

UNIVERSITY OF WINDSOR
UNIVERSITY PROGRAM REVIEW (UPR)
FINAL ASSESSMENT REPORT AND IMPLEMENTATION PLAN: ENVIRONMENTAL SCIENCE
GRADUATE PROGRAMS
January 2024

Executive Summary of the Cyclical Program Review of the Environmental Science Graduate Programs

In accordance with the University's Institutional Quality Assurance Process (IQAP), this final assessment report provides a synthesis of the external review and the internal responses of the graduate programs in Environmental Science, administered by the Great Lakes Institute for Environmental Research (GLIER) through the Office of the Dean of Science.

In addition to identifying the significant strengths of the programs, together with opportunities for program improvement and enhancement, the report prioritizes the recommendations that have been selected for implementation and sets out a plan (including the agent(s) responsible for addressing the recommendations and deadline dates) for follow-through. Timelines for monitoring the implementation of the recommendations are built into the process, with areas reporting mid-cycle on their progress to the Senate Program Development Committee, or earlier where there are significant concerns requiring urgent follow-up.

The 2020-2021 Self-Study for the MSc and PhD Programs in Environmental Science was submitted to the Office of Quality Assurance on March 13, 2023 and included: 1) descriptions and an analysis of the programs, their learning outcomes, curriculum structure, and student experience; 2) description of the governance structure; 3) information on enrolments and retention, as well as financial, physical, and human resources; and 4) the program data including the standard data package provided by the Office of Quality Assurance. Appended to the Self-Study were faculty member CVs, the Leddy Library report, course descriptions and syllabi, and the graduate handbook.

The Environmental Science graduate programs were reviewed by Dr. Frances Pick (Department of Biology, University of Ottawa), Dr. Brent Sinclair (Department of Biology, Western University), and Dr. Nihar Biswas (Department of Civil and Environmental Engineering, University of Windsor). In addition to assessing the Self-Study, the Review Team conducted a two-day on-site visit on April 24-25, 2023, which included meetings with faculty, administrative and technical staff, postdoctoral fellows, students, the Associate Dean of Research and Graduate Studies in the Faculty of Science, and the Associate Vice-President Academic. They also toured facilities and student spaces, visited the off-campus Freshwater Restoration Ecology Centre, and attended the research presentation component of a PhD student defense.

In their report (May 16, 2023), the Review Team noted that the program learning outcomes are clearly articulated and mapped to the graduate degree level expectations, and that admission requirements are adequate and appropriately aligned with the learning outcomes. The reviewers noted that the requirements to complete core graduate courses, attend conferences, and publish "reflect the interdisciplinary, rigorous, learning outcomes of the MSc and PhD curriculum for Environmental Sciences that exceed the norms of the discipline and lead to high quality experiences for students". While assessment methods are appropriate and in line with other Life and Environmental Sciences programs in North America, the Review Team did express concern with the lack of standardized formats and guidelines for student submissions of progress reports and proposals and the lack of associated formal assessment criteria, noting that clarity of process, requirements, and criteria is needed to ensure transparency, consistency, and fairness in assessment outcomes.

The reviewers noted that they were "impressed by the physical, technical, and human resources available at GLIER to support Environmental Science graduate student research", emphasizing that the facilities and labs are among the best in the Life and Environmental Sciences in Canada. They noted that the programs are delivered by exceptional faculty with impressive research programs, and supported by highly-trained technical staff who provide bespoke training to graduate students, and by dedicated administrative staff who not only support the programs and students but also contribute to the social life of GLIER. The Review Team was also impressed with the interactions

between faculty, staff, and students, noting that faculty and staff are all equally committed to providing an exceptional and supportive student experience.

Overall, the Review Team noted that they were impressed with the quality of the programs, the faculty, staff, and students. To ensure the continued strength of the programs, the reviewers urged clearer messaging around student financial support and direct recruitment to the Environmental Science programs (rather than to programs in the AAU to which the supervisor is affiliated), and proactive efforts to ensure there is no loss of capacity as faculty in GLIER retire. The Reviewers were pleased to note concrete evidence of continuous improvement through initiatives that enhance student engagement, diversity, and inclusiveness.

The Head of the Great Lakes Institute for Environmental Research and Dean of Science submitted their responses to the External Reviewers' Report (October 2023), addressing the recommendations, identifying follow-up actions, and providing clarification or corrections, as appropriate. The Senate Program Development Committee (PDC) Final Assessment Report and Implementation Plan (January 2024) considered all the above documentation. The Executive Summary and Implementation Plan, along with any response from the area on the final recommendations, were submitted to Senate in March 2024.

Final Recommendations and Implementation Plan (in priority order within each category)

Final recommendations were arrived at by the Program Development Committee, following a review and assessment of the External Reviewers report, the response from the Head of the Great Lakes Institute for Environmental Research, and the Dean's response.

Student Financial Support

Recommendation 1: That the Program area implement a process to annually review the minimum funding threshold for Environmental Sciences MSc and PhD students, in light of cost of living increases, and make adjustments as feasible, and that it report on efforts to provide students with funding to at least 80% of the published living wage (i.e. \$23,008 for 2023) to be in line with the average at other institutions. [ER Recommendations 1 and 2]

Agents: Director, Dean

Completion by: Fall 2024

Recommendation 2: That the Program area develop a formal policy allowing students with a strong and approved rationale (eg, extenuating circumstances, uncontrollable field research delays) to extend the period of guaranteed funding or provide similar additional financial support into their third year. [ER Recommendation 3]

Agents: Director, Dean

Completion by: Fall 2024

Environmental Sciences graduate program curriculum and processes

Recommendation 3: That the Program area clarify criteria and procedures surrounding program requirements and assessment processes in a clear formal document, consistent with the UWindsor Graduate Calendar. While the current processes are fine, without explicit codification, there is a risk of drift, especially in a time of personnel turnover. The current level of detail in the description of processes for the Comprehensive Examination in the graduate handbook is a good model for other meetings and milestones.

Specifically, the Program area should provide transparent, clear, and consistent expectations and procedures for the following:

- Include clear timelines and deadlines for all milestones.
- Standardize (and make transparent) forms and reporting for committee meetings, as well as formats for research updates provided to committees.
- Make clear the process and criteria for requiring additional courses and for documenting their completion.
- Commit the procedures for the Proposal to writing, and reframe Comprehensive Examination, and thesis/dissertation defense descriptions as codified procedures.

- Codify the criteria, scope, content, format, and evaluation processes and procedures for situations where a student's performance is deemed inadequate are clear for a milestone assessment.
- Clarify the expectations around the MSc->PhD transfer, including the timing of the transition, the structure of the committee meeting, the criteria for approval, the format of any written proposal, and the oversight and documentation of the final decision and any appeals.
- Codify the process and criteria for extensions beyond the normative time for both MSc and PhD degrees.
- Codify the process and criteria for waiving publication requirements for graduation. [ER Recommendation 4]

Agents: Director, Graduate Committee

Completion by: Fall 2024

Recommendation 4: That the Program area review the content of the core modeling course, ensuring that it still meets the needs of students (in terms of the computational and statistical skills of incoming graduates) and the breadth of their GLIER research. Consideration might be given to team-teaching or having break-out workshops to better connect the computational skills content to the needs of current GLIER research. [ER Recommendation 6]

Agents: Director, Graduate Committee

Completion by: Fall 2024

Recommendation 5: That the Program area distribute, to both graduate students and faculty, an annual list of appropriate courses from cognate disciplines available to Environmental Science MSc and PhD students, once course lists are posted. [ER Recommendation 5]

Agents: Director, Graduate Committee

Completion by: Fall 2024

Recommendation 6: That the Program area host regular networking events for current students, alumni, and adjuncts to facilitate networking and report on these efforts. [ER Recommendation 7]

Agents: Director

Completion by: Mid-cycle report

Recommendation 7: That the Program area report on its efforts to encourage the development of a formal Environmental Science graduate student society or committee to provide a formal conduit for communication. [ER Recommendation 8]

Agents: Director

Completion by: Mid-cycle report

Recruitment to the Environmental Sciences graduate program

Recommendation 8: That the Program area develop a process to ensure that faculty and students are aware that Environmental Science graduate students have the same opportunities for GA positions as all other graduate students in the Faculty of Science. [ER Recommendation 9]

Agents: Director

Completion by: Fall 2024

Recommendation 9: That the Program area report on its efforts to advertise the advantages of enrolling in the Environmental Sciences programs (rather than the graduate program of their supervisor's primary AAU), such as possible priority access to office space and networking and collaboration opportunities within GLIER and with its external partners, etc., to make the program attractive for incoming students. [ER Recommendation 10]

Agents: Director

Completion by: Fall 2025

Recommendation 10: That the Program area, in consultation with the Office of Enrolment Management and the Office of Graduate Studies, develop an international recruitment strategy. [ER Recommendation 11]

Agents: Director, AVP Enrolment Management, Office of Graduate Studies

Completion by: Fall 2025

Institutional support for GLIER and the Environmental Science graduate programs

Recommendation 11: That the Program area, working with the Office of the Dean, develop a process to ensure that all courses within the Environmental Science program are given full consideration in the development of the 3-year teaching plans for each AAU, to allow consistent, quality delivery of core courses. [ER Recommendation 12]

Agents: Director, Dean, Heads with faculty associated with GLIER

Completion by: Fall 2025

Recommendation 12: That the Program area report on efforts to renew its complement of faculty associated with the Institute and its programs, in light of upcoming retirements, with a focus on increasing its diversity. [ER Recommendation 13]

Agents: Director, Dean, Heads with faculty associated with GLIER

Completion by: Fall 2025

Recommendation 13: That the Program area participate in the Faculty of Science pilot project which is reviewing core research infrastructure and technical staff to identify gaps and develop potential solutions to better support research in the Faculty, and that, consistent with this and in consultation with the Dean, it develop a plan for the retention and replacement of technicians who support GLIER core facility.

[ER Recommendation 14]

Agents: Director, Dean

Completion by: Fall 2025

Recommendation 14: That the Program area report on its ongoing efforts to track and promote student achievements for the purposes of celebration and reporting. [ER Recommendation 15]

Agents: Director

Completion by: Fall 2024