

Driven. Curious. Collaborative.

Dalhousie Faculty of Science Strategic Plan



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Preamble

Dalhousie's Faculty of Science (DalScience) has been dedicated to the advancement of pure and applied research and the development of scientifically engaged graduates since its inception, which dates back over 200 years. Today, DalScience is committed to investing in the success of its members to drive progress in education and discovery.

In 2024, administrators, faculty members, staff, and students shared their aspirations for the Faculty of Science—what it does well, what it could do better, and what it would take for it to achieve its goals. They embraced a process of strategic thinking, articulating ideas about the potential for DalScience, while considering the meaningful and very real challenges and developments that the postsecondary education sector faces. All of this was framed through the lens of student success, including retention and degree completion. The feedback we obtained spoke to the opportunities for the Faculty and translated these aspirations into concrete and direct actions. This plan is intended to yield significant dividends for DalScience, and, by extension, the university, the province, the country, and the world.

This discussion comes at an opportune time—the world is confronted with daunting challenges, including climate change impacts, increasing global instability, a backlash against Equity, Diversity, and Inclusion, and a shifting societal landscape. In every respect, scientific research and education are pivotal to shaping the world and influencing all aspects of human existence. We recognize the importance of engaging with our local and global communities to address pressing societal challenges and promote the responsible use of science for the public good. Through outreach initiatives, public engagement events, and collaborative partnerships, DalScience seeks to bridge the gap between the scientific community and the broader

public, foster scientific literacy, and inspire the next generation of scientists and innovators.

To that end, this plan describes several initiatives that aim to support and improve our Faculty so as to position ourselves to create the conditions for our faculty and students to make meaningful contributions to academic discussions and the public good. To remain not only relevant but also at the forefront of science education and research, DalScience must remain innovative in its research endeavours and imaginative in its educational program delivery. The DalScience Leadership team (Dean, Associate and Assistant Deans, staff, and admin) is poised to facilitate the work of departments and develop their strengths through support and fostering collaboration.

The DalScience Leadership team is committed to investing in the success of its members to drive progress in education and discovery.

Through these discussions, some clear imperatives emerged. Building on our excellence in research, we must balance our academic efforts with meaningful attention to the students who come to us for a world-class science education. We were reminded through multiple discussions and inputs that **our people are at the core of everything we do**. Through collective effort, supported by the structures and initiatives of DalScience, we are well-equipped to deliver quality education to our students and to make meaningful advances in research and discovery.



Context

The strategic plan for Dalhousie's Faculty of Science will be used as a guiding document when making strategic decisions and will help shape the trajectory of DalScience for years to come. While it is difficult to predict the future of fields as broad as science education and research, several trends are likely to impact the Faculty in the coming years. These trends have been taken into consideration when developing the strategic plan and we outline some of them below:

Undergraduate Education and Enrolment

- The Faculty of Science at Dalhousie attracts a large proportion of its undergraduate students from the Maritimes (47%). Thirty-three percent of its students are from the rest of Canada, and 20% of students are from outside of Canada.
- Over the course of the next decade, the national 18–21 population is projected to grow at a faster pace than at any time since the 1970s, and the demographic composition of that cohort will be more diverse than ever. Nova Scotia, New Brunswick, and Prince Edward Island are all poised to experience a growth in youth population, albeit at a slower rate than the national average.
- The Faculty of Science at Dalhousie has seen continued growth over the last decade, despite external pressures on the higher education sector in Canada. With aims to increase recruitment and retention efforts in the coming years, renewed investments in infrastructure and staffing will be required to accommodate increasing student demand.
- Students overwhelmingly indicated wanting to gain research experience during their education and that they are pursuing a science degree to secure their professional future.

Graduate Education and Enrolment

- Interest in graduate studies has increased dramatically recently (19.9% since 2018 in the Maritimes alone). According to the Maritime Province Higher Education Commission, 70% of first-degree holders from Physical and Life Science and Mathematics programs of the class of 2020 went on to pursue some form of post-secondary education within two years of graduating.
- The Faculty of Science has a low proportion of graduate students relative to its undergraduate population (10%) in comparison to all other U15 and comprehensive universities in Canada. Graduate students are essential to the research culture of the Faculty, both as mentors for undergraduate students as well as new colleagues for researchers in labs. They are also vital in supporting the teaching mission of the Faculty.
- The Faculty of Science competes with other Canadian and international universities for the best graduate students. It already attracts more international students than other universities in the Maritimes with unmatched offerings of innovative and rigorous programs, high-calibre researchers, and specialized facilities. To be even more successful in this endeavour, will require excellent facilities, maintaining a vibrant research environment, and offering competitive financial incentives.

Research

- Dalhousie's Faculty of Science has a long-standing global reputation across many fields in the sciences, including ocean sciences and energy storage. Success in research has been instrumental to elevating the Faculty's stature.
- Research funding obtained by the Faculty of Science in 2023 amounted to nearly \$42 million. The Faculty typically receives 85% of that funding through research grants and the remaining 15% through research contracts. The proportion of research funding Science

receives from contracts (instead of grants) has held steady over the past decade, with overall research funding for the faculty steadily increasing since 2016.

- Grant and contract funding provides the necessary support to recruit graduate students who receive training and exposure to world-class research. Growing monetary support for graduate students is essential to ensuring the continuity of research discovery and innovation into the future.

Infrastructure and Governance

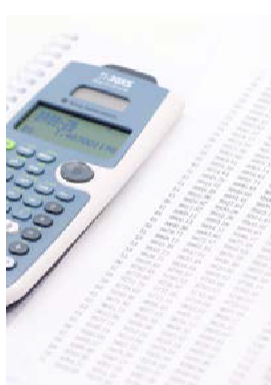
- The Faculty of Science at Dalhousie has historically been decentralized, with academic units and faculty members accountable for research and teaching. Most students, scholars, and staff affiliate first with a department or other unit before the Faculty. While that allows for a certain degree of latitude and autonomy, there is much to be gained by engaging faculty members in across-Faculty collaboration.
- In response to concerns from departments of downloading of duties and responsibilities from the central administration, the Faculty of Science administration and leadership (Dean's Office team) has evolved in the recent past to support interdisciplinary cohesion and alleviate some of these pressures.
- Many of the Faculty of Science's facilities are showing significant signs of ageing. This impacts everything from the undergraduate student experience to graduate student recruitment, to researcher productivity, to

community engagement. The Faculty has made significant strides in improving its research and teaching spaces, with ongoing plans for the development of the Beaty Centre for Marine Biodiversity and the Physical Sciences Facility for Green Energy Innovation.

Equity, Diversity and Inclusivity

- The Faculty of Science has maintained a female student enrolment rate of 63–65% in its undergraduate programs and of 49–54% in its graduate programs. In the Faculty of Science at Dalhousie, 28% of student respondents to the 2021 equity census identified as racialized/visible minority, 5% as Black, and 1.5% as African Nova Scotian.
- The Faculty profile is less diverse than the undergraduate student profile. Dalhousie's 2021 equity census (the latest for which data is available) suggests that 45% of the Science faculty identify as women. To the same census, 20% of science faculty respondents identified as racialized/visible minority, 2% as Black, and less than five faculty members as African Nova Scotian. Five percent of Science faculty respondents to the equity survey identified as 2SLGBTQ+.





Based on feedback and research across the university, we have articulated a strategy aimed at creating a Faculty where we thrive together. It is supported by five objectives that, when achieved together, make DalScience stronger, better, and equipped to make a greater impact with everything that we do.

1. *Increased Research Capacity and Prominence*
2. *Innovative and Inclusive Teaching and Learning*
3. *Interdisciplinary Collaboration*
4. *Inclusive and Accessible Environments*
5. *Interacting with Community Partners*

Strategy

Aligned with the university's plan, this strategic plan promotes a systematic focus on our community and fostering relationships, alongside ongoing academic development and renewal to cultivate an environment where life changing discoveries in science are made.

We have refreshed our vision and mission to better align with our goals, emphasizing the critical role of research and education while increasing our focus on the DalScience community, collaborative efforts, and external engagement.

Vision

The Faculty of Science is the institution of choice for both experienced and aspiring scholars to engage in teaching, learning, and research, and to push the limits of creativity and discovery.

Mission

The Faculty of Science creates the environment to support and empower our multidisciplinary scholars to benefit society through scientific education, discovery, application, and communication.





STRATEGIC OBJECTIVE 1 :

Increased Research Capacity and Prominence

We are a community of researchers, both experienced and aspiring. We are driven by our curiosity and the pursuit of knowledge, which we intend to leverage to make discoveries that will have impacts that resonate beyond our walls and change the way we and others view our world. Our impact as a Faculty is greatly affected by the support provided to its members. To build training and research capacity, elevating the Dalhousie Faculty of Science's standing within the U15 and globally, the Dean's Office team will:

Expand the suite of supports to facilitate success in research grants and contracts capture.

Build research capacity by making the Faculty of Science a more attractive option for prospective graduate students in research-oriented programs.

Enable faculty to grow their research programs and increase their impact by reducing administrative responsibilities associated with grant and contract management.

Expand avenues of support to improve our research infrastructure and acquire state of the art research equipment and facilities.

Find ways to allow time for faculty to devote to research contract and grant proposal development.



STRATEGIC OBJECTIVE 2 :

Innovative and Inclusive Teaching and Learning

The Faculty of Science offers high-quality courses, programs, and credentials to a diverse student population. In looking to the future of teaching and learning, the Faculty of Science will engage in broader discussions about what it means to deliver science education in the 21st century; focusing on developing durable skills, addressing existing gaps in the diversity of our course offerings, inclusion in our classrooms, and ensuring our students have the skills necessary for success throughout and beyond their degree. To that end, we will:

Expand offerings that provide students with in-demand graduate programs that are unique to the region and adaptable to multiple professional paths.

Increase access and skills-based learning for hands-on learning opportunities through summer research, work-integrated learning, experiential learning, capstone courses, science communication, and community engagement.

Support student success by building upon our program-related advising and pathway-planning, and through initiatives such as intentional course-mapping, new credentials (e.g., diplomas), skill identification, and career connections.

Develop and expand ongoing efforts to diversify curriculum and provide an inclusive and respectful learning environment, including faculty training and development, new course offerings, and course design, to better reflect and engage our diverse student population.



STRATEGIC OBJECTIVE 3 :

Interdisciplinary Collaboration

We are efficient and effective when we work together. More than a collection of individuals and units, we are a team that leverages its strengths to the benefits of all. The Dalhousie Faculty of Science will build on its individual strengths by increasing opportunities for departments and units to learn from, work with, and be inspired by each other's research and knowledges. We will:

Support and encourage research efforts by inter-departmental research teams through shared resources and infrastructure, as well as concrete, collaborative policies and regulations.

Reduce administrative workload across departments and improve resource allocation by coordinating on administrative or support functions that can benefit from a centralized function.

Create and cultivate vibrant common spaces to foster social interaction and collaboration among faculty, staff, and students.



STRATEGIC OBJECTIVE 4 :

Inclusive and Accessible Environments

Facilitating the success of all in the Faculty of Science makes us stronger, better, and maximizes our potential as a research-intensive Faculty dedicated to advancing science for the betterment of Nova Scotia and the world. It is imperative that we therefore further develop an inclusive and supportive community that embraces diversity, helping people build richer lives through meaningful connections within DalScience and beyond. To continue to create more inclusive and accessible environments, we will:

Strengthen the inclusive culture within the Faculty of Science where students, faculty, staff, and alumni value a shared sense of community.

Remove barriers to ensure that the Faculty of Science's physical spaces are inclusive, accessible, and welcoming to people from under-represented groups.

Continue to work towards closing representation gaps across our faculty and staff populations.

**STRATEGIC OBJECTIVE 5 :****Interacting with Community Partners**

Expanding our impact means doing more with our communities. We will strengthen the external orientation and bilateral connections of the Faculty of Science to enhance our public contributions and to enrich the learning of our scholars and students. We will open doors and create opportunities. This will be achieved as we:

Enhance community outreach and engagement through inter-departmental initiatives and university-wide collaboration.

Prepare for the Nova Scotia of tomorrow by growing our capacity to meet projected increases in demand for science education from an increasingly diverse community.

Broaden and encourage public access to our activities and facilities to foster a clearly-visible connection between DalScience and the communities we serve.

Engage with local junior high and high schools to create the environment for increased participation in science from underrepresented groups.

Looking Ahead

In the coming years, our world is poised for levels of change and challenges of unprecedented magnitude. These changes will be both local and global and require us to work together and with purpose towards shaping a world we all want to live in. Together, we believe the Faculty of Science can play an important role in understanding the nature of these coming changes and addressing pressing global problems. Our commitment to challenging ourselves through research, education, and community engagement will drive us to the forefront of scientific discovery so that we can continue to make meaningful contributions to society, ensuring that our world remains a vibrant and thriving place for generations to come.

