

2023–2028 Strategic Plan

Faculty of Science | Western University

INTRODUCTION

Our Faculty inhabits a world that is both changing and governed by intelligible, logical, measurable, and discoverable scientific principles and logical truths. We teach students ways of thinking, and techniques, that transform their lives. As scientists we are privileged to discover, safeguard, and share an ever-deepening understanding of our beautiful world and universe and the organisms which inhabit it. This knowledge also provides awesome power to transform and shape our world. As global citizens, we accept the challenge of contributing scientific solutions to the problems facing our world. Relatively new problems of climate change and biodiversity collapse compounded with the age-old problems of working together to survive and thrive and to walk with one another in respect.

Our outstanding researchers and teachers, innovative & community-minded students, and skilled & dedicated staff position Western's Faculty of Science to discover scientific truths, solve the problems of today and tomorrow, and impart science to the next generations. We are well-positioned to help the world become a better place. The economic realities facing higher education continue to require creative solutions both to work within limited resources and to ambitiously and aggressively find new resources. We commit to accepting and meeting these challenges with a positive and inclusive energy, focused on enriching our own Western Science community, our University, our city, our region, and our world.

To that end, we introduce our Strategic Plan. Firmly grounded in the *Towards Western at 150* plan, this document signals our commitments and aspirations to serve and excel, and provides measurable ways to gauge our progress.

COMMUNITY-DERIVED, COMMUNITY DRIVEN

Our plan began in Winter 2022 with the creation of a 32-member committee comprising staff, students, and faculty. Building from the themes of *Towards Western at 150*, we formed five task groups:

1. Research;
2. Teaching & Learning;
3. Student & Trainee Experience;
4. People, Community & Culture; and
5. Our Place in the World.

Each task group consulted with internal and external Science stakeholders, conducting a survey with 547 responses as well as engaging in many more open-ended consultations.



RESEARCH

The most profound challenges of our time cross disciplinary boundaries. Our Faculty will adopt the interdisciplinary and collaborative research approach, grounded in the disciplinary excellence required to make a significant impact on these crucial tasks.

We will continue to work with private, government, and NGO partners in areas including climate change ecosystem impacts, mineral exploration, corrosion, nuclear and materials science, actuarial and financial risk, and 5G networks, while investigating new partnerships in areas including nuclear technology, data security, sustainable agriculture and the applications of AI to health research. We embrace the opportunity to partner with outside entities beyond NSERC Discovery Grants to expand our impact and to resource our research. We will support the formation and development of these partnerships with appropriate professional staff support at every stage.

With partners in the Schulich School of Medicine & Dentistry and the Faculties of Engineering and Health Sciences, we will reinforce and build Western's strength in medical and health-oriented scientific research, embracing the opportunities afforded by the new Bioconvergence building project.

To meet our interdisciplinary goals, we will continue to partner with researchers and scholars across campus, including our participation with all of the Western Research Institutes. We will design and implement administrative structures and processes to encourage and facilitate boundary- and faculty- crossing research while working to remove career barriers to interdisciplinary scientists. Knowledge mobilization will forward looking, beyond scientific publications, where we will look for opportunities to drive changes and adopt new public policies and look to utilizing IP generated within the Faculty for licenses and spin-off opportunities.

Our constrained financial environment requires us to evaluate how best to deliver technical research support to avoid duplication of effort and exploit synergies. Where warranted, we will maintain and build our world-class facilities using a shared "core facilities" model in which top equipment is run by elite technical staff. These core facilities will cross departmental boundaries and will involve partnerships with other Western faculties and outside entities. The resulting transition from a sole proprietor to a shared service model will allow us to expand opportunities to researchers at all career stages.

We will promote and encourage open-access publication and the use of consistent identifiers for our publications to increase impact and improve the overall recognition received by our University. Open access facilitates wide dissemination, supporting our focus on equity, visibility and engagement with the world. We will increase our knowledge of open data management practices by making workshops and resources available to our community. We will encourage Faculty to bring all their identifiers under one umbrella and to use ORCID to help connect their work to our University in a consistent way.



COMMITMENTS, MILESTONES AND METRICS

- » Track all Tri-Council awards, and periodically benchmark against U15 by department
- » Track the number of applications, percent successful, and total dollar value of successful team grants led by Western Science faculty and benchmark against U15
- » Track participation of Western Science faculty on team grants led by other faculties and other universities
- » Track the number of patents created from and with Western Science Faculty research
- » Track the number of spin-out companies created by Western Science Faculty
- » Survey faculty and staff periodically to assess the research environment
- » Track faculty use of ORCID identifiers with a goal of 100% participation
- » Track faculty bibliometric data: number of papers, number of citations, and co-publication networks

STUDENT & TRAINEE EXPERIENCE

The Faculty of Science is committed to continuously enriching the student experience, identifying ways to grow and deepen our educational and professional offerings, and providing our students with opportunities for experiential and work-integrated learning.

We will increase awareness of student support and work-integrated learning opportunities through communication strategies including career-focused information sessions from the earliest stages of their programs. We will bring career- and research-focused guest speakers to classes and involve students in community-related projects.

Improving two-way communication between students and the departments and faculty will create an environment where students feel empowered and heard. We will continue our strong relationship with Science Students' Council and student clubs while providing more direct avenues for students to contribute program feedback. We will promote more informal student-faculty interaction via undergraduate research seminars and receptions.

We will build on our successful flagship Science Internship Program to introduce 4-month co-op work terms in selected disciplines, which can facilitate early placements after Year 2. We will work to provide more graduate student experiential learning work terms, for research as well as for professional degree programs. Science will enhance our relationship with alumni to support contacts between industry and students. We will continue to work with Western's Morrissette Institute and BioNext to promote entrepreneurship to students and trainees at all levels, and integrate an entrepreneurial spirit into the Bioconvergence Building.

We will promote student engagement with our community and the world via formal mechanisms (Impact Experience (previously Alternative Spring Break), Community Engaged Learning, Academic Exchange, etc.). We will also encourage student participation in community-led initiatives.

Academic counselling has a strong role to play in enhancing the student experience. We will work to increase the time available for our counsellors to focus on advising by automating and streamlining mechanical tasks.

Postdoctoral scholars, graduate students, and undergraduate students have a key role to play in our research enterprise and exposure to research is crucial to the education of trainees at all levels. We will continue to foster student research opportunities including senior theses, capstone projects, and the NSERC USRA/Western USRI paid summer research experience programs.



COMMITMENTS, MILESTONES AND METRICS

- » Track the number and quality of undergraduate research experiences including the number of experiences provided, the publications and reports, which result, and professional outcomes for participating students
- » Track the degree to which our students feel supported during their academic career including via the National Survey of Student Engagement and other quantitative & qualitative indicators
- » Track the number of industry connections, both in terms of industry partners and connection points (work terms, internships, lectures, research connections) made
- » Track the number of students participating in community-focused experiential learning opportunities (as well as volunteer experiences in community-led organizations)
- » Increased enrollment in, and student & employer satisfaction with, our Internship Program

TEACHING & LEARNING

Teaching and Learning are at the core of every university and represent a shared goal of all Western Science students, faculty, and staff. What our students learn can transform their lives by providing them with powerful new ways to understand the world. We will continue to recruit high-performing, high-potential students to Western Science, provide them with well-designed programs of study involving innovative teaching methods, and listen to their experiences to further improve our enterprise.

If nothing else, the forced online transitions of the recent pandemic showed us that changes in pedagogy are possible. Innovations to pedagogy driven both by technological change (e.g., remote education, the impact of A.I. tools) and by methodological change will be incorporated into lecture and lab components of our curriculum. We will take a research- and evidence-based approach to testing and selecting these changes, led by our growing group of Teaching Scholars together with other passionate faculty.

To meet the *Towards Western at 150* enrolment goals, program growth is imperative. We will particularly encourage this growth in programs with relatively small enrollments. The opportunities presented by double majors allow us to emphasize the fulfilment of academic interests while attaining crucial career outcomes. We will identify common and/or compelling double majors, promote them, and work to reduce barriers to their adoption (i.e., timetable conflicts, overly restrictive prerequisites). We will continue to recruit, welcome, and support international students from a growing diversity of home countries to a growing diversity of Science programs.

While economically necessary, the administrative aspects of large enrollment courses can divert faculty and staff time from innovation and genuine student engagement, as well as from impactful research. We will work to find technological and staff support solutions to allow time to be spent where it has the most and best impact.



COMMITMENTS, MILESTONES AND METRICS

- » Track student enrollment in double majors
- » Track and monitor enrollment in lower enrollment programs, with a goal of lowering the range of faculty-to-program student ratios across the departments of our Faculty.
- » Track international student country of origin and program of choice with the goal to diversify both
- » Track student success metrics such as progression rates, with the goal to keep domestic rates at their current high levels and to improve international student metrics
- » Number of Teaching scholars and number of publications (by teaching scholars and others) introducing and evaluating teaching innovations
- » Improved advertising and promotional campaigns to meet these goals

PEOPLE, COMMUNITY & CULTURE

Our goal is for everyone to feel welcomed and appreciated in our Faculty of Science. We will work to ensure all of our members feel a sense of inclusion and to foster a culture of mutual respect. We will provide support to our students, staff, and faculty and work to improve awareness of where these resources can be accessed. We want to ensure that all Western Science people can be their true authentic selves.

Through workshops and online modules, we will provide regular Equity, Diversity and Inclusion (EDI) training to Faculty and Staff, including counsellors and members of hiring and scholarship committees.

We will increase and continue our efforts to develop new scholarships and bursaries focused on student access to Western Science. We will ensure that rules for distributing student awards will be consistent with EDI best practices.

Diverse faculty and staff should be included in decision-making processes, but this will be done in a meaningful way that does not overwhelm their service capacity.

We will work to further create a culture of gratitude and recognition and to further foster two-way communication between leadership and membership at all levels. To that end, we will create a virtual suggestion box and a system for submitting accolades, particularly for staff as well as for faculty recognition. We will redouble our efforts to nominate people for university, national, and international awards.



COMMITMENTS, MILESTONES AND METRICS

- » Participation rate in diversity training models, with full participation required for people in specific committees and roles
- » Number of new EDI-focused scholarships and bursaries offered
- » Completion of review of current scholarships and bursaries through an EDI lens
- » Establishment and consistent use of a virtual suggestion box
- » Number of award nominations made each year
- » Number of awards received each year
- » Number of individuals taking time to submit accolades to peers
- » Continued monitoring of annual ombudsperson reports

OUR PLACE IN LONDON AND THE WORLD



Our Faculty of Science is well-respected within our local, national, and international communities. We are recognized as experts in many areas that are in crucial demand. Our Faculty will continue to elevate our strong regional and international collaborative partnerships.

We will examine ways to reduce material waste and carbon emissions associated with our Faculty. We will conduct a faculty-wide waste audit, encourage our members to make lower-impact choices, and develop a strategy informed by targets and monitoring. We will support stewardship, research, and teaching on Western lands by sharing resources and expertise to conserve biodiversity.

We will maintain and build our engagement with community partners to produce local research about what's happening in our city and region, such as adaptation to and mitigation of climate change and local environmental studies. The community needs and wants objective research and data from Western to inform planning and decisions.

We will continue to promote opportunities for faculty, staff, and students to work with local governments, businesses, and not-for-profits. These collaborative opportunities will include volunteer opportunities, experiential learning opportunities, internships, and research partnerships.

We will continue to support outreach activities including Science Rendezvous, Science Olympics, Science fairs, Cronyn Observatory activities, Math Challenge and summer day camps including Bit by Bit. Having international students from many regions and in many programs will reduce our exposure to changes in international relations and increase the diversity experienced by all of our students, international and domestic alike, whatever their program of choice.

Our Faculty will continue to focus on substantial and impactful international research and teaching partnerships. We will make strategic investments in promising initial relationships and will regularly review all partnerships to ensure the continued focus on and support of our most beneficial and productive relationships.

Finally, our Faculty will tell our story as appropriate to the campus, the region, and the world.

COMMITMENTS, MILESTONES AND METRICS

- » The number of new community collaborations
- » Identify and publicize where our involvement has made positive changes to campus environs
- » Increase the number of international students
- » Track Simpson's diversity index of programs of registration and country of origin.
- » Public attendance at Science-led outreach events
- » Number of student- or faculty-led environmental habitat and species studies on Western grounds
- » Number of meaningful international partnerships
- » Number of faculty active in shaping government policy
- » Number of Western Science stories in various media

RECONCILIATION & INDIGENIZATION

As Western University continues to advance reconciliation with Indigenous communities, our Faculty of Science will continue to invest the time and effort needed to uplift Indigenous voices in academia and to build meaningful relationships with the Indigenous communities with which we share the land.

Working closely with the Office of Indigenous Initiatives and with First Nations partners, we will provide students and faculty – especially those collaborating with Indigenous partners – with education about contemporary issues and history, knowledge systems, and relevant information about working with stakeholders such as the duty to consult, applicable customs, and rituals such as offering tobacco.

We will explore better ways to use our land and how best to partners with local First Nations. In particular, the Faculty of Science will continue to investigate a partnership between Western University and Oneida First Nation to jointly manage ecologically significant lands which were the site of a now-defunct observatory. We will continue to build on our greenhouse project with Bkejwanong First Nation.

Many faculty are enthusiastic about incorporating indigenous content and ideas into their curricula. Many Western Science people want to increase their involvement in Indigenous initiatives on campus and in our community. Working with Indigenous community members, in conjunction with the Office of Indigenous Initiatives, we will develop a plan on how best to incorporate these ideas and initiatives into our curricula with respect and care. We will develop comprehensive training open to all faculty and staff on how to be involved. We will continue to support the integration of Indigenous Knowledge through initiatives like an Indigenous Field Course that will be open to all students.



COMMITMENTS, MILESTONES AND METRICS

- » Stronger relationships with indigenous communities
- » Increased Indigenous student enrollment/retention
- » Recruitment of indigenous faculty and staff
- » Increased presence in Indigenous communities as invited (e.g., events with Let's Talk Science)
- » Track number of courses created with an Indigenous focus and with a significant Indigenous focus, as well as student enrollment in these courses
- » Increased communication around on-campus and local events and initiatives, including National Indigenous History Month and the National Day of Truth and Reconciliation

CONCLUSION

As we look to the future, the Faculty of Science will continue to push the boundaries of scientific knowledge to create a greater impact on the world around us. The most important part of the strategic planning process is the next steps: how we will respond to this strategic plan and the leaps forward we intend to make. The future is not immutable and this plan isn't either. We will revise it as needed to ensure we continue to advance our Faculty and our relationships with the Western community and beyond.

Our plan presents a call to action to our students, faculty, and staff. Let's work together to create a vibrant and sustainable future for everyone!



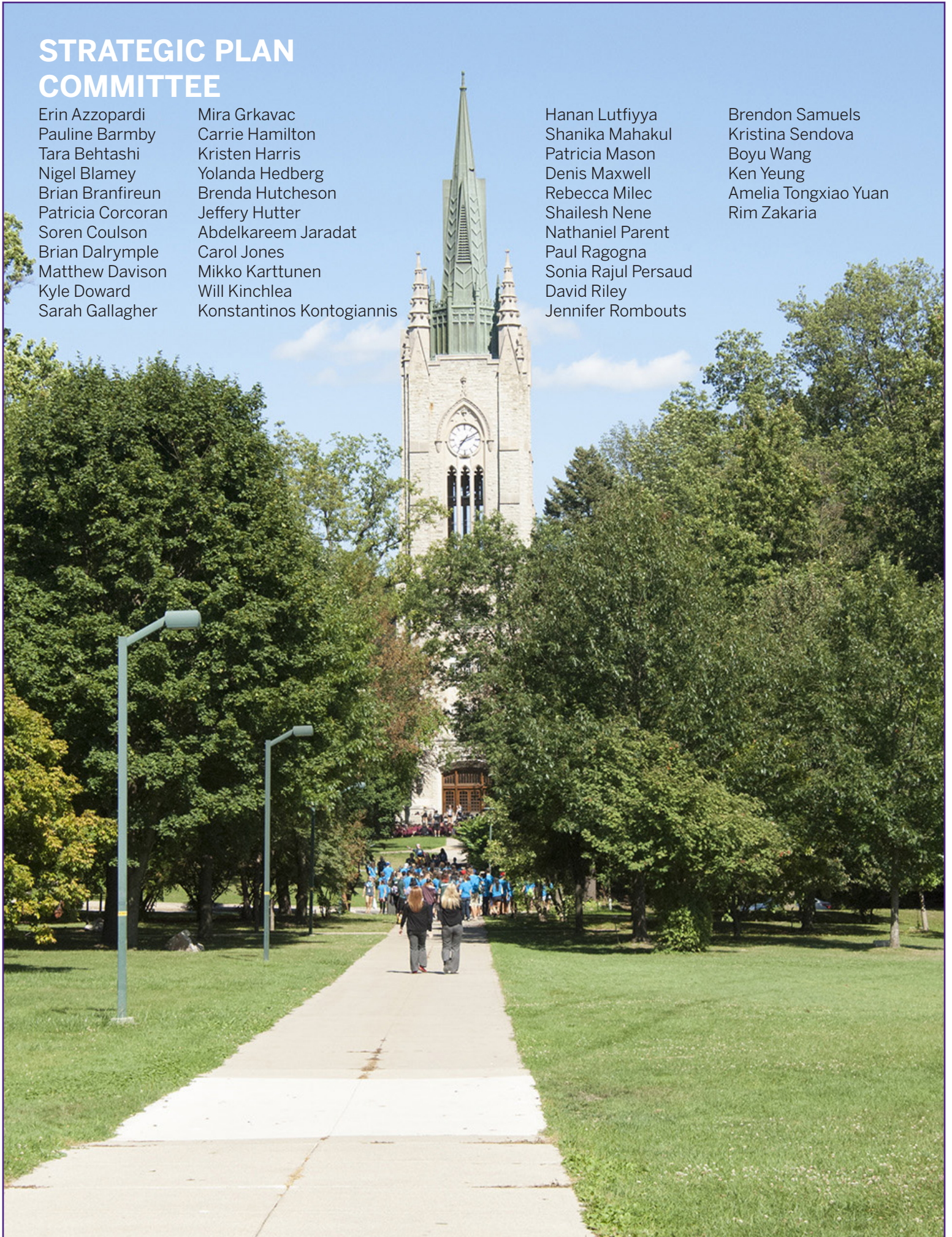
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