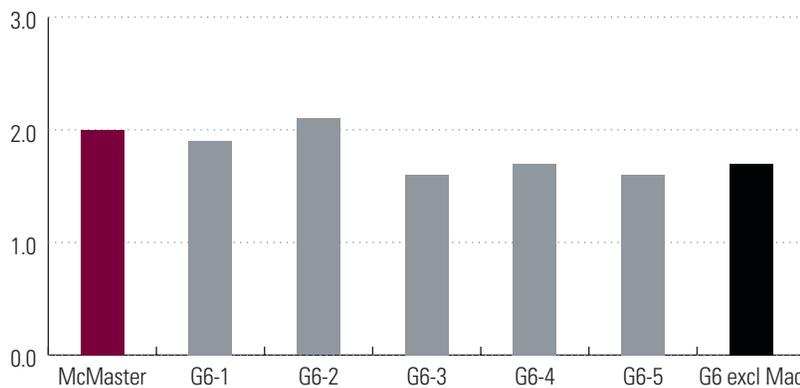
Source: CSRDE (Consortium for Student Retention Data Exchange) 2017.

- In 2017-2018, McMaster enrolled 1,962 credit transfer students (an increase of four per cent compared to 2016-2017) from 20 Ontario universities and 20 Ontario colleges.
- McMaster continues to encourage and support student entrepreneurs, provide seed funding, and actively promote entrepreneurship on campus. Since its establishment nearly four years ago,

The Forge has incubated more than 80 companies that have gone on to raise more than \$17 million of funding. The Forge currently works with 30 start-up clients including McMaster students, alumni, and community members, and engages more than 2,200 students each year in its programming.

- McMaster programs provide high-quality preparation for future careers. In the 2016 Ontario University Graduate Survey of McMaster's 2014 undergraduate degree recipients, 91.4 per cent of respondents indicated that they were in full-time employment that was closely related or somewhat related to the skills they studied at university two years post-graduation. The Ontario average is 88.8 per cent.

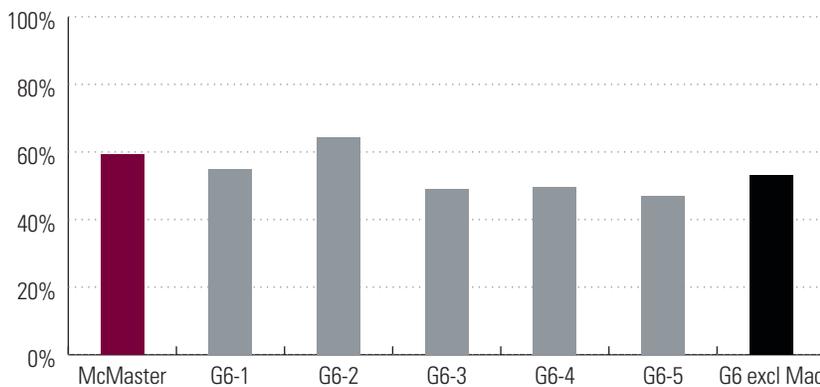
NSSE - Average Number of High Impact Practices (HIPs) Per Fourth-Year Student - 2014



Note 1: Ontario universities administer the NSSE survey every 3 years and 2014 is the last available data.
 Note 2: G6-1 to G6-5 represent McMaster's Ontario peers who are members of the U15 (Canada's 15 research-intensive universities).
 Source: National Survey of Student Engagement (NSSE) 2014.

- To support students in finding jobs and connecting them with local employers the University also presents Connect to Careers, Hamilton's largest job fair, in partnership with Mohawk College, Redeemer University College, and the City of Hamilton. In total, over 1,600 job seekers and 169 exhibiting employers attended the 2018 event.
- The DeGroote School of Business Internship Program is the largest undergraduate business internship program in Ontario, providing students with 12 to 16 months of work-integrated learning.
- During 2017-18 the Engineering Co-op and Career Services saw a 47 per cent increase in career development appointments and a 14 per cent increase in co-op work terms to more than 2,400.

NSSE - Proportion of Fourth-Year Students with Two or More High Impact Practices (HIPs) - 2014



Note 1: Ontario universities administer the NSSE survey every 3 years and 2014 is the last available data.
 Note 2: G6-1 to G6-5 represent McMaster's Ontario peers who are members of the U15 (Canada's 15 research-intensive universities).
 Source: National Survey of Student Engagement (NSSE) 2014.

- McMaster produces some of Canada's most employable graduates, according to Times Higher Education. The University ranked fifth in Canada and 74th worldwide (up one spot from 2016), in the Global University Employability Ranking 2017.
- In the 2017 National Survey of Student Engagement (NSSE) 83 per cent of respondents rated their entire McMaster educational experience as good, or excellent, compared with Ontario's average of 77 per cent.

McMaster frequently RANKS HIGHER than the Ontario average in NSSE BENCHMARKS.

Strategic Goals

GOAL TWO: ENHANCING THE CONNECTIONS BETWEEN MCMASTER AND THE COMMUNITIES WE SERVE, LOCALLY, PROVINCIALLY, NATIONALLY AND AROUND THE GLOBE.

2

McMaster remains committed to public service, with a focus on fostering ongoing collaboration between the University and community partners. This work enables us to better understand and consider the issues identified as priorities by local and global communities, and to integrate them fully and meaningfully into the work of the academy. McMaster also supports the broader community through our work to foster a diverse campus community and create enhanced pathways and improved supports for underrepresented groups.

KEY INITIATIVES

- McMaster continues to build on its connections to the Indigenous community and to develop responses to the Truth and Reconciliation Commission's report:
 - An Indigenous Health Initiative (IHI) is being developed by the Faculty of Health Sciences in collaboration with Indigenous partners. The overall goal of the IHI is to address the disparity experienced by Indigenous people. It aims to address systemic barriers in health science education for Indigenous learners, and educate faculty and administrators regarding Indigenous health.
 - Established in 2016, the McMaster Indigenous Research Institute (MIRI) – one of Canada's first university-wide Indigenous Research Institutes – supports and sustains Indigenous research and knowledge across all disciplines and within the communities with whom our researchers and students interact.
 - This year the Indigenous Undergraduate Summer Research Scholars program (IUSRS), run by MIRI and the School of Graduate Studies, hosted 11 Indigenous undergraduate students from across Canada for an eight-week program which provides hands-on experience in a graduate research environment, and includes cultural and academic programming.
- McMaster's Indigenous Studies Program celebrated 25 years in Fall 2017. The program incorporates a unique teaching structure of Indigenous knowledge involving many Indigenous peoples and Elders, and is Canada's longest-running Indigenous program.
- A longstanding partner with Six Nations Polytechnic (SNP), McMaster maintains an educational pathway with SNP for students who wish to transition to university. McMaster also has scholarly relationships with Deyohahá:ge: the Indigenous Knowledge Centre at SNP, bringing diverse knowledge systems together to advance the well-being of all peoples.
- McMaster engages in a range of initiatives to build connections with the local community and provide pathways and support to students who may not otherwise have the opportunity to attend University:
 - The Office of Community Engagement, in collaboration with the MacPherson Institute, developed a Community Engaged Teaching and Learning Toolkit that helps faculty and staff learn how to integrate McMaster's Principles of Community Engagement into community engaged educational settings.
 - The McMaster Discovery Program (MDP), a free, university-level, non-credit course offered to adults living in Hamilton who experience barriers to accessing higher learning opportunities, welcomed its seventh cohort in Fall 2017, and has now graduated approximately 160 students.
 - Researchers from CanChild and the School of Rehabilitation Science have partnered with the Hamilton-Wentworth Catholic School District and the Hamilton Niagara Haldimand Brant Local Health Integration Network to explore how special education resource teachers, speech-language pathologists, and occupational therapists develop and implement tiered services in schools where socio-economic factors impact students' learning. This project supports the provincial government's Special Needs Strategy, and is contributing to the evidence in support of integrated school-based rehabilitation services.
 - Students from different academic disciplines come together under the IMPACT initiative, which was co developed by faculty members from the Faculties of Health Sciences, Engineering, and Science. This cross-Faculty educational collaboration encourages faculty, students, and healthcare providers to apply their knowledge to create customized accessibility devices for members of our aging population or those living with disabilities.
 - In April 2018, McMaster hosted the FIRST Robotics District Competition,



McMaster remains a significant source of employment within our community, and was named one of Hamilton-Niagara's Top Employers for the third year in a row.

which attracted hundreds of high school students from across Ontario. The three-day annual event is an intensive technological challenge that promotes STEM education and the value of teamwork.

- Coordinated by the Office of International Affairs, McMaster seeks to build a strong network of international partnerships including research collaborations, internships, and exchanges with institutions around the globe, and to support our students and faculty in developing such connections:
 - In May 2018, McMaster was inducted as a member of the Universitas 21 (U21), a leading global network of research intensive universities comprising 26 leading institutions from more than 17 countries. The group encourages its members to share practices that support and enable excellence, collaborate across borders, and nurture global knowledge sharing.
 - Together with Maastricht University, McMaster leads the Global Health initiative, which includes Manipal University, India (Public Health), University of South-Eastern Norway (High North & Arctic Studies), Universidad del Rosario, Colombia (Global Health & Political Economy), Thammasat University in Thailand (Diplomacy & Security), and

Ahfad University in Sudan (Post-traumatic & Humanitarian Aide). In the Spring of 2018, 292 graduate students from this consortium met in India to present research, participate in cultural workshops, and discuss global health research methods.

- The newly-established role of Global Experience Coordinator supports McMaster students in developing the skills needed to be successful global citizens. In addition to advising on co-ops, exchanges, volunteering, field trips, and access to international career and employment support, travel stipends to support global experiences are available.
- Through the Mitacs Globalinks program, students from around the globe have chosen to gain research experience with researchers in McMaster's Faculties of Engineering, Science, Health Sciences, and Humanities. The QEII Scholarship and Erasmus+ programs allow McMaster students to participate in research internships with research partners overseas.
- McMaster continues to lead and actively engage in a range of initiatives within the City of Hamilton, including:
 - CityLAB Hamilton entered the second year of its 3-year pilot with 11 projects currently underway involving 172 students, 18 city staff, and 15 faculty from

the partner institutions. CityLAB Hamilton is a partnership between McMaster, Mohawk College, Redeemer University College, and the City of Hamilton, and aims to engage students in civic and community issues, establish connections and potential job opportunities, and provide innovative solutions to the most pressing challenges facing our City.

- The Faculty of Social Sciences Scholar in Community, a qualitative, community based study involving McMaster, The Food Centre, and the City of Hamilton is looking at ways to assess and improve programs designed to help those struggling with food insecurity, poverty, and marginalization in Hamilton. The project helped the newly-established Hamilton Community Food Centre (HCFC) develop an evaluation framework for their 2017 launch.
- The Synapse Life Science Consortium, a collaborative effort involving McMaster, Hamilton Health Sciences, St. Joseph's Hospital, Mohawk College, and the City of Hamilton, along with the Hamilton Chamber of Commerce, Bay Area Health Trust, and the Innovation Factory, is helping to develop the life sciences industry in the Hamilton region and support international companies seeking an entry point into the North American market.

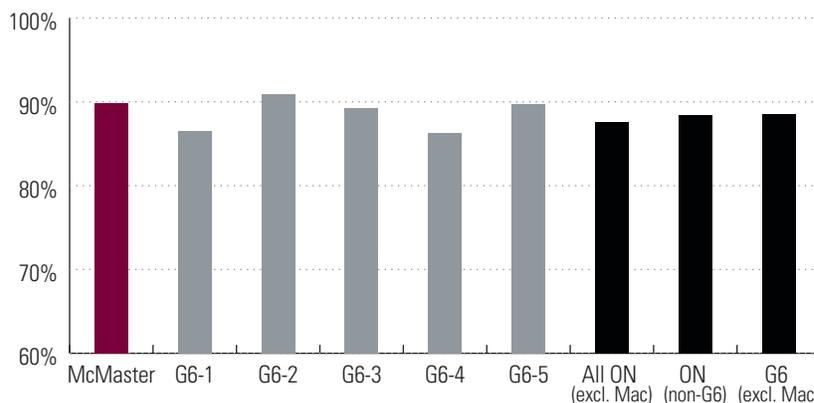
KEY OUTCOMES

- In 2017-2018, McMaster welcomed 6,797 full-time first-generation students (representing about 22.7 per cent of McMaster's Fall full-time student enrolment), 503 (1.7 per cent) Indigenous learners (First Nations, Métis, and Inuit) and 2,132 (7.1 per cent) students with disabilities. McMaster continually strives to improve access to underrepresented groups through pathway programs and initiatives.
- The fourth Change Camp Hamilton took place in Fall 2017 to bring people together from different neighbourhoods, groups, and institutions to share information and ideas. The themes discussed were food security, transportation, community print shop, affordable housing, and space animation. The Change Camp Catalyst Fund, supported by the City of Hamilton, Hamilton Community Foundation, and the McMaster Office of Community Engagement, provided \$4,500 in grants to support new neighbourhood-campus partnerships.
- The two-year Partnering for Change Implementation and Evaluation study enabled 806 children with special needs to receive occupational therapy services at 40 schools and resulted in the sharing of 8,172 strategies and accommodations, 6,697 opportunities to screen small groups of children, the provision of 1,291 whole class activities, and 662 in-services for educators of children in junior kindergarten to grade eight.
- Over the past five years, the IMPACT initiative has involved 800+ first-year engineers, 250+ biology students, and 30+ student occupational therapists. It has been showcased at national and international conferences, featured in the Canadian media, and was recently included as part of a seminar at Duke University.
- After six years of on-campus programming, the McMaster Children and Youth University (MCYU) has reached more than 3,000 youth and their families, with lecture topics spanning all Faculties, and this year will graduate approximately 100 youth. In addition, in 2017-2018 the MCYU in the

STRATEGIC MANDATE AGREEMENT METRICS

Under the 2017-18 to 2019-20 Strategic Mandate Agreement (SMA2) with the Ministry, Ontario Universities agreed to report on a common set of system-wide metrics and targets in five priority areas. The SMA2 system level metrics shown below are those related to Goal 2.

Graduate Employment Rate, 6 Months post-graduation – 2016



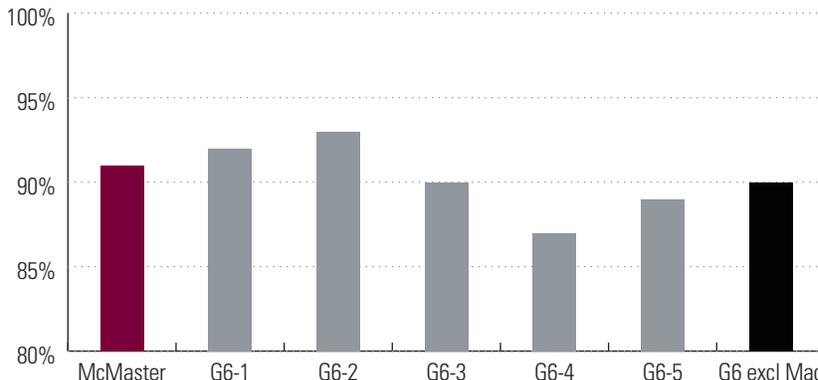
Note 1: Graduate Employment Rate is the number of graduates of bachelors or first professional degree programs expressed as a percentage of the labour force after graduation.

Note 2: The table above displays the results of the Ministry of Training, Colleges and Universities' Ontario University Graduate Survey on the employment outcomes of undergraduate students who graduated 6 months before the year displayed. It displays the last available data.

Note 3: G6-1 to G6-5 represent McMaster's Ontario peers who are members of the U15 (Canada's 15 research-intensive universities).

Source: Ontario University Graduate Survey (OUGS) 2016.

Proportion of Graduates Employed Full-Time in a Related Job (2 Yrs post-graduation) 2016



Note 1: Graduate Employment Rate is the number of graduates of bachelors or first professional degree programs expressed as a percentage of the labour force after graduation.

Note 2: The table above displays the results of the Ministry of Training, Colleges and Universities' Ontario University Graduate Survey on the employment outcomes of undergraduate students who graduated 2 years before the year displayed. It displays the last available data.

Note 3: G6-1 to G6-5 represent McMaster's Ontario peers who are members of the U15 (Canada's 15 research-intensive universities).

Source: Ontario University Graduate Survey (OUGS) 2016.

City program engaged 74 undergraduate and graduate students in developing 105 inquiry-based workshops and delivered them in partnership with 12 community organizations, including schools and libraries, throughout the Greater Hamilton Area.

- McMaster's DeGroot School of Business and Faculty of Engineering have joined forces with Stanford University, becoming the only other academic partner to enter Stanford's Digital Cities Program. The program is poised to change the way commercial businesses and municipal governments operate as the world moves toward increasingly digitized urban centres.
- McMaster's Faculty of Engineering supports two key youth program initiatives: Venture and L.E.A.P., which work to engage students from Kindergarten to Grade 12 in engineering and science. Combined, these programs reached more than 18,500 students in Summer 2017 through camps run on campus and travelling workshops throughout Ontario. The Faculty also participates in CodeMakers,

a national program to empower youth with critical computer science skills.

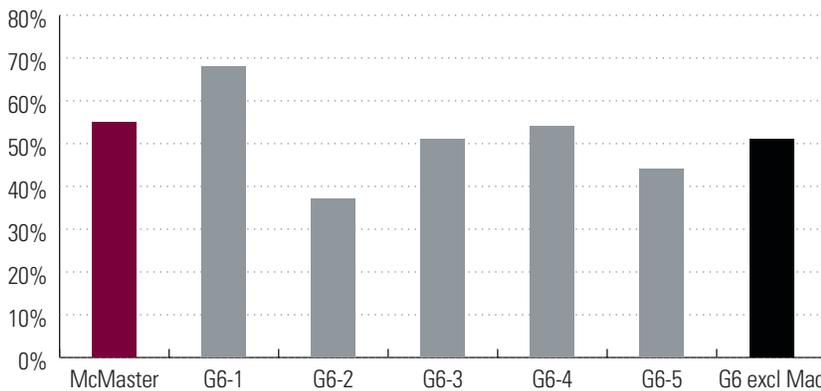
- The Office of International Affairs (OIA) held the first ever joint McMaster University – Centre National de la Recherche Scientifique (CNRS) workshop in February 2018, bringing together 28 French scientists representing 22 CNRS research laboratories, with 20 McMaster faculty from five departments in Science and Engineering. The event reinvigorated numerous existing research ties and encouraged the development of new initiatives, including a possible coordinating project centre in Hamilton/McMaster to champion bi-lateral research projects and support the co-supervision of Ph.D. students.
- Seventy proposals have received funding from McMaster's International Initiatives Micro-Fund over the past three years, with 25 projects, totalling \$121,000, being funded in the last round. This program provides seed funding to support international research partnerships and joint international activities

with leading universities and institutes around the globe, and has been used to advance projects as diverse as developing systems for water quality monitoring in Japan, exploring how marriage ties between large business families affect the industrial structure of South Korea and Taiwan, and collaborating with international partners to use musical principles to improve auditory interfaces in medical devices.

- McMaster's students have been successful in finding employment: of those students graduating with a bachelor or first professional degree in 2014, 90% had found employment within 6 months and 94% within 2 years (source: Ministry of Training, Colleges and Universities' 2016 Ontario University Graduate Survey).
- For the third year in a row, McMaster was named one of Hamilton-Niagara's Top Employers. With approximately 13,400 faculty and staff, McMaster is one of the largest employers in the Greater Hamilton Area.

McMaster continues to build connections with the local community and provide pathways and support to students who may not otherwise have the opportunity to attend University.

Share of OSAP Recipients at an institution relative to its total # of eligible students 2015-16



Note 1: Total full-time OSAP awards at institution based on academic year-end data (OSAP academic year starts August 1, with academic year-end data available at end of August in the following year)/Total Fall operating grant eligible headcount enrolment at institution (based on November 1st reporting).

Note 2: These OSAP participation rates are the latest sector-wide OSAP rates available as reported for the Strategic Mandate Agreement.

Note 3: G6-1 to G6-5 represent McMaster's Ontario peers who are members of the U15 (Canada's 15 research-intensive universities).

Source: OSAP and Official government enrolment data.



Strategic Goals

GOAL THREE: STRENGTHENING THE EXCELLENCE OF OUR RESEARCH AND OUR GRADUATE EDUCATION AND TRAINING, WHILE SEEKING OPPORTUNITIES TO INTEGRATE RESEARCH MORE PURPOSEFULLY INTO OUR ACADEMIC MISSION.

3

Ranked as Canada's most research-intensive university, McMaster excels at interdisciplinary and collaborative research, working with industry, government, and community partners, as well as other academic institutions around the globe. Our research reflects current and emerging issues of relevance to our local and global communities, and has impact across a wide range of disciplines. We intend to build on our track record in technology transfer and entrepreneurship to provide opportunities for commercialization to our faculty and students and bridge the gap between research and commercial application. Committed to engaging students at all levels in research activities, we strive to integrate research and teaching across our programming in creative ways. Our graduate training is central to sustaining our research intensity and we are committed to equipping graduate students in all programs with the practical skills and experiential knowledge that will enable them to translate their academic achievements into success after graduation.

KEY INITIATIVES

- McMaster's new Strategic Plan for Research, Research for a Brighter World, was approved by the University's Senate in Spring 2018 and lays out a vision to enhance McMaster's research mission and achieve even greater research success. Centred on our commitment to research excellence, the five-year plan is informed by a set of core values, highlights the diverse strengths of the University's research enterprise, and identifies eight strategic initiatives designed to meet the complex challenges of the future. Some key aspects of the Strategic Research Plan include:
 - A restatement of McMaster's unwavering commitment to fostering and supporting foundational research across the disciplines, and an acknowledgement of the critical role such research plays in advancing our knowledge and our society.
 - An outline of some of the key areas where our researchers are delivering new knowledge and solutions to meet the most pressing global challenges, and an overview of the strategic themes identified to guide our research efforts in the years ahead.
- A commitment to making strategic investments in support of our researchers: recruiting, mentoring, and supporting diverse and talented teams; developing a pan-university approach to managing and supporting research platforms and equipment; establishing a competitive fund to support major grant applications; enhancing supports for spin-off companies, entrepreneurship, and commercialization; and strengthening and increasing collaboration and cooperation across the University and with external partners.
- A focus on diversity, including an acknowledgement of the importance of Indigenous Knowledge and Research, and a recognition that Indigenous ways of knowing are differentiated by unique, sophisticated, and complex systems of knowledge across Indigenous communities.
- McMaster has a global reputation for excellence in health research and our researchers are playing a leading role in working to address the most significant global issues:
 - The Michael G. DeGroot Institute for Infectious Disease Research is known as a centre of innovation and excellence for its work on addressing the global epidemic of drug resistant infections and our work in this area has been bolstered by a \$15M investment for cutting-edge equipment. McMaster is also the home of the Canadian Institutes of Health Research (CIHR) Institute of Infection and Immunity, which is at the forefront of research into antimicrobial resistance, HIV, hepatitis C, Lyme disease, the microbiome, and organ transplantation.
 - In the battle against chronic disease, our ability to conduct population-level studies through the Population Health Research Institute and the Population Genomics Program provides definitive proof of health outcomes. Our world-leading cohort studies such as the Canadian Longitudinal Study on Aging, Prospective Urban and Rural Epidemiological Study, and the Canadian Healthy Infant Longitudinal Development birth cohort, provide valuable data to maximize prevention, treatment, and management of the most challenging chronic diseases.



The 80,000 square foot, state-of-the-art McMaster Automotive Resource Centre (MARC) is strategically placed at the hub of a transportation network linking automotive manufacturers and suppliers.

- Researchers at the Labarge Centre for Mobility in Aging are applying a design-led approach to examine the biological, behavioural, technological, and environmental factors affecting individual and community mobility as people age in order to optimize the well-being of our aging population. The Labarge Centre is housed in the McMaster Institute for Research on Aging, a cross-Faculty research institute, which provides infrastructure to support research, education, and community outreach.
- McMaster’s physical and intellectual assets in advanced materials and manufacturing, and our strong relationships with our government and industry partners, play a crucial role in strengthening Canada’s capacity in this important sector:
 - McMaster is a key partner in Next Generation Manufacturing – the national supercluster network, currently headquartered at MIP – designed to bring industry, academia, and not-for profits together to develop Canada’s next generation of manufacturing capabilities. McMaster is also one of three Ontario universities leading the Advanced Manufacturing Consortium.
 - Researchers in the Biomedical Engineering and Advanced Manufacturing Fraunhofer Project Centre (BEAM) are developing new technologies for cancer treatments, biomarkers for cancer detection, point-of-care tests for rapid diagnosis of infectious and chronic disease, and new biomaterials to aid in the treatment of disease.
 - The McMaster Automotive Resource Centre (MARC), one of the world’s leading academic research centres focused on transportation electrification, engages more than 475 graduate students, undergraduates, and postdoctoral fellows. Through partnerships with companies such as Chrysler, Ford, GM, and ArcelorMittal Dofasco, in addition to numerous SMEs, students work on experiential learning projects in support of industry needs, while studying and working at MARC.
 - The McMaster Nuclear Reactor (MNR) supports research across a range of disciplines, from biological and medical research and the production of medical isotopes, to material composition and neutron and gamma scattering. Already the most powerful research reactor at a Canadian university and the world’s only self-funded research reactor, its research capacity continues to grow, thanks to major investments from federal and provincial funding agencies, and other partners. With the closure of the National Research Universal (NRU) reactor at Chalk River Laboratories, MNR is the sole nuclear research facility above low thermal power in the country and provides service to nearly 30 commercial entities within Canada and internationally:
 - The High-Level Laboratory Facility is a 24,000 square-foot laboratory, licenced for research into medical uses of radioisotopes and neutron activation analysis (NAA) of materials.



Research Infosource 2017 ranked McMaster as Canada's most research-intensive university, with a total research income of \$354.6M, averaging \$405,300 per faculty member – more than double the national average.



- The McMaster Accelerator Laboratory contains three particle accelerators and a large volume gamma irradiator (Cs-137) to support research in medical physics and radiobiology.
- The McMaster University Cyclotron Facility holds a 16 MeV cyclotron and hot cell suite for research and the manufacturing of radiopharmaceuticals for clinical use.
- The Government of Canada and Province of Ontario have invested \$43 million in science and engineering teaching and research labs at McMaster, the single largest government investment in laboratories and research capacity in the University's history. The investment from the Strategic Innovation Fund includes a 60,000 square foot addition, lab upgrades, retrofitted and improved infrastructure, and an energy co-generation project. Construction is progressing well, with several aspects already complete and operational. Overall completion is slated for the Fall of 2018.
- Researchers from the Department of Economics are leading a team of experts from the academic, private, and public sectors in a six-year project in search of an answer to Canada's productivity challenges. The findings will inform public policy debate and the development of standard practices within businesses, governments, and labour organizations.
- McMaster's Computing Infrastructure Research Centre (CIRC) focuses on developing and testing the adoption of technologies that eliminate wasteful practices in data centres. CIRC is co-located at McMaster Innovation Park with Cinnos Mission Critical Incorporated, its founding industry partner. This co-location enables close collaboration and exceptional skills development and training opportunities for students. Since 2017, CIRC's interdisciplinary team of researchers has received more than \$5 million in industry contributions and partnered government funding.
- The University Library and Research and High Performance Computing Support have collaborated to develop McMaster Experts, a web platform designed to showcase McMaster researchers and their work. The Library has also taken a lead role in supporting research data management on campus: library services support the collection, documentation, storage, sharing, and preservation of data by university researchers.
- McMaster Innovation Park (MIP) provides a range of office, lab, and specialized facilities to more than 65 companies with over 800 people working onsite. MIP is also home to The Forge, the University's accelerator, which supports early stage entrepreneurs and rapid growth technology companies in its incubation space.
- McMaster is focused on supporting commercialization of the cutting-edge work undertaken by our researchers, enabling them to successfully bridge the gap from research to commercial application and creating positive impacts in the region that contribute to the health and well-being of Canadians:
 - The McMaster Industry Liaison Office (MILO) receives 80 to 100 invention disclosures per year and executed over 200 new licences in 2017 for patented technologies and copyrighted materials developed by McMaster researchers. MILO further supports five to six start-up companies that are co-located at McMaster Innovation Park (MIP).
 - McMaster-affiliated biotech start-ups, Turnstone Biologicals and Adapsyn Bioscience, were successful in raising close to US\$50 million in 2016-17. Additionally, Turnstone and Adapsyn entered into significant partnership or collaborative arrangements with major pharmaceutical companies, AbbVie and Pfizer, respectively, to support bringing their lead oncolytic virus drug candidates and bioinformatics platforms closer to market.
 - McMaster's Centre for Probe Development and Commercialization (CPDC) secured US\$45 million in venture capital financing to launch Fusion Pharmaceuticals, a Hamilton-based



The Michael G. DeGroot Institute for Infectious Disease Research is known as a centre of innovation and excellence for its work on addressing the global epidemic of drug resistant infections and our work in this area has been bolstered by a \$15M investment for cutting-edge equipment.

company that develops treatments using medical isotopes to identify, attack, and eradicate cancer cells.

- The Innovation Factory, Hamilton's Regional Innovation Centre located at MIP, has worked with over 1,600 different individuals, groups, and start-up companies since inception. They have also held over 400 events with more than 24,000 attendees.
- McMaster continues to focus on increasing graduate enrolment and is introducing new graduate programs to meet Ontario's higher education and training needs. Some examples include:
 - The Faculty of Humanities introduced an innovative new PhD in Communications, New Media and Cultural Studies in Fall 2017. The program brings together these three interdisciplinary fields and allows students to highlight their curricular and extra-curricular learning, as well as undertake projects as alternatives to a traditional thesis.
 - The Executive MBA in Digital Transformation, launched in 2016, is designed to expose students to the core topics covered in traditional EMBA programs, together with the more technical content associated with master level courses in fields such as data science and business analytics.
- The Master of Science in Speech and Language Pathology, launched in Fall 2017, prepares students to deal with the management of communication and swallowing disorders.

KEY OUTCOMES

- In 2017, McMaster ranked first in the country for research intensity, averaging \$405,300 per faculty member, a 13.1% increase from the previous year, and more than double the national average, and eighth overall in total research income, bringing in \$354.6 million (Re\$earch Infosource). We are one of only two Ontario universities consistently ranked among the top 100 universities in the world and are currently ranked third in Canada (ARWU).
- Over the last five years, from 2013 to 2017, McMaster researchers generated over \$1.6 billion in external research funding (Re\$earch Infosource).
- From 2012-2016, McMaster received \$479.5 million in corporate research partnerships (grants or contracts received from corporate sources), placing McMaster first in Canada (Re\$earch Infosource 2017).
- The strength of McMaster's research is seen in the 2017 listing of the world's most highly-cited researchers from Clarivate

Analytics. The listing included 13 McMaster researchers, the second highest among U15 institutions. Based on Clarivate Analytics data, McMaster ranks first within the U15 in Category Normalized Citation Impact (last 10 years – 2008 to 2017).

- The Canadian Centre for Electron Microscopy (CCEM) – a national facility housed at McMaster providing world-class electron microscopy capabilities and expertise to Canadian researchers and industry – received a \$14 million investment in 2018, to enable discoveries on the atomic and electronic structure of materials in areas as diverse as biomedical applications and medical imaging, energy conversion, water purification, sensor technologies, and quantum computing. CCEM engages more than 400 graduates, undergraduates, and postdoctoral fellows, has partners and users from 170 research groups in Canada and internationally, and has supported more than 100 companies.
- More than 350 industry representatives, academics, and students gathered to learn about the latest in advanced manufacturing during the sixth annual McMaster Manufacturing Forum. Hosted by the McMaster Manufacturing Research Institute, the focus was on "Innovation through Collaboration." Speakers from all sectors highlighted the importance of collaboration between universities and industry.

- McMaster’s researchers are supported by an impressive array of archives and research collections. During 2018, McMaster University Library is celebrating the 50th anniversary of the acquisition of the Bertrand Russell Archives, the University’s largest research collection, which is used by scholars from around the world. The collection recently moved to a fully accessible, customized facility that will ensure the proper storage and preservation of the archive, and support a wealth of scholarly activity in areas including peace and religious studies, philosophy, history, political science, literature, and mathematics.

- McMaster is home to 70 Canada Research Chairs (CRCs), 112 endowed chairs, 13 endowed professorships, two Canadian Institutes of Health Research Chairs, one Canada 150 Research Chair, six Natural Sciences and Engineering Research Council (NSERC) Industrial Research Chairs, and two Ontario Research Chairs. The University also has more than 70 research centres and institutes.

- McMaster has the highest average total Tri-Agency funding allocation per principal investigator (\$81,100 in 2015-2016 - most recent data available) of Ontario’s research-intensive universities.

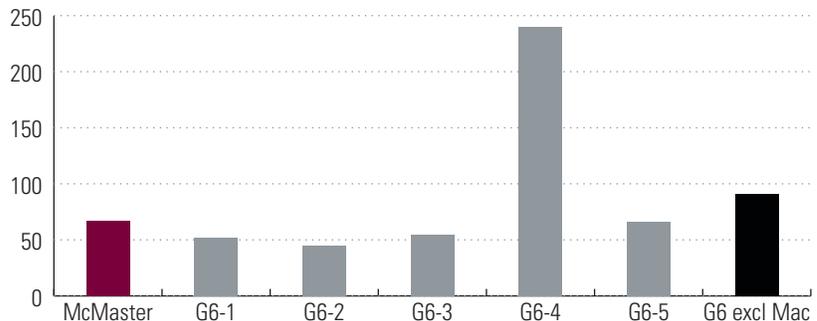
- In 2016-17 McMaster researchers, graduate students, and postdoctoral fellows received some \$82 million from the federal granting councils: \$51.1 million from CIHR; \$25.5 million from NSERC; and \$5.2 million from the Social Sciences and Humanities Research Council (SSHRC).

- In June 2018, McMaster University and the Six Nations of the Grand River hosted more than 350 researchers and stakeholders at the inaugural annual science meeting of the Global Water Futures Program – a \$143 million national initiative, in which McMaster is one of four participating universities – delivering risk management solutions to manage water futures in Canada and other cold regions where global warming is changing landscapes, ecosystems, and the water environment.

STRATEGIC MANDATE AGREEMENT METRICS

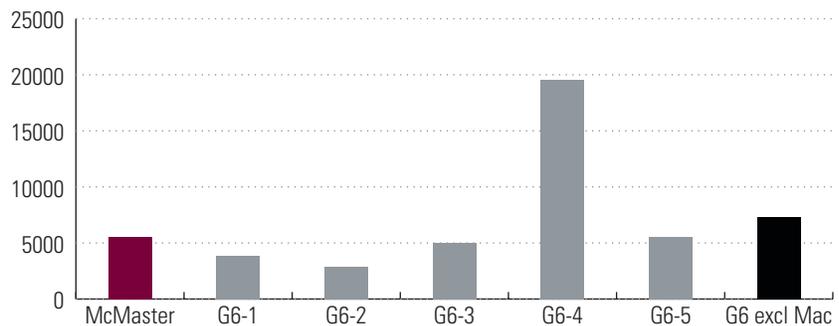
Under the 2017-18 to 2019-20 Strategic Mandate Agreement (SMA2) with the Ministry, Ontario Universities agreed to report on a common set of system-wide metrics and targets in five priority areas. The SMA2 system level metrics shown below are those related to Goal 3.

Total Tri-Agency Funding (\$000,000) 2015-2016



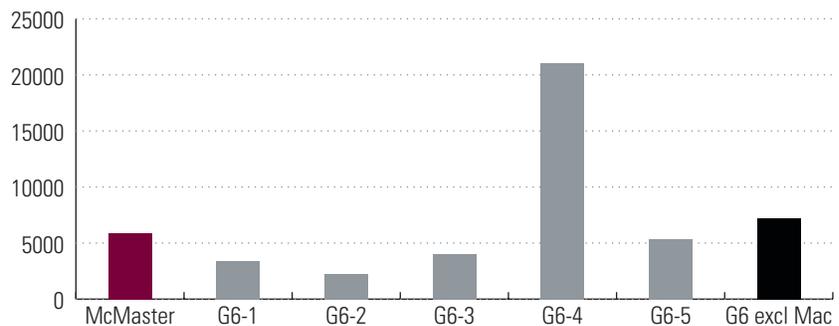
Note 1: 2015-2016 is the last comparable data available at the time of publication.
 Note 2: G6-1 to G6-5 represent McMaster’s Ontario peers who are members of the U15 (Canada’s 15 research-intensive universities).
 Source: Financial Information of Universities and Colleges (FIUC) 2017.

Total Number of Papers (InCites) - 2017/18



Note 1: The InCites count of Papers for 2017-18 is from the number of papers indexed in the Web of Science Core Collection for 2017-18.
 Note 2: G6-1 to G6-5 represents McMaster’s Ontario peers who are members of the U15 (Canada’s 15 research-intensive universities).
 Source: Thomson Reuters InCites 2017.

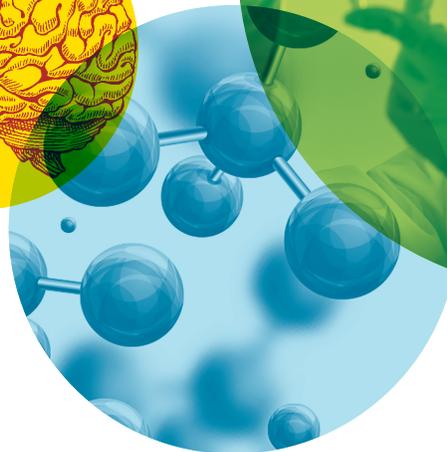
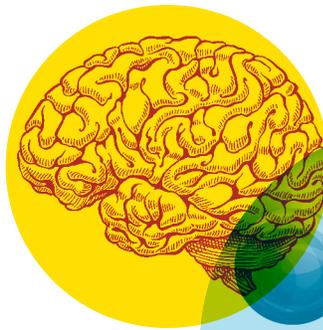
Total Number of Citations (InCites) - 2017/18



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 Note 2: G6-1 to G6-5 represents McMaster’s Ontario peers who are members of the U15 (Canada’s 15 research-intensive universities).
 Source: Thomson Reuters InCites 2017.

McMaster has a global reputation for excellence in health research and our researchers are playing a leading role in working to address the most significant global issues.

- Since the winter of 2015, over 400 graduate students and postdoctoral fellows from across campus have completed one or more of the five available courses for Teaching and Learning Certificates offered by the MacPherson Institute, which promote and support the integration of pedagogical research into teaching practices. In the Fall of 2017, 380 new and returning graduate student teaching assistants and sessional instructors attended the annual Teaching and Learning Forum.
- The number of graduate applications from students who meet the provincial grant funding eligibility criteria more than doubled (from 2,850 to 7,190) between 2007-2008 and 2017-2018, in part because of McMaster's international reputation for excellence.
- In 2017-18, several McMaster faculty were recognized for their research excellence – two were named as Fellows of the Royal Society of Canada; two were elected to the Royal Society's College of New Scholars, Artists and Scientists; two were awarded Killam Research Fellowships; one received the inaugural Gold Leaf Prize for Outstanding Achievements by an Early Career Investigator from CIHR; and one was the recipient of an E.W.R Steacie Memorial Fellowship award from NSERC.
- In 2017, five McMaster graduate students were recipients of prestigious scholarships and fellowships – four were named Vanier scholars and one post-doctoral fellow was named a Banting Fellow.



FACT BOOK: GOALS AND PRIORITIES 2017-2018

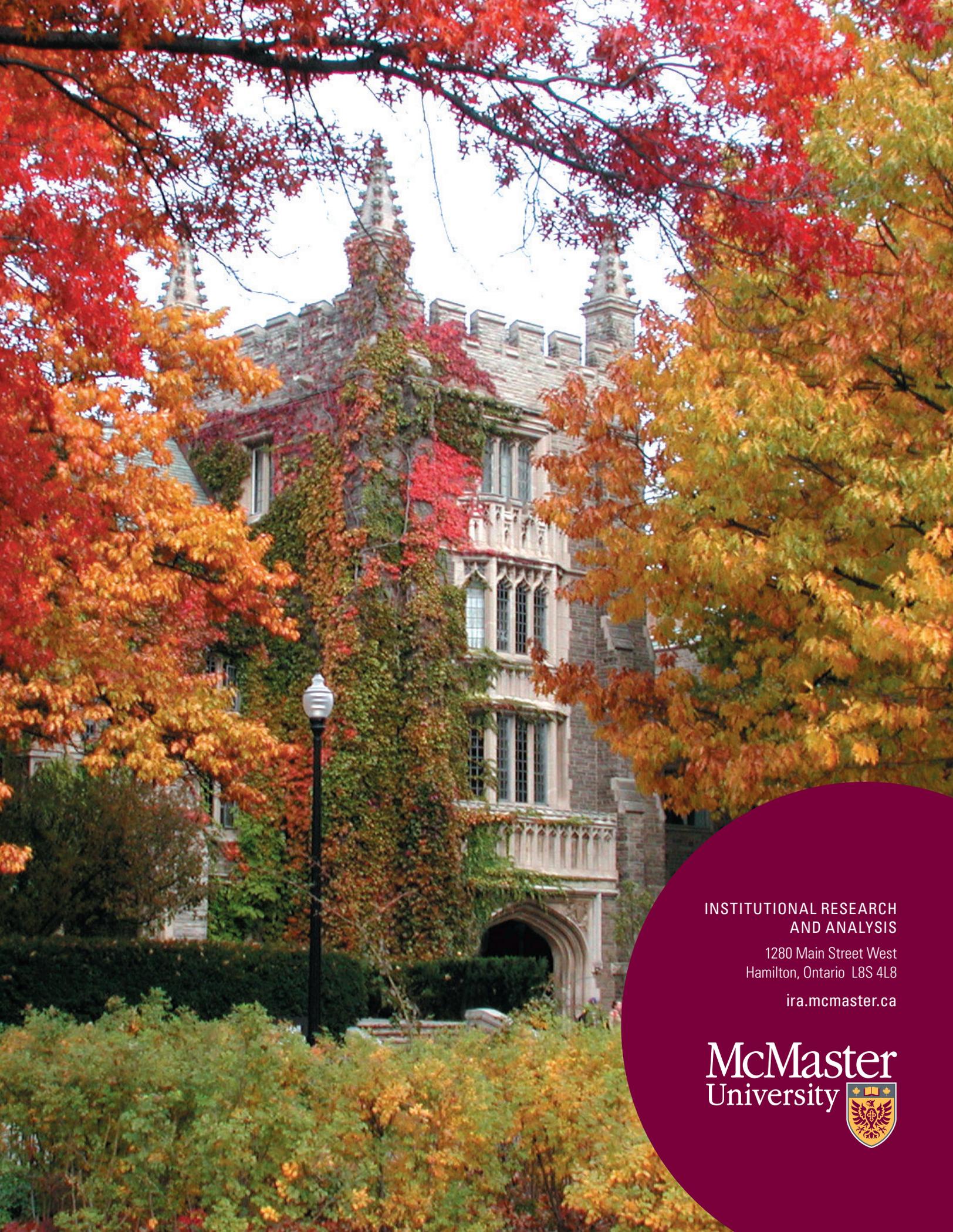
Any questions concerning the contents of this book should be directed to:

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**Any revisions to the McMaster University Fact Book: Goals and Priorities will be reflected in its web version. Please check the Institutional Research and Analysis web site for the most up-to-date version.*



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