Department of Earth and Environmental Sciences Strategic Plan 2025-2030[1]

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[1] Approved at the Department meeting held on May 23, 2025.

Executive Summary

Overview: This strategic plan, the first in a decade, is the roadmap for the Department of Earth and Environmental Sciences for the next five years. Developed through extensive discussion in thematic groups (research, teaching and learning, and community) and broader departmental engagements, the plan outlines our commitment to developing and sustaining research and teaching excellence while deepening our sense of community.

Vision and Context: Our overarching vision is: (1) to enhance our reputation for research and teaching excellence in ways that parallel student, Canadian job-market, and institutional priorities, and (2) to continuously strengthen an inclusive, collaborative environment for faculty, staff, students, research associates and postdoctoral scholars. In a time of significant economic, societal, and environmental challenges—from climate change and sustainable resource management to fiscal constraints and staffing hurdles—our plan is both ambitious and pragmatic. It recognizes that quick wins (the "low-hanging fruit") and strategic, longer-term initiatives will be essential in a budget-constrained environment currently marked by several recent and upcoming faculty retirements, enrollment challenges, and hiring freezes.

Strategic Priorities:

- **Research**
  - *Sustain and Enhance Strengths:* Preserve and strengthen the Department's established research excellence in our core research areas (e.g., Groundwater, Biogeochemistry, Earth Surface Systems, Isotope Geochemistry, and Engineering Geology) —especially considering recent and anticipated retirements.
  - *Innovate Through Strategic Initiatives:* Develop a strategic hiring and implementation plan to seize emerging research opportunities and address future Grand Challenges (Water Security, Climate Change, Low-Carbon Energy Transition, Critical Minerals for a Green Economy), integrating new faculty expertise to bolster mission-critical areas and highlight our research to attract highly qualified personnel (HQP).
  - *Integration and Infrastructure:* Optimize research programs through effective utilization of existing research infrastructure, pursuing opportunities to acquire new infrastructure, incorporating cutting-edge research topics into both undergraduate and graduate education, and increasing undergraduate student participation in research.

- **Teaching and Learning**
  - *Foundational and Advanced Curriculum:* Continue to offer courses essential for Professional Geologist and Professional Engineering licensure while ensuring robust core undergraduate and graduate-level offerings that prepare students for modern challenges.
  - *Experiential and Professional Skill Development:* Emphasize best pedagogical practices—including experiential learning, technical writing, law, and ethics—to equip our students with the skills needed for successful careers and to foster a strong geoscience community among undergraduate and graduate students.
  - *Curricular Evolution and Outreach:* Continuously evolve our undergraduate and graduate programs, including professional course-based MSc programs, to meet job-market demands and student interests, supported by service courses and outreach

initiatives that both introduce Earth Sciences to a broader audience and improve enrollment.

- **Community**
    - *Inclusive Environment:* Commit to creating a safe, equitable, and engaging departmental culture where every member feels included, appreciated, and empowered.
    - *Student Community:* Create student spaces and experiences to enable greater opportunities for students to gather, collaborate, and discuss shared interests
    - *Collaboration and Communication:* Enhance community engagement and collaboration through transparent communication and initiatives that build strong interpersonal and professional networks within the department.

Alignment and Implementation: Our departmental goals are carefully mapped to the Faculty of Science's "Future of Science Strategic Plan 2024-2029," ensuring consistency with broader institutional priorities across innovative teaching, world-class research, and a safe and inclusive community. Accountability for each goal will be clearly assigned to specific leaders and stakeholder groups, ensuring that our strategic initiatives are both actionable and measurable.

Future Impact: By leveraging our established strengths, addressing budgetary and operational challenges, and nurturing a vibrant academic community, the Department of Earth and Environmental Sciences is poised to remain a national and international leader in fundamental geoscience research and teaching. We are prepared to address critical Canadian and international societal concerns regarding water security, climate change, and the sustainable development of energy and mineral resources to support the transition to a low carbon economy. This strategic plan is our blueprint for ongoing research and teaching excellence, fostering innovation, and ensuring that our community is both resilient and ready to meet future challenges.

Land Acknowledgement

Much of the research, teaching and learning in the Department of Earth and Environmental Sciences takes place on the traditional territories of Indigenous Peoples. We gratefully acknowledge access to this land as a privilege. The University of Waterloo main campus is located on the traditional territory of the Neutral, Anishinaabeg and Haudenosaunee peoples, and is situated on the Haldimand Tract, the land granted to the Six Nations that includes 6 miles on each side of the Grand River. We recognize that diverse First Nations, Inuit and Métis live in this region, and the University of Waterloo acknowledges all Indigenous Peoples who are engaged in and impacted by our work.

Introduction

The strategic plan for the Department of Earth and Environmental Sciences articulates our priorities in three primary thematic groups focused on (1) **research**, (2) **teaching and learning**, and (3) **community**, the traditional areas framing most academic planning. Our strategic plan is the result of numerous discussions over the course of almost a year – initially happening in the 3 thematic discussion groups and subsequently socialized more broadly to receive feedback in special department meetings dedicated to strategic planning. This is the department's first strategic plan document in a decade, and it sets a precedent for development and implementation of future strategic plans for 2030-2035 and beyond.

The overarching vision for our plan is to sustain and build the research and teaching excellence in the Department of Earth and Environmental Sciences, while at the same time, continuing to strengthen the sense of community among our faculty, staff and students. Our Department prioritizes equipping our graduate and undergraduate students with the skills and knowledge needed to not only be competitive in the workforce but to lead in the rapidly evolving field of Earth and Environmental sciences. Our plan is intended to foster a safe, inclusive, and equitable department environment that promotes meaningful collaboration, community engagement, and constructive communication. We intend to create opportunities for Department members (faculty, staff, students, postdocs, research associates) to feel included, engaged, and appreciated within the Department.

We envision this plan guiding but not constraining our decision-making over the next five years. We live in a time of extraordinary societal, economic, and political challenges – with growing concerns regarding climate change, acquiring the energy and critical mineral resources needed to support the Canadian economy and standard of living, and responsible environmental stewardship including protection of water supplies, curtailing of greenhouse gas emissions, reduction or elimination of adverse anthropogenic impacts like microplastic accumulation and harmful algal blooms, and remediation of areas impacted by resource extraction. Geoscience departments have an ever-increasing role to play in addressing these challenges, and doing so requires careful planning and implementation to maximize our Department's impact as a national and international leader in developing and applying science-based approaches towards a more sustainable future characterized by responsible resource extraction and a green economy.

What makes these next five years even more challenging is the unprecedented budget environment in which the University of Waterloo (and the post-secondary education sector in general) finds itself. Faculty retirements, enrolment challenges (undergraduate students and especially graduate students), declining financial resources and hiring freezes are, unfortunately, going to significantly influence how we approach change, at least in the short term. Accordingly, our plan must be practical and doable in the timeframe we envision. Fortunately, there are many positive changes that can be done simply by doing something differently. Moreover, taking quick wins from the "low-hanging fruit" will help sustain interest and commitment to the plan, especially those parts that are not as straightforward to implement or that will demand attention for a longer period.

EES Strategic Plan – Why Now?

This strategic plan comes at an opportune time when our Earth and Environmental Sciences community is actively engaging in conversations on our responsibilities to our research and teaching missions. The drivers for creating this plan come from several areas.

First, there is the recent completion of our first Faculty-level strategic plan in many years - *Future of Science Strategic Plan 2024-2029*. The three main priority areas of the Faculty of Science strategic plan are Innovative Teaching and Learning (Priority A: Academics), World Class Research (Priority R: Research) and Exceptional Community Experience (Priority C: Community). As a Department, we need to clearly see ourselves in the Faculty plan in each priority area. The Future of Science 2024-2029 document states the Faculty vision as "Advancing society through scientific discovery and innovation", and the Faculty Mission as "… lead<ing> in learning and discovery by fostering an inclusive environment that pushes boundaries through curiosity and leverages different perspectives to magnify our impact.". Our Department, with its focus across a broad spectrum of Earth and Environmental Sciences, readily sees itself in those two succinct statements.

Second, we have had several senior faculty retire in the last few years, with more retirements expected in the next five years. As a result, there are areas of significant scholarship and teaching at risk. Even in our current budget "crisis" and related hiring freeze, our continued success as a Department is predicated on our ability to continue distinguishing ourselves within the Faculty, University, nationally and internationally through our research and our undergraduate and graduate academic programs. On the research and teaching fronts, that also means critically assessing where opportunities may lie in areas we currently are not supporting.

Finally, several long-standing and significant issues adversely impacting our Department were raised in the workplace assessment we had conducted in 2023. Addressing those issues has taken much thought and a myriad of forms but more remains to be done to enhance our sense of community for all our stakeholder groups.

The goals and related actions for each of our Department's three strategic areas – Research, Teaching and Learning, and Community – are succinctly described in the following pages. Also included for each goal is an indication of accountability or responsibility – who will handle implementing and reporting the

actions associated with each goal. Details concerning responsibility as indicated in this document are tentative and they will be further refined in the ensuing discussions on implementation, which will follow approval to adopt the strategic plan.

EDI-R in EES

Our Department is committed to have Equity, Diversity, Inclusivity and Anti-Racism (EDI-R) underpin all our activities and interactions. Our work individually and as a Department must be focused through an EDI-R lens and this applies to every goal and follow-up action emerging from our strategic plan. Directed by EDI-R practices and codes of conduct at the Faculty and Institutional level, the Department of Earth and Environmental Sciences seeks to "Build, incubate and enhance Equity, Diversity, Inclusion and Anti-Racism (EDI-R) competency and capacity… …to identify and interrupt institutional barriers and embed equity within policies, processes, environments and experiences at the University of Waterloo" (source: Office of Equity, Diversity, Inclusion and Anti-racism "About Us"). We also embrace the Faculty of Science value articulated in its strategic plan to be a Department "where all individuals feel respected, accepted, and are able to access a full spectrum of opportunities." This includes transparency and equity considerations in how we make decisions, build our committees, hire and support our community of faculty, research associates, postdocs and staff, assign teaching and service, and recruit, train and mentor our undergraduate and graduate students.

Connecting to the Faculty of Science plan

Each of our Departmental strategic goals is mapped to the goals, and where feasible – specific actions, in the Faculty of Science Priority areas. The *Future of Science Strategic Plan 2024-2029* articulates the following:

Innovative Teaching and Learning (Priority A: Academics)

"We develop and apply effective teaching methodologies to facilitate learning and discovery, leveraging our diverse experiences to magnify our impact in a changing world."

Goals

- A1 The Faculty of Science community is equipped with essential and relevant skills.
- A2 Learning is experiential and provides opportunities for all students to apply course curriculum and scientific skillsets.
- A3 Teaching is effective and employs pedagogical best practices.
- A4 Teaching spaces evolve with the needs of students and instructors.
- A5 Education is accessible to everyone within the Faculty of Science and fits the unique needs of students, researchers, staff, and community members.

World Class Research (Priority R: Research)

"We foster a vibrant research environment that is recognized worldwide for its groundbreaking discoveries and scientific contributions."

Goals

- R1 Researchers are recognized and encouraged to take risks and explore the unknown.
- R2 Research is supported by industry, public sector, and community partners, leading to scientific output that is impactful and visible.
- R3 Research takes place in state-of-the-art facilities with resources that enable cutting-edge scientific research.
- R4 Research is interdisciplinary and collaborative.

Exceptional Community Experience (Priority C: Community)

"We cultivate an exceptional experience for all members of the Faculty of Science community where ideas can flourish and lasting relationships are built."

Goals

- C1 The Faculty of Science nurtures a community with a sense of identity and belonging.
- C2 Staff and faculty grow personally and professionally in ways that align with their career goals and aspirations.
- C3 Faculty of Science community members have the tools to succeed and are supported with high-quality and accessible supports.
- C4 The Faculty of Science creates enduring relationships with its community.

Research Theme

Goal 1: Preserve and sustain our current research strengths to provide a platform for future research excellence.

Rationale: EES has established research excellence in the following core areas: Groundwater, Biogeochemistry and Ecohydrology, Earth Surface System and Solid Earth, Isotope Geochemistry and Hydrology, and Applied and Engineering Geology. The established research excellence in Isotope Geochemistry and Hydrology and Applied and Engineering Geology will be heavily impacted by recent and pending retirements. Building strength in Isotope Geochemistry and Hydrology and particularly in Engineering Geology is mission critical to EES.

Action: Maintain strength in mission-critical areas that are under threat due to recent and pending retirements, including a new appointment in Engineering Geology. Evaluate expanding the scope of the EES presence in Isotope Geochemistry through the appointment of a new faculty member with expertise in Isotope Geochemistry, which may also provide an opportunity to increase our expertise in related fields such as Mineral Science. Initiate mission-critical request to the Dean of Science and Provost.

Responsibility: Department Chair and Executive Committee

Maps to Faculty of Science Goals: A1, R1, R2, and C2

Goal 2: Develop a strategic hiring plan to complement our current research strengths and build research excellence.

Rationale: EES has been opportunistic in recent hires aligning new appointments with strategic research initiatives (e.g., CERC Chair, Global Water Futures, transfers between UW departments). Although these appointments have served EES very well, there is concern that responding to strategic opportunities will unintentionally diminish core research areas in the Department.

Action: Develop a strategic hiring plan focused on emerging research opportunities and identify potential collaborations across campus to augment EES expertise. This will provide an impetus for seeking support for research areas of strategic importance (e.g., Geomechanics, Isotope Geochemistry, Cold-climate Critical-zone Research, Remote Sensing, Earth System Modeling, Soil and Sediment Biogeochemistry, Mineral Science). Initiate mission-critical request to the Dean of Science and Provost for a strategic hire.

Responsibility: Department Chair and Executive Committee, Research Fellow

Maps to Faculty of Science Goals: A1, R1, R2, R4, and C2

Goal 3: Develop an implementation plan for strategic research initiatives to address future Grand Challenges.

Rationale: Current federal research funding programs (e.g., New Frontiers Research Fund, Canada First Research Excellence Fund, NSERC Alliance, Canada Water Agency) provide opportunities to plan and develop large innovative research programs to address the Grand Challenges that confront Canada over long time-horizons (e.g., Water Security, Climate Change, Low-Carbon Energy Transition, Critical Minerals for a Green Economy). EES should seize these opportunities by proactively developing plans for competitive submissions to these funding competitions.

Action: Develop an implementation plan for advancing large collaborative research programs that address Grand Challenges, highlighting emerging research opportunities, and identifying individuals to lead proposal development and potential collaborations within EES, across campus and externally. Recruit inclusive and multidisciplinary teams to participate in the development of collaborative research programs and to contribute to the development of large, complex grant applications. Provide at a Department meeting an annual update on progress toward implementation.

Responsibility: Research Fellow, Project Leads and Executive Committee

Maps to Faculty of Science Goals: A1, R1, R2, R4, and C2

Goal 4: Develop a strategy to highlight EES research and attract HQP.

Rationale: Our faculty members contribute heavily to research addressing the future Grand Challenges described in Goal 3. These research activities provide exciting research topics for undergraduate and graduate students and postdoctoral fellows. These activities are not well represented on the Department website, making it challenging to recruit graduate students and postdoctoral fellows, and attract external funding. Our research should be more effectively reflected on our website and promoted through appropriate social media channels.

Action: Enhance our EES research website (https://uwaterloo.ca/earth-environmental-sciences/research/research-areas) to reflect our current involvement in Grand Challenges and opportunities for HQP.

Responsibility: Department Chair, Administrative Officer and Executive Committee

Maps to Faculty of Science Goals: R1, R2, R4, C4

Goal 5: Incorporate research infrastructure more effectively in research programs to optimize the utilization of existing infrastructure.

Rationale: There is an identified need to optimize the utilization of our existing research infrastructure and to develop a coordinated plan to pursue opportunities to acquire new infrastructure. It is also desirable to develop a more collaborative atmosphere as well as provide time and space for collaborations to develop. Promoting the unique research and training opportunities within EES at UW will attract new faculty members, postdoctoral fellows, graduate and undergraduate students.

Action: Conducting an annual Research Infrastructure Audit will help us determine whether the current research infrastructure is appropriate for future research initiatives and if potential acquisition of new infrastructure is necessary. It is also useful to critically evaluate the potential benefits of shifting to an EES Facilities model for management of existing large infrastructure. The major research themes should have appropriate representation in these conversations. Provide at a Department meeting an annual update on how we are addressing the Research Infrastructure Audit.

Responsibility: Research Fellow and Administrative Officer

Maps to Faculty of Science Goals: A1, A2, R1, R2, R3, R4, and C3

Goal 6: Develop a strategic plan for the acquisition of the new infrastructure we will want/need in the next 5-10 years.

Rationale: Research is constantly evolving, and new instrumentation will provide opportunities beyond the capabilities of our existing infrastructure. Acquisition of emerging instrumentation and replacement of our existing research infrastructure requires a coordinated plan for acquisition and implementation of new facilities that will provide a foundation for new collaborations and provide time and space for new research initiatives to develop. We need to pursue targeted large infrastructure funding opportunities through CFI, ORF and NSERC RTI grant applications. Promote the unique research and training opportunities within EES at UW and attract new faculty members, postdoctoral fellows, and graduate and undergraduate students.

Action: Develop an Annual Research Infrastructure Strategy that considers the need to enhance future research initiatives and the strategies required for acquiring the new infrastructure. Evaluate potential benefits of shifting to an EES Facilities model for management of large infrastructure (recently acquired as well as existing). Include representation from each research theme. Recruit inclusive teams to participate in the development of major research initiatives (e.g., CFI, ORF, RTI) and the preparation of large and complex grant applications. Provide at a Department meeting an annual update on how we are responding to the Annual Research Infrastructure Strategy.

Responsibility: Research Fellow, Department Chair, Administrative Officer, and Executive Committee

Maps to Faculty of Science Goals: A1, A2, R1, R2, R3, R4, and C3

Goal 7: Incorporate current and novel research topics into undergraduate and graduate research and teaching.

Rationale: Separate research groups have different priorities and interests (faculty, undergraduate and graduate students, research staff). Review Department research directions annually to ensure Department research themes align with student interests as well as the current research capacity and future faculty member research directions.

Action: Conduct an Annual Research Alignment Audit which will determine if current research themes within the Department align with student interests and if changes are necessary. Include representatives from each research theme (or at discretion of Chair) and at least two representatives from Watrox and ESGA. Provide at a Department meeting an annual update on how we are addressing the Annual Research Alignment Audit.

Responsibility: Associate Chair, Graduate Studies and Associate Chair, Undergraduate Studies and their related committees.

Maps to Faculty of Science Goals: A2, A3, R2, and R4

Goal 8: Incorporate more undergraduate students in our research groups.

Rationale: Undergraduate students are extremely interested in opportunities within research groups, but only if they know about them. Hence, better communication is necessary from the faculty to engage students, particularly in the first and second years of their studies. This engagement also provides a pipeline for future graduate students.

Action: Organize an annual departmental research seminar in which faculty present lightning talks outlining research and opportunities for funding, and the Associate Chair, Undergraduate provides information on internal and external (e.g., USRA) funding opportunities available to students and faculty.

Responsibility: Undergraduate Academic Advisor of EES

Maps to Faculty of Science Goals: A2, C1, and R4

Teaching and Learning Theme

Goal 1: Through full-time faculty and instructors, offer the courses required for Professional Geologist and Professional Engineering licensure. [Top Priority - Critical]

Action - Short term: Hire new faculty/instructors with PEng/PGeo that are capable of teaching Rock Mechanics, Engineering Geology, plus other core courses that are currently being taught by sessionals. Create succession plans for courses taught by faculty nearing retirement.

Action - Long-term: Review our offerings and how they align with PEng requirements with respect to being taught by licensed engineers. Revisit PEO's willingness to assign credit to courses taught by a PGeo in the same manner they assign credit to those taught by PEng (non-design courses). Look into opportunities for existing faculty to get licensed.

Responsibility: Undergraduate Committee and Executive Committee

Maps to Faculty of Science Goal: A1 (actions 3 and 4)

Goal 2: Through full-time faculty and instructors, offer the core courses required for our programs. [Priority – Critical]

Action - Short-term: Review teaching assignments for current faculty and instructors and reassign, as necessary.

Action - Long-term: Hire new faculty/instructors to fill knowledge/skill gaps that remain.

Responsibility: Undergraduate Committee and Executive Committee

Maps to Faculty of Science Goal: A1 (action 2 - via the Master of Applied Geosciences program in development and action 4)

Goal 3: Offer a robust and consistent variety of graduate courses to support the development of skills for research and the geoscience workforce. [Priority]

Action - Short-term: Review what courses have been offered over the past 7-10 years and their enrollments. Increase accountability (via Chair or Associate Chair, Graduate Studies) of faculty to regularly offer graduate courses that have an acceptable enrollment.

Action - Long-term: Consider increasing course requirements to ensure graduate students receive broad subdiscipline-based knowledge. Consider limitations on research scopes to accommodate increased course requirements while ensuring completion of degrees within appropriate timeframes. Offer more general graduate courses or modify existing graduate courses to appeal to a broader audience to improve enrollment and options for students to increase their breadth of knowledge. Use regular

graduate courses to provide broad knowledge (e.g., data management, analytical methods, field methods, numerical methods, etc.), and offer EARTH 691/692 courses for specialized courses.

Responsibility: Graduate Committee

Maps to Faculty of Science Goals: A1, 2 and 3

Goal 4: Facilitate and encourage the development of professional geoscience skills, including technical writing and geoscience ethics and law, for undergraduate and graduate students.

Action - Short-term: Revisit the Science Communication course (SPCOM 193) to ensure appropriate skills are taught.

Action - Long-term: Provide resources, such as additional TA time, employ someone from the Writing and Communication Centre to co-teach, or support in developing assessments, to include technical writing in existing courses. Offer a course, or get access to an Engineering course, in geoscience/engineering law and ethics – current content of the PGeo exam is the same as the PEng, but has different exam structure. Revisit graduate student offerings to include more professional geoscience skills, and fundamental research/science skills (experimental design, data management, etc.).

Responsibility: Undergraduate Committee and Graduate Committee

Maps to Faculty of Science Goal: A1 (actions 1 and 4)

Goal 5: Support the use of best pedagogical practices, including experiential learning, in our programs.

Action - Short-term: Incentivize graduate students doing an additional TA by formalizing that the extra TA is on top of their funding, not in-lieu of. Provide addendum to Annual Performance Review documents to specify that development of pedagogical skills, including but not limited to Centre for Teaching Excellence (CTE) courses and seminars and peer teaching reviews, will be valued for merit consideration in the Teaching category.

Action - Long-term: Provide resources, including additional TA support and teaching releases, to modify existing courses. Create supports for our undergraduate and graduate students, including scholarships, to directly support them in our field-based experiential learning opportunities. Inclusion of more experiential learning in graduate offerings – e.g., graduate level field course for geology (in addition to existing hydrogeology field school).

Responsibility: Undergraduate Committee and Graduate Committee

Maps to Faculty of Science Goals: A2 (actions 1 and 2) and A3 (action 1 through 4)

Goal 6: Encourage a strong community among our graduate students by providing opportunities to engage with each other outside of individual research groups.

Action: Development of a mandatory milestone course (pass/fail) for all graduate students (e.g., seminar where they need to attend and present, a course in research basics in geoscience).

Responsibility: Graduate Committee

Maps to Faculty of Science Goals: A1 (action 4) and A5 (action 3)

Goal 7: Evolve the existing undergraduate and graduate curriculums and programs to meet the needs of the discipline, job-market, and student interest.

Action - Short-term: Regular communication with alumni and employees to understand the needs of the market. Review graduate course offerings to reflect on the skills developed and their place in the geoscience workforce.

Action - Long-term: Inclusion of more coding/software skills in undergraduate and AI/big data skills in graduate program. Inclusion of an upper year undergraduate course, building on our strengths in quantitative skills (e.g., ontology), which can also eventually include students from other Faculties (see Goal 8). Development of new undergraduate specializations that reflect student interest (e.g., societal relevance) and UW's strengths (e.g., computation, field-based research) to deflect students from Computer Science/Engineering into EES (e.g., Computational Geosciences). Development of cross-Faculty programs and specializations to leverage UW's strengths across the campus (e.g., Faculty of Environment and Faculty of Mathematics). Develop an alumni board to help guide curriculum and programs.

Responsibility: Undergraduate Committee and Graduate Committee

Maps to Faculty of Science Goals: A1 (actions 1 and 4) and A2 (action 3)

Goal 8: Offer service courses that introduce Earth Sciences to a broad community and encourage recruitment.

Action: Consider development of new high enrollment courses, modification or advertisement of currently available service courses. This may require hiring dedicated teaching-stream instructors to develop and deliver these courses. Consider development of courses that appeal to a broader UW audience, such as an applied AI course for geosciences which can attract computer scientists, engineers, etc. Develop WATSPEED courses for non-degree seeking learners.

Responsibility: Undergraduate Committee

Maps to Faculty of Science Goals: A5 (through Goal 3 above) and A1 (through Goal 4 above)

Goal 9: Improve enrollment through support of outreach and community activities.

Action - Short-term: Ensure offering of public lectures, seminars, and participation in events such as Geoscience Open House are valued in merit review. Target high school students (before, during and after they apply to post-secondary education) and teachers. Encourage visits to high schools. Develop a summer camp for high school students to introduce them to Earth and Environmental Sciences.

Action - Long-term: Make available the necessary resources to offer these events/lectures/seminars. Provide resources to develop K-12 learning modules for delivery both at UW and at high schools.

Responsibility: Executive Committee

Maps to Faculty of Science Goal: A5 (action 2)

Goal 10: Offer course-based MSc programs for upskilling of current geoscience professionals.

Action: Development of course-based MSc programs.

Responsibility: Executive Committee and Graduate Committee

Maps to Faculty of Science Goal: A1 (action 2)

Community Theme

Groups the Community Theme actions apply to:

- "ALL" = faculty, staff, graduate students, undergraduate students, postdoctoral fellows, research associates
- "F" = faculty; "S" = staff; "UG" = undergraduate students; "G" = graduate students

Goal 1: Create equitable opportunities for all members of the EES community to participate in departmental operations.

Actions:

[ALL] Prepare clear documentation (e.g., Departmental Organization and Operations Guide) that provides guidance and clarity on committee appointments, terms, and decisions.

[F] Make the appointment and reappointment process for Department leadership efficient and transparent (i.e., Associate Chairs, Teaching Fellow, Research Fellow).

- Include details about stipends, terms (included in Departmental Organization and Operations Guide)
- Provide opportunities for self-nomination for these roles
- Streamline voting process.
- Request feedback from staff involved when appointing Associate Chairs

[ALL] Increase opportunities for all Department members to collaborate on projects (e.g., infrastructure, teaching, strategic projects, community spaces).

[S] Ensure representation of all staff groups (administration, teaching, research, Environmental Isotope Laboratory) on appropriate committees (e.g., Executive, EDI-R, Health and Safety, etc.).

[F] Ensure broad representation of faculty on Department committees, when possible.

Responsibility: Department Chair, administrative staff.

Maps to Faculty of Science Goal: C1 (action 1)

Goal 2: Align with Faculty and University EDI-R best practices, guidelines, and protocols

Actions:

[ALL] Create Department documents with guidance from UW and Science, including community guidelines, and pathways for disclosure when these guidelines are not respected.

[ALL] Communicate EDI-R resources and training opportunities to all members of the Department community, and incorporate this information into onboarding of new employees and graduate students.

[F] Incentivize participation in EDI-R training by including it as Service contributions in the EES merit addendum.

[ALL] Communicate and promote broader Faculty and University EDI-R resources within the Department through the website, Teams channel or regular emails/department updates.

Responsibility: Department Chair, EDI-R Committee

Maps to Faculty of Science Goal: C1

Goal 3: Use efficient tools and approaches to improve communication.

Actions:

[ALL] Create a Department newsletter and regularly update the Department website for all Department members including students and potentially alumni. Articles could include:

- Thesis defence notices (sent to all Department members)
- New hires, appointments
- Events
- Student success stories (request student volunteers to write stories)
- Links to social media stories (on Faculty of Science sites)
- Faculty profiles
- Awards, other recognitions/accomplishments, etc.

[ALL] Ensure communication related to Departmental operations is sent to all faculty and staff when updates affect employees within the Department. This includes:

- Workplace assessment updates
- Minutes of Department meetings
- New hires and appointments

[F,S] Give advance notice for Department meetings (calendar invites) and events (calendar invites, website, posters). Schedule all Department meetings for the term at the start of term, making use of the 'teaching free' time block identified in Goal 5.

[ALL] Create, update, and share mailing lists in a Teams channel for each of the Department groups (undergraduate students, graduate students, postdoctoral fellows, staff, faculty) that can be used by all faculty members, with appropriate moderation.

[ALL] Share ESGA, Watrox, GeoEng student representative information on the Teams site and with student representatives.

[F] Recognize faculty involvement in student life by adding this to the merit addendum under Service called 'Department Citizenry' (e.g., participating in convocation, attending Department seminars and graduate student defences).

[ALL] Make main office area more inviting for students and visitors. Post photos of faculty members and events. Maintain an open-door policy to welcome students.

[UG] Continue compiling information relevant to all EES undergraduate students and periodically send compiled email updates or printed newsletters using the successful "What on Earth is Happening" undergraduate newsletter.

Responsibility: Department Chair, Executive Committee

Maps to Faculty of Science Goal: C3

Goal 4: Create opportunities for students to gather, collaborate, and share.

Actions:

[UG, G] Ensure Watrox and ESGA understand the supports available to them through the Department (financial, advancement, etc.) to encourage a strong relationship between student groups and the Department.

[UG, G] Lab tours – intentionally incorporate lab visits into various EARTH courses that link to learning objectives (1st and 4th year, defined by the Undergraduate Committee) or into a lab day that provides students with opportunities to visit and learn about Environmental Isotope Laboratory facilities and EES research groups. Invite faculty and staff to attend these lab visits as well.

[UG] Include lab tours and graduate student presentations in EARTH 436A/B to capture potential graduate students.

[UG, G] Include in-person presentations from potential supervisors at the beginning of EARTH 436A to connect students with potential 4th year supervisors and graduate supervisors.

[UG,G] Continue town halls soliciting feedback and discussion from undergraduate students, start town halls for graduate students, postdoctoral fellows, research associates and instructors. Hold student town halls twice a term (second one in the 3rd month of the term to check-in and identify issues).

[G] Provide graduate students with opportunities to present their research. This could be part of a graduate course with a format similar to the 3MT or poster presentations.

[G] Organize graduate student orientation day with opportunities for new graduate students to connect with existing graduate students (half-day orientation after science orientation), and EES staff and faculty members who provide support for graduate students (Associate Chair, Graduate Studies, Graduate Committee, Graduate Coordinator and Advisor).

[G] Advertise internal and external funding information for graduate students (graduate students can use Teams to share funding opportunities with their peers).

[UG, G] Organize student workshops with the Associate Chair, Graduate Studies and faculty members who can assist with application writing (for graduate school and scholarship applications).

Responsibility: Undergraduate Committee and Graduate Committee, EARTH 436A/B Instructor

Maps to Faculty of Science Goal: C1 (actions 2 and 5)

Goal 5: Create opportunities for faculty and staff to gather, collaborate, and discuss departmental interests and projects.

Actions:

[ALL] Each term, block a time in the schedule where everyone is free of teaching commitments to enable meeting attendance.

[ALL] Create more forums (meetings, Teams channel) to discuss operational issues beyond the limited time available during Department meetings.

[ALL] Send meeting-related documents early and allow tracked changes on documents requiring feedback.

[F] Teaching Fellow to run a day each year focused on teaching, discussing current teaching resources, professional development opportunities or issues faced in the classroom, etc.

[F] Research Fellow to coordinate discussions on pursuing broad topics including collaborative team research, funding opportunities, professional development opportunities, etc.

[ALL] Create a facilities list like Global Water Futures and Faculty of Environment for the Department's website.

Responsibility: Department Chair, Research Fellow, Teaching Fellow

Maps to Faculty of Science Goals: C1 (action 1) and C2 (action 1)

Goal 6: Promote a sense of community for all its members.

Actions:

[ALL] Hold a Department event each term or twice a year (summer picnic, for example, with as much awareness and importance as our annual holiday party or Farvolden Day).

[UG, G] Increase the number of regularly run events for all students, like the Elora trip. This could include an upper year trip and job fair/industry day.

[UG, G] Encourage and support participation (financially or by providing transportation or other support) for conferences and events like PDAC, GeoGames, etc.

[F,S] Encourage informal opportunities to socialize over coffee break / lunch hour when many people are free.

Responsibility: Department Chair, Administrative Staff, Executive Committee

Maps to Faculty of Science Goal: C1 (action 1)

Goal 7: Foster a sense of community and belonging for students by providing shared spaces for undergraduate and graduate students.

Actions:

[G] Allocate space for a graduate student lounge.

[UG] Integrate undergraduate students in a common space (GeoEng and Watrox).

[G] Update large graduate student office spaces to improve safety, lighting, comfort, access and to modernize the workspace.

Responsibility: Department Staff, Administrative Staff, ESGA and Watrox.

Maps to Faculty of Science Goal: C1 (action 4)

Next Steps

Following formal adoption of the *Department of Earth and Environmental Sciences Strategic Plan 2025-2030*[2], the Department will be engaged to develop a comprehensive implementation plan that will, for each goal, establish the responsibility for leading and resourcing (if applicable) the identified actions, and their pathways and timelines for completion. This implementation plan will be approved at a future department meeting, along with a schedule for regular (at least biannual) reporting of progress.

Acknowledgements

Many members of the Department of Earth and Environmental Sciences community were instrumental in developing this plan. It could not have been accomplished without their insights, collegiality, and commitment to our individual and collective success in the years ahead.

The work of the three thematic groups – Research, Teaching and Learning, and Community – created the substance of this strategic plan.

- **Research Theme Group** – included faculty (Dave Blowes – sub-committee chair, Tonya DelSontro, Walter Illman, Dave Rudolph, Philippe Van Cappellen, Andre Unger, Chris Yakymchuk), staff (Rhys Gwynne, Jen Parks, Meredith Miller) and undergraduate student (Jacqueline Voisin-Roewade).
- **Teaching and Learning Theme Group** – included faculty (Andrea Brookfield – sub-committee chair, Brian Kendall, Maddy Rosamond, Chris Yakymchuk, Andre Unger), staff (Sana Ahmad, Jen Parks), and students (Olivia Clay – undergraduate student, Kevin White – graduate student).
- **Community Theme Group** – included staff (Kathleen St. Laurent - sub-committee chair, Sue Fisher, Rhys Gwynne, Stef Slowinski), faculty (Keith Delaney, John Johnston, Brian Kendall, Jenine McCutcheon), post-doctoral fellow (Heather Shrimpton), graduate student (Decla McParland) and undergraduate student (Cooper Pickering).

Brian Kendall provided advice and guidance to the Department Chair on the plan, from its inception to its completion as well as ensured the alignment of our plan with the Faculty of Science strategic plan.

Lorraine Albrecht arranged numerous committee and sub-committee meetings related to the creation of this plan.

Members of the Department of Earth and Environmental Sciences not mentioned above were also instrumental in helping shape and move the plan to completion through their contributions to numerous informal and formal (e.g., special Department meetings to discuss the plan) discussions.

Mario Coniglio | PhD — May 13, 2025
Chair, Professor Emeritus

[2] Formal adoption of this Strategic Plan occurred at the Department meeting held on May 23, 2025.