

DATE: May 27, 2022

TO: Senate

FROM: Dr. Dwight Deugo, Vice-Provost and Associate Vice-President (Academic), and Chair,
Senate Quality Assurance and Planning Committee

RE: Final Assessment Report and Executive Summary

The purpose of this memorandum is to request that Senate approve the Final Assessment Report and Executive Summary arising from cyclical program review of the Graduate Programs in Earth Sciences.

The request to Senate is based on a recommendation from the Senate Quality Assurance and Planning Committee (SQAPC), which passed the following motion at its meeting of April 14, 2022:

THAT SQAPC recommends to SENATE the approval of the Final Assessment Report and Executive Summary arising from the cyclical program review of the Joint Graduate Programs in Earth Sciences.

The Final Assessment Reports and Executive Summary is provided pursuant to article 5.4.1. of the provincial Quality Assurance Framework and article 7.2.24 of Carleton's Institutional Quality Assurance Process (IQAP). Article 7.2.24.3 of Carleton's IQAP (passed by Senate in November 2021 and ratified by the Ontario Universities Council on Quality Assurance in April 2022) stipulates that, in approving Final Assessment Reports and Executive Summaries 'the role of SQAPC and Senate is to ensure that due process has been followed and that the conclusions and recommendations contained in the Final Assessment Report and Executive Summary are reasonable in terms of the documentation on which they are based.'

In making their recommendations to Senate and fulfilling their responsibilities under the IQAP, members of SQAPC were provided with all the appendices listed on page 2 of the Final Assessment Report and Executive Summary. These appendices constitute the basis for reviewing the process that was followed and assessing the appropriateness of the outcomes.

These appendices are not therefore included with the documentation for Senate. They can, however, be made available to Senators should they so wish.

Any major modifications described in the Implementation Plans, contained within the Final Assessment Reports, are subject to approval by the Senate Committee on Curriculum, Admission, and Studies Policy, the Senate Quality Assurance and Planning Committee (SQAPC) and Senate as outlined in articles 7.4.1 and 5.1 of Carleton's IQAP.

Once approved by Senate, the Final Assessment Report, Executive Summary and Implementation Plan will be forwarded to the Ontario Universities' Council on Quality Assurance and reported to Carleton's Board of Governors for information. The Executive Summary and Implementation Plan will be posted on the website of Carleton University's Office of the Vice-Provost and Associate Vice-

President (Academic), as required by the provincial Quality Assurance Framework and Carleton's IQAP.

Senate Motion June 3, 2022:

THAT Senate approve the Final Assessment Report and Executive Summary arising from the Cyclical Review of the Joint Graduate programs in Earth Sciences.

**CARLETON UNIVERSITY COMMITTEE ON
QUALITY ASSURANCE**
**Cyclical Review of the joint graduate programs
in Earth Science**
Executive Summary and Final Assessment Report

This Executive Summary and Final Assessment Report of the cyclical review of Carleton's joint graduate programs in Earth Science are provided pursuant to the provincial Quality Assurance Framework and Carleton's Institutional Quality Assurance Process (IQAP).

EXECUTIVE SUMMARY

The joint graduate programs in Earth Science reside in the Ottawa-Carleton Geoscience Centre, a unit administered by the Faculty of Science. This program is offered jointly between the University of Ottawa and Carleton University.

As a consequence of the review, the programs were categorized by Carleton University's Senate Quality Assurance and Planning Committee (SQAPC) as being of good quality. (Carleton's IQAP 7.2.13).

The External Reviewers' report offered a very positive assessment of the programs. Within the context of this positive assessment, the report nonetheless made a number of recommendations for the continuing enhancement of the programs. These recommendations were productively addressed by the Director of the Ottawa-Carleton Geoscience Centre, the Deans of the Faculty of Science (University of Ottawa and Carleton University) and the Dean of the Faculty of Graduate and Postdoctoral Affairs in a response to the External Reviewers' report and Implementation on Plan that was submitted to SQAPC on April 14, 2022.

FINAL ASSESSMENT REPORT

Introduction

The joint graduate programs in Earth Science reside in the Ottawa-Carleton Geoscience Centre, a unit administered by the Faculty of Science. This program is offered jointly between the University of Ottawa and Carleton University. This review was conducted pursuant to the Quality Assurance Framework and Carleton's Institutional Quality Assurance Process (IQAP). As a consequence of the review, the programs were categorized by Carleton University's Senate Quality Assurance and Planning Committee (SQAPC) as being of good quality. (Carleton's IQAP 7.2.13).

The site visit, which took place on February 22-25, 2021, was conducted by Dr. Christopher Weisener from University of Windsor, and Dr. Christie Rowe from McGill University. The site visit involved formal meetings with the Provost, the Vice-Provost and Associate Vice-President (Academic), the Deans of the Faculty of Science (University of Ottawa and Carleton University), Director of Quality Assurance (University of Ottawa) and the Dean of the Faculty of Graduate and Postdoctoral Affairs. The review committee also met with faculty members, contract instructors, staff, and undergraduate and graduate students from both institutions.

The External Reviewers' report, submitted on March 24, 2021 offered a very positive assessment of the program.

This Final Assessment Report provides a summary of:

- Strengths of the programs
- Challenges faced by the programs
- Opportunities for program improvement and enhancement
- The Outcome of the Review
- The Implementation Plan

This report draws on five documents:

- The Self-study developed by members of the Ottawa-Carleton Geoscience Centre, (Appendix A)
- The Report of the External Review Committee (Appendix B).
- The response and implementation plan from the Director of the Ottawa-Carleton Geoscience Centre, (Appendix C)
- The response from the Deans of the Faculty of Science (uOttawa and Carleton University), the Dean of the Faculty of Graduate and Postdoctoral Affairs (Carleton University) (Appendix D).
- The internal discussant's recommendation report (Appendix E).

Appendix F contains brief biographies of the members of the External Review Committee.

This Final Assessment Report contains the Implementation Plan (Appendix C) developed by the Director of the Ottawa-Carleton Geoscience Centre, and agreed to by the Deans of the Faculty of Science (University of Ottawa and Carleton University), and the Dean of the Faculty of Graduate and Postdoctoral Affairs, for the implementation of recommendations for program enhancement identified as part of the cyclical program review process.

The Implementation Plan identifies who is responsible for implementing the agreed upon recommendations, as well as the timelines for implementation and reporting.

Strengths of the programs

General

The External Reviewers' Report states that "The Ottawa-Carleton Geoscience Centre exists to link the graduate programs of Ottawa U and Carleton U, as well as to connect a network of adjuncts who are government and professional scientists concentrated in Ottawa. The Joint graduate program allows students registered at each institution to enroll in courses at the other, and the slate of course offerings is substantial and seems adequate for the graduate students whose disciplines are well-represented across the faculty. Others, for example the large vertebrate paleontology group, also take courses outside the OCGC. The current structure benefits from a shared facility concept, housing cutting edge infrastructure and resources for facilitating graduate research. The graduate student population also directly benefits from the combined extensive expertise of the faculty complement, including world class leaders. Across Canada there are few examples of such an arrangement thus making this a unique design which should be supported for continued growth. Based on feedback from students, management and administrative units the following report provides some discussion points which highlight both identified weakness, concerns buts more importantly opportunities to insure positive, constructive enhancements to the existing relationship and program."

Faculty

Speaking with regard to faculty, the external reviewers' stated:

"The faculty of the OCGC are a major strength of the Centre and of both academic departments. Many are world leaders or emerging leaders in their fields, and taken together, the scope of research is comprehensive and broadly covers major fields of research activity in Canadian geoscience. We can confirm abundant evidence of excellence and advising graduate students to successful careers."

Students

The external reviewers noted that "The graduate students at both institutions expressed positive sentiment about the scientific and intellectual resources. However, the overall impression is one of missed opportunities due to poor coordination and communication. In short, the potential benefits of the OCGC are not translating down to the graduate students' experiences. It appears the faculty are already aware of this situation and yet nothing has changed. A common message emerged from MSc and PhD students from both units, in general students would like to see a sense of community between members of the combined program. A common theme was lack of communication between the two units and difficulty in finding people and information."

Curriculum

The external reviewers noted that "there is no specific general program content. Each student selects their own slate of courses in consultation with their advisor. This is probably an appropriate policy considering the broad scope of specializations within the OCGC."

Opportunities for program improvement and enhancement

The External Reviewers' Report made 25 recommendations for improvement:

1. **Weakness:** Historically the OCGC provided a nexus of research and graduate training. The two units provided joint access to resources, infrastructure and networking for two small departments. Unfortunately, with continued expansion and diversity of interests over the last 10 years, the OCGC structure has not evolved with changes in research scope and diversity of interests across both departments. The rationale on paper behind the formation of the units is sound, for some but in practice, the OCGC does not seem to represent the interests of the entire research community.
2. **Opportunity:** Given the excellence, diversity of research of the faculty, adjuncts, and genuine support from the graduate student population represented across the two units, now is the time to implement a “strategic vision” that implements positive changes to reflect this diversity; this is low hanging fruit that can be achieved through simple modifications to the current structure involving 1) higher visibility via redesigned combined web portals 2) creating stronger communication links (i.e. email listserv) 3) more support and recognition from the upper and mid administration units towards resources needed to fulfill and maintain the student experience.
3. **Opportunity:** When a new website is developed for the OCGC, it can include a list of faculty and adjuncts by disciplinary area to assist prospective and current students in finding people of shared interests to facilitate interaction.
4. **Weakness:** The role of the Centre, and therefore also of its Director, are not well-defined. Without explicit administrative support (allocated time) for the Director or supporting administrators, the Centre is very limited in its activities.
5. **Weakness:** Communication within the OCGC was identified by all parties as seriously lacking. The Centre has no website and no email list. Essential communications are not shared across the Centre membership and this is a huge impediment to participation and access for graduate students.
6. **Opportunity:** A trusted faculty member appointed as an ombudsperson to hold confidential nonbiased listening sessions is recommended.
7. **Weakness:** New faculty in both departments would clearly benefit from more formalized mentoring and onboarding, which would also strengthen relationships within the departments and the OCGC.
8. **Weakness & Opportunity:** For faculty, adjuncts and students from across the breadth of the disciplines to feel ownership of the OCGC, it’s essential that the OCGC confirm and support the increasingly broad scope of science that is included in geoscience. The currently proposed actions to increase community (e.g., introductory field trip, required geoscience core components in curriculum) could backfire if they communicate a more narrow, historical view of the disciplines. This is an opportunity to survey the community at large perhaps have a “joint faculty retreat” to discuss field trip options, and alternative strategies that reflect the broad and overlapping interests for the two units.
9. **Concern:** For faculty and adjuncts not automatically included in the OCGC as members of participating departments, the criteria and pathway for membership must be formalized and clearly communicated.
10. **Opportunity:** To establish and strengthen networks within each department and across the OCGC, formalize structures for introducing people to one another, especially new people joining the Centre.

11. **Opportunity:** Establish communication between the two units via combined web portal, up to date list of members, and email listserv.
12. **Opportunity:** We note in section H, there is a proposal to require some kind of disciplinary “geoscience” core through courses or seminar attendance. To make sure that this does not elevate the traditional geoscience disciplines as more important than other member disciplines, students with a traditional geoscience background should also be supported in taking courses in the more broad, modern scope of what constitutes geoscience (physics, programming, biology, chemistry, etc). Validating the breadth of disciplines in the OCGC this way may help support the engagement of currently disengaged members.
13. **Weakness:** Students 2019 satisfaction survey shows significant dissatisfaction with both MS programs and with the Carleton PhD program. The analysis provided in the self-study attributed low satisfaction mostly to external factors such as career uncertainty. Perhaps this is an area where career opportunity workshops could be implemented. The analysis also showed a level of frustration with Carleton student success rates dealing with financial aid (e.g., failure to respond to aid opportunities in a timely manner. The report states that the department is investigating the reason for this, but we saw no plan in place.
14. **Weakness:** Both institutions should confirm a minimum support level for all enrolled students in full-time studies to meet appropriate standard of living. Enforcement in each department is necessary.
15. **Weakness:** Both institutions should recommit to enforcement of milestones and early establishment of advisory committees. Enforcement in each department is necessary.
16. **Opportunity:** Better web representation of the OCGC may help attract a larger and more diverse applicant pool for the graduate programs as well as help the current student population connect across the OCGC.
17. **Weakness:** Insufficient orientation and introduction to people and facilities may be limiting students’ abilities to access OCGC resources. If the current mode of communication is recognized as ineffective, it behooves the leadership/administration to try other modes.
18. **Weakness:** Poor communication and uneven response to feedback has resulted in an erosion of trust. External mediation or the use of an ombudsperson role may be an effective mechanism for understanding the strong messages already revealed by student feedback. This is most urgent at Carleton.
19. **Weakness:** Uneven application and enforcement of checkpoints appears to be allowing some MS students to function without adequate advising and progress support.
20. **Opportunity:** The proposed relaxation of proposal approval (Volume 1 p. 41) would likely exacerbate the problem of students lacking feedback and support. Establish a mentor program for incoming students and exit poll strategy; this would be useful for tracking alumni also.
21. **Opportunity:** A general analytical methods course should be made available to graduate students (similar to what is already offered to undergraduates) so that they are better able to take advantage of the OCGC facilities.

22. **Weakness:** Insufficient administrative resources for core functions of the Centre are contributing to poor communication and weak coherency of the Centre.
23. **Opportunity:** Each department, and OCGC, should maintain a website which includes available tools and facilities, available training, contact information, pricing, and instructions for gaining access.
24. **Opportunity:** Formalizing the mechanism of joining the OCGC, recognizing new membership with meaningful introductions, and creating opportunities for developing relationships would greatly improve the faculty and adjunct experience, and thereby, the graduate student experience in the OCGC.
25. **Opportunity:** We recommend that units agree on a unified EDI plan which would apply to hiring and student recruitment.

The Outcome of the Review

As a consequence of the review, the joint graduate programs in Earth Science were categorized by Carleton University's Senate Quality Assurance and Planning Committee (SQAPC) as being of **GOOD QUALITY** (Carleton's IQAP 7.2.13).

The Implementation Plan

The recommendations that were put forward as a result of the review process were productively addressed by the Director of the Ottawa-Carleton Geoscience Centre, the Deans of the Faculty of Science (University of Ottawa and Carleton University), and the Dean of the Faculty of Graduate and Postdoctoral Studies in a response to the External Reviewers' report and Implementation Plan that was considered by SQAPC on April 14, 2022. The Department agreed unconditionally to recommendations #1, 2, 3, 4, 5, 8, 9, 10, 11, 12, 13, 15, 16, 17, 18, 19, 23, 24, and 25 and agreed to recommendations #1, 2, 3, 4, 5, 8, 11, 16, 17, 22, 23 and 24 if resources permit. They also agreed to recommendations #3, 7, 14, and 20 in principle. The unit did not agree with recommendation #6 and 21.

It is to be noted that Carleton's IQAP provides for the monitoring of implementation plans. A monitoring report is to be submitted by the academic unit(s) and Faculty Dean(s), and forwarded to SQAPC for its review by June 30th, 2023.

The Next Cyclical Review

The next cyclical review of the graduate programs in Communication will be conducted during the 2026-27 academic year.

Note: This document is forwarded to Senate, the Quality Council and posted on the Vice- Provost's external website.

Introduction & General Comments

The site review of the OCGC occurred in the last week of February 2021 and the OCGC Board of Management received the External Reviewers' report on March 30, 2021. Under the current constitution of the OCGC, the Board of Management has the responsibility to maintain and ensure improvement of the graduate programming as part of student, post-doctoral, staff, and faculty experience in the Department of Earth Sciences (Carleton University), Department of Earth and Environmental Sciences (University of Ottawa), and for science-based physical geography faculty/graduate-student cohorts from the two geography departments in each institution. The OCGC is also an institution involving participation of adjunct faculty who are employed by agencies outside of the academic institutions (e.g., federal government, industry). The report was shared with members of the OCGC at both institutions, and this response and implementation plan arises from comments received from these cohorts and discussion amongst Board members who represent OCGC cohorts.

The External Reviewers' report was positive overall and recognized the continuing excellence in scholarly output, level of research infrastructure, and growing breadth of expertise of an institution that is relatively unique in its structure on the Canadian tertiary-education landscape; that is, faculty/student/staff cohorts of four departments divided among two faculties in two different universities. However, the report underscored internal problems associated with the OCGC: administration (given increasing independence of student governance among academic units and their universities), communication within the organization, and faculty and student engagement with respect to the increased diversity of science and little to make all members feel part of a research-based working community. The review recommended increased university funding to support several OCGC initiatives that will improve administration (e.g., documentation of enrolment, publications, research funding, etc.) and communication (website), for both within and external to the OCGC, all of which will also greatly benefit both institutions by drawing attention to the academic/research excellence of the OCGC and promote student recruitment.

This document contains both a response to the External Reviewers' Report and an Implementation Plan (Section B) which have been created in consultation with the Dean(s).

In summary, significant proposed changes include:

transformation from an inter-university administrative body dealing with academic programming (a state out-of-date due to increased independence of inter-institutional student governance) to a working community (academic, industry, government) of scientific scholars (professors, adjunct faculty), scholars-in-training or HQP (ie, graduate students, PDFs), and support staff (administrative, technical) enabling enhanced sharing of resources related to research, teaching and student-research governance (e.g., research and defense committees). This transformation remains within the institutional joint-institute framework of Carleton University and University of Ottawa. Membership is governed by scientific interest in the earth and environmental sciences and accommodates individuals with recognized standing affiliation with a department in either university. A bilingual website independent of OCGC department cohorts, but linked to their university websites, will be the centerpiece for communication and promotion of the OCGC both internally and externally. Required institutional financial support will underwrite OCGC administration (e.g., tabulation of enrolment, publications, research funding, etc.) as well as activities to increase student engagement. Student support will involve delivering greater awareness of academic regulations, research infrastructure, and scientific diversity of the OCGC; delivery and increased accessibility to scientific fora (including courses emphasizing multi-discipline topics) designed to support and promote innovative multi-disciplinary research; and a call on departments represented in the OCGC to establish (or maintain) "living wage" funding packages for students to enable equity in accessibility for graduate school. The OCGC will draw on its membership to develop EDI protocols that will be driven by evolving university and department initiatives.

For each recommendation one of the following responses is selected:

Agreed to unconditionally: used when the unit agrees to and is able to take action on the recommendation without further consultation with any other parties internal or external to the unit.

Agreed to if additional resources permit: used when the unit agrees with the recommendation, however action can only be taken if additional resources are made available. Units must describe the resources needed to implement the recommendation and provide an explanation demonstrating how they plan to obtain those resources. In these cases, discussions with the Deans will normally be required and therefore identified as an action item.

Agreed to in principle: used when the unit agrees with the recommendation, however action is dependent on something other than resources. Units must describe these dependencies and determine what actions, if any, will be taken.

Not agreed to: used when the unit does not agree with the recommendation and therefore will not be taking further action. A rationale must be provided to indicate why the unit does not agree (no action should be associated with this response).

UNIT RESPONSE AND IMPLEMENTATION PLAN

Programs Being Reviewed: Graduate programs in Earth Science

Prepared by (name/position/unit): Dr. George Dix, Past-Director, OCGC

External Reviewer Recommendation & Categorization	Unit Response: 1- Agreed to unconditionally 2- Agreed to if additional resources permit (describe resources) 3- Agreed to in principle 4- Not agreed to Rationales are required for categories 2, 3 & 4	Action Item	Owner	Timeline	Will the action described require calendar changes? (Y or N)
1. Weakness: Historically the OCGC provided a nexus of research and graduate training. The two units provided joint access to resources, infrastructure and networking for two small departments. Unfortunately, with continued expansion and diversity of interests over the last 10 years, the OCGC structure has not evolved with changes in research scope and diversity of interests across both departments. The rationale on paper behind the formation of the units is sound, for some but in practice, the OCGC does not seem to represent the interests of the entire research community.	<p>1. Agreed to unconditionally <i>Weakness arises from self (OCGC) and external factors: (a) loss of a coherence among members that the Centre is a locus of scientific expertise and the breadth of earth and environmental sciences; and (b) increased administrative independence of OCGC sub-units due to changing priorities of university/department-centric (rather than joint-institute) administration and funding</i></p> <p>2. Agreed to if additional resources permit <i>Guaranteed funding of the OCGC is required to address the second (b) element of the defined weakness.</i></p>	<p><i>A set of changes carried out unconditionally by the Centre are listed below but parallel to this, and critical for the OCGC to achieve its objectives, is (as defined by reviewers) need for a renewed collaboration of mid- and upper-level admin between the two universities to establish improved financial support (i.e, OCGC as a line item in each of the two geoscience dept budgets) and recognition for the Joint Institute framework administered by Carleton University and University of Ottawa.</i></p>	OCGC, Carleton and UOttawa senior admin	<i>Action is already underway but also scheduled to carry through to July 2022 (see below)</i>	<i>One item will involve calendar changes likely by 2025 (see below)</i>
2. Opportunity: Given the excellence, diversity of research of the faculty, adjuncts, and genuine support from the graduate student population represented across the two units, now is the time to implement a “strategic vision” that implements positive changes to reflect this diversity; this is low hanging fruit that can be achieved through simple modifications	<p>1. Agreed to unconditionally 2. Agreed to if additional resources permit</p>	<p>1. Agreed to unconditionally <i>(a) a “mission” statement exists but a new constitution defining the Centre’s vision, EDI, activities and responsibilities, membership, and administrative practices is required; (b) telephone/email list circulation to all members</i></p>	For 1. OCGC	<i>1: a) for June 2022 b) for Sept 2021</i>	No

<p>to the current structure involving 1) higher visibility via redesigned combined web portals 2) creating stronger communication links (i.e. email listserv) 3) more support and recognition from the upper and mid administration units towards resources needed to fulfill and maintain the student experience.</p>		<p>2. Agreed to if additional resources permit <i>Some changes require guaranteed annual funding for the OCGC (ie., line items in budgets of the two geoscience departments) with support and recognition from upper and mid admin of the universities:</i></p> <ul style="list-style-type: none"> <i>a) OCGC website (3rd party site) as portal of communication within and external to the two institutions</i> <i>b) administrative support for data management and its distribution;</i> <i>c) funding for OCGC activities to enhance the student experience (1-day orientation Fall retreat; PDAC activities; workshops; support for student-initiated events)</i> 	<p>For 2. Inter-institutional discussions required at Dean and higher levels</p>	<p>2. for new budget year, 2022</p>	
<p>3. Opportunity: When a new website is developed for the OCGC, it can include a list of faculty and adjuncts by disciplinary area to assist prospective and current students in finding people of shared interests to facilitate interaction.</p>	<p>1. Agreed to unconditionally 2. Agreed to if additional resources permit</p>	<p>for 1: OCGC provides information for a website for 2: purchase of a domain name and costs to set-up and maintain the website (including a bilingual format); the website needs to be hosted independently of both institutions to ensure rapid changes and minimize bureaucratic delays</p>	<p>Co-share: 1: OCGC, 2: institutional funding (Carleton, UOttawa)</p>	<p>1: for new budget year, 2022</p>	<p>No</p>
<p>4. Weakness: The role of the Centre, and therefore also of its Director, are not well-defined. Without explicit administrative support (allocated time) for the Director or supporting administrators, the Centre is very limited in its activities.</p>	<p>1. Agreed to unconditionally 2. Agreed to if additional resources permit</p>	<p>For 1. Re-write the OCGC constitution: the OCGC will be a community of scientific scholars and provide access to research and teaching resources and will share in student-research governance. Membership will include any scholar (and student) formally affiliated with either institution with an interest in earth and environmental sciences.</p>	<p>1. OCGC 2. institutional funding (Carleton, UOttawa)</p>	<p>1. for June 2022 2. for May 2022 (i.e., new budget year)</p>	<p>No</p>

		For 2. Stable funding is required to maintain accurate annual collation of OCGC data related to student and faculty activities in order to provide up-to-date information for student recruitment purposes.			
5. Weakness: Communication within the OCGC was identified by all parties as seriously lacking. The Centre has no website and no email list. Essential communications are not shared across the Centre membership and this is a huge impediment to participation and access for graduate students.	1. <i>Agreed to unconditionally</i> 2. <i>Agreed to if additional resources permit</i>	See #2 and 3 (above)	See #2 and 3	See #2 and 3	No
6. Opportunity: A trusted faculty member appointed as an ombudsperson to hold confidential nonbiased listening sessions is recommended.	4. <i>Not agreed to</i> <i>The joint-institute structure with members across two faculties and four depts precludes an individual acting as an ombudsperson with whom everyone will feel comfortable. Existing methods are viewed as reasonable alternatives.</i>	<i>Fall orientation and website information will define available resources in each dept and institution that a student can use for advice/consultation. In successive order of likelihood: peers, advisor, other faculty in dept; dept grad advisor, Chair, Dean's Office or University services, University Ombuds office</i>	<i>OCGC and institutional services (Carleton, UOttawa)</i>	<i>for Sept 2021</i>	No
7. Weakness: New faculty in both departments would clearly benefit from more formalized mentoring and onboarding, which would also strengthen relationships within the departments and the OCGC.	3. <i>Agreed to in Principle</i> <i>Time for faculty mentoring takes away from existing time required for teaching, admin, and research; additional funding (e.g., course/admin release) might be a solution but it will be specific to a dept/university, not OCGC.</i>	<i>The OCGC calls on the two universities to make mentoring a priority and provide necessary funding to departments to help new faculty or faculty needing to change research directions mid-career</i>	<i>Dept/ university input required (Carleton, UOttawa)</i>	<i>n/a</i>	No
8. Weakness & Opportunity: For faculty, adjuncts and students from across the breadth of the disciplines to feel ownership of the OCGC, it's essential that the OCGC confirm and support the increasingly broad scope of science that is included in geoscience. The currently proposed actions to increase community (e.g., introductory	1. <i>Agreed to unconditionally</i> 2. <i>Agreed to if additional resources permit</i>	For 1 and 2: Some OCGC activities below can be carried out without funding, others require annual funding (currently not formally defined at UOttawa, but in place at Carleton). <i>Action items:</i> <i>a) 1-day Fall orientation for grad students, with tours of joint facilities (cost: bus rental,</i>	<i>OCGC, with institutional (Carleton, UOttawa) funding for field trips</i>	<i>For req. funding: Budget year 2022 others, Sept 2021 with exception of (f) which will</i>	<i>No, except for (f) but not until 2025</i>

<p>field trip, required geoscience core components in curriculum) could backfire if they communicate a more narrow, historical view of the disciplines. This is an opportunity to survey the community at large perhaps have a “joint faculty retreat” to discuss field trip options, and alternative strategies that reflect the broad and overlapping interests for the two units.</p>	<p><i>BBQ)</i> <i>(b) Fall field excursion, Winter lab excursion (bus rental)</i> <i>(c) OCGC Social event after/during OCGC Grad Student Seminars (2x per year)</i> <i>(d) Prospectors Developers Assoc. Can (PDAC) - premier annual event for earth and environmental science bringing alumni now in govt and industry together with OCGC members (costs: social event with rental)</i> <i>(d) OCGC Seminars (1 per month addressing big topics of interest across earth and environmental science) (no cost)</i> <i>(e) increased communication and accessibility to all other types of seminars in OCGC (no cost)</i> <i>(f) establish multi-discipline focused courses that address integration of diverse subjects</i></p>	<p><i>require at least 2 years development</i></p>
<p>9. Concern: For faculty and adjuncts not automatically included in the OCGC as members of participating departments, the criteria and pathway for membership must be formalized and clearly communicated.</p>	<p>1. Agreed to unconditionally</p>	<p><i>Re-writing of the OCGC constitution (which is out-of-date): namely, membership is automatic if individual is related to research and training of earth and environmental science and has a defined affiliation (student, faculty, adjunct, staff) with either university. The proposed website will act as communication to recruit both students and faculty/govt/industry researchers.</i></p>

<p>10. Opportunity: To establish and strengthen networks within each department and across the OCGC, formalize structures for introducing people to one another, especially new people joining the Centre.</p>	<p>1. Agreed to unconditionally</p>	<p><i>Increased awareness of OCGC through communication (website, report of activities in each dept's meetings; formally defined Assoc Director in geoscience dept that does not host the Director to enable cross-dept communication; increased communication and social interactions in general – see #8)</i></p>	<p>OCGC (assumed with funding – see #8)</p>	<p>for Sept 2021 and new budge year, 2022</p>	<p>No</p>
<p>11. Opportunity: Establish communication between the two units via combined web portal, up to date list of members, and email listserv.</p>	<p>1. Agreed to unconditionally 2. Agreed to if additional resources permit</p>	<p><i>See #2, 3, 5 (above)</i></p>	<p><i>See #2, 3, 5 (above)</i></p>	<p><i>See #2, 3, 5 (above)</i></p>	<p>No</p>
<p>12. Opportunity: We note in section H, there is a proposal to require some kind of disciplinary “geoscience” core through courses or seminar attendance. To make sure that this does not elevate the traditional geoscience disciplines as more important than other member disciplines, students with a traditional geoscience background should also be supported in taking courses in the more broad, modern scope of what constitutes geoscience (physics, programming, biology, chemistry, etc). Validating the breadth of disciplines in the OCGC this way may help support the engagement of currently disengaged members.</p>	<p>1. Agreed to unconditionally</p>	<p><i>Since the report, a revised approach:</i></p> <ul style="list-style-type: none"> <i>a) expansion of current knowledge and breadth of expertise will be carried out using seminars. The OCGC Seminar will include only broad-based presentations illustrating integrated nature of earth and environmental sciences.</i> <i>b) communicate schedules and increase accessibility to more informal (or topic specific) seminars and talks in departments with OCGC members</i> 	<p>OCGC</p>	<p>for Sept 2021</p>	<p>No</p>
<p>13. Weakness: Students 2019 satisfaction survey shows significant dissatisfaction with both MS programs and with the Carleton PhD program. The analysis provided in the self-study attributed low satisfaction mostly to external factors such as career uncertainty. Perhaps this is an area where career opportunity workshops could be implemented. The analysis also showed a level of frustration with Carleton student</p>	<p>1. Agreed to unconditionally</p> <p><i>Low approval ratings (for Carleton) and ~50% approval ratings for MSc at both institutions require explanation. For the MSc rating, the survey did not explore whether students' expectations of the research environment matched their career interests.</i></p>	<p>Prior to submission of the external reviewers' report, Carleton ERTH moved to solicit involvement of the Carleton Ombuds Office to engage graduate students in discussion about the origin of the poor satisfaction level associated with Carleton ERTH (PhD). The Ombuds Office carried out its survey during April-June 2020, and the</p>	<p>(1) Carleton (Dept of Earth Sciences)</p>	<p>(1) ongoing since Apr 2021</p>	<p>No</p>

<p>success rates dealing with financial aid (e.g., failure to respond to aid opportunities in a timely manner. The report states that the department is investigating the reason for this, but we saw no plan in place.</p>		<p>department is still waiting for the report due to delays arising from within the Ombuds Office (written communication to department Chair from Ms. Melanie Chapman, Ombuds Office, Nov 2021). Once the report is received, there will be continued work with the Ombuds Office to determine the best approach to resolve student concerns and determine how annual assessments can be conducted. This work could start by January 2022.</p>		<p>(2) by 2022 (if deemed necessary)</p>
<p>14. Weakness: Both institutions should confirm a minimum support level for all enrolled students in full-time studies to meet appropriate standard of living. Enforcement in each department is necessary.</p>	<p>3. Agreed to in principle <i>Current range in funding is influenced by differences of institutional funding mechanisms and available funding from faculty. However, continued funding must be considered in comparison to rising living costs; e.g., constant rising accommodation costs.</i> <i>Carleton University provides estimate of \$18k per year for minimum graduate-student living costs in Ottawa.</i> <i>UOttawa (Dept Earth and Environ. Science): guaranteed funding is \$21k per student; note – most students have University tuition fee waivers thereby enhancing this level of funding.</i> <i>Carleton (Dept of Earth Sciences): TA and max scholarship funding meets living std estimate BUT DOES NOT cover tuition costs (\$12k) that is covered by an RA and-or student.</i></p>	<p><i>The OCGC will ask its member departments at Carleton to urge faculty to enable funding that covers the ~\$12k differential. However, this depends on research funding to the faculty member. This may also require rethinking of institutional support at both universities</i></p>	<p><i>Individual research professors and institutional funding (Carleton, UOttawa)</i></p>	<p>ASAP</p>

<p>15. Weakness: Both institutions should recommit to enforcement of milestones and early establishment of advisory committees. Enforcement in each department is necessary.</p>	<p>1. Agreed to unconditionally</p> <p><i>This refers to often delays or delinquent responses of MSc and PhD milestone reviews.</i></p>	<p>This recommendation dealt with enforcement of milestones and early establishment of advisory committees to ensure timely student academic progress. Criteria for student advancement within their programs at OCGC include (1) university requirements for academic advancement required of students through online documentation (i.e., requirements for research proposals/statements, timelines, milestones, annual progress reports, etc.) combined with discussion with their advisors; and (2) an OCGC-specific requirement; the graduate student seminar. The identification of a "deliverable" that was requested for January 2022 will be that the OCGC will ask each department:</p> <p>a) to reinforce the existing timeline framework of student advancement, to reiterate to faculty and students alike at time of enrolment the importance of clear definition and expectations of research (and related course work), written documentation of expected research product and timelines, and involvement of an advisory committee;</p> <p>(b) to have regular meetings between advisor/advisory committee and student, and quickly identify problems that may require intervention of departmental/university administration</p>	<p>OCGC (each Dept cohort)</p>	<p>for Jan 2022</p>
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		<p>officials;</p> <p>c) timely submission of required term (Carleton) and annual (UOttawa) formal assessments of progress.</p> <p>d) to reinforce the significance of the OCGC Graduate Student Seminar as a utility for development of the individual as a researcher and ensure the established deadlines are respected.</p> <p>The two chairs of the earth sciences departments will confirm with the Director (OCGC) by end of January 2022 that this has been discussed at a departmental meeting, and information has been passed to all graduate students. The OCGC's late Spring and late Fall meetings of the Board of Directors (often in conjunction with a day of OCGC Graduate Student Seminars) form regular venues to ensure that such revitalization of timeliness in progress advancement is working.</p>		
<p>16. Opportunity: Better web representation of the OCGC may help attract a larger and more diverse applicant pool for the graduate programs as well as help the current student population connect across the OCGC.</p>	<p>1. Agreed to unconditionally</p> <p>2. Agreed to if additional resources permit</p>	<p><i>See #2, 3, 5, 11</i></p>	<p><i>See #2, 3, 5, 11</i></p>	<p><i>See #2, 3, 5, 11</i></p>

<p>17. Weakness: Insufficient orientation and introduction to people and facilities may be limiting students' abilities to access OCGC resources. If the current mode of communication is recognized as ineffective, it behooves the leadership/administration to try other modes.</p>	<p>1. Agreed to unconditionally 2. Agreed to if additional resources permit</p>	<p>For 1. Establish a 1-day Fall orientation meeting for all graduate students, providing tour of research facilities at both institutions, meeting with faculty, adjunct faculty, and staff, and including social engagement; also, establish a per-semester meeting of dept. grad supervisors with students as a "check-in".</p> <p>For 2. a) Moving members of the OCGC (100+ people) around for the day requires guaranteed funding for bus rental</p> <p>b) advertisement of people and facilities via website is the most efficient.</p>	<p>OCGC, institutional funding (Carleton, UOttawa)</p>	<p>For Sept 2021</p>	<p>No</p>
<p>18. Weakness: Poor communication and uneven response to feedback has resulted in an erosion of trust. External mediation or the use of an ombudsperson role may be an effective mechanism for understanding the strong messages already revealed by student feedback. This is most urgent at Carleton.</p>	<p>1. Agreed to unconditionally</p>	<p>See #13</p>	<p>OCGC</p>	<p>already initiated</p>	<p>No</p>
<p>19. Weakness: Uneven application and enforcement of checkpoints appears to be allowing some MS students to function without adequate advising and progress support.</p>	<p>1. Agreed to unconditionally</p>	<p>See #15: establish (if possible) even approach among sub-unit cohorts</p>	<p>OCGC</p>	<p>for Jan 2022</p>	<p>No</p>
<p>20. Opportunity: The proposed relaxation of proposal approval (Volume 1 p. 41) would likely exacerbate the problem of students lacking feedback and support. Establish a mentor program for incoming students and exit poll strategy; this would be useful for tracking alumni also.</p>	<p>3. Agreed to in principle <i>This specific reference relates to MSc research proposal vs research statement (Carleton, ERTH). Debate involved that the proposal took too much time when compared to the available 2-yr University funding window</i></p>	<p><i>Re-evaluation of academic success of students who submit MSc statements vs proposals; reinforce milestones, increase communication to students (e.g., Fall orientation) as in #15</i></p>	<p>OCGC</p>	<p>for Jan 2022</p>	<p>No</p>

<p>21. Opportunity: A general analytical methods course should be made available to graduate students (similar to what is already offered to undergraduates) so that they are better able to take advantage of the OCGC facilities.</p>	<p>3. Not agreed to <i>Courses (MSc=3, PhD=2) are usually focused on specific topics required by student.</i></p>	<p><i>Available research infrastructure will be covered in the 1-day orientation day for all graduate students (see #17); need for specific research tools would be established by an advisory committee (see #15); website information will provide 1-stop-evaluation of what is available</i></p>	<p><i>n/a</i></p>	<p><i>n/a</i></p>	<p><i>No</i></p>
<p>22. Weakness: Insufficient administrative resources for core functions of the Centre are contributing to poor communication and weak coherency of the Centre.</p>	<p>2. Agreed to if additional resources permit <i>This has been a longstanding (now 3 cyclical review reports) issue directed to mid- and upper level institutional administrators.</i></p>	<p><i>Establish requirements for administrative support related to core functions of the OCGC: - website, annual collation of critical data about OCGC operations/success (e.g., enrolment, graduation, exit poll evaluations, publications, research funding, etc.)</i></p>	<p><i>Inter-institutional support is essential (3rd OCGC review report requesting such support)</i></p>	<p><i>for July 2022</i></p>	<p><i>No</i></p>
<p>23. Opportunity: Each department, and OCGC, should maintain a website which includes available tools and facilities, available training, contact information, pricing, and instructions for gaining access.</p>	<p>1. Agreed to unconditionally 2. Agreed to if additional resources permit</p>	<p><i>See #2, 3, 5, 11</i></p>	<p><i>See #2, 3, 5, 11</i></p>	<p><i>See #2, 3, 5, 11</i></p>	<p><i>No</i></p>
<p>24. Opportunity: Formalizing the mechanism of joining the OCGC, recognizing new membership with meaningful introductions, and creating opportunities for developing relationships would greatly improve the faculty and adjunct experience, and thereby, the graduate student experience in the OCGC.</p>	<p>1. Agreed to unconditionally 2. Agreed to if additional resources permit</p>	<p><i>See #2, 3, 5, 11</i></p>	<p><i>See #2, 3, 5, 11</i></p>	<p><i>See #2, 3, 5, 11</i></p>	<p><i>No</i></p>
<p>25. Opportunity: We recommend that units agree on a unified EDI plan which would apply to hiring and student recruitment.</p>	<p>1. Agreed to unconditionally</p>	<p><i>Establish an EDI plan in discussion with members and that is compatible with evolving plans within both universities. a) one component already defined: seek equity in funding and meeting minimum funding</i></p>	<p><i>OCGC, Carleton, UOttawa</i></p>	<p><i>over the next few years in step with the universities and departments</i></p>	<p><i>No</i></p>

		<i>needs for students to increase graduate-school accessibility for diversity of economic and social backgrounds, gender, and race.</i>			
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Date: March 4, 2022

To: Dr. Dwight Deugo, Vice-Provost and Associate Vice-President (Academic)
Chair, Senate Quality Assurance and Planning Committee

From: Prof. Emeritus George R Dix, Past-Director, OCGC; 
Prof. William Arnott, Director, OCGC; and, Department of Earth and Environmental
Sciences, University of Ottawa 

**Amendments/Clarification to OCGC Response to
Cyclical Program Review – Program Categorization**

Further to your letter of February 9, 2022, we have provided clarifications as requested. These are summarized below and the response report modified accordingly. This has been approved by the Board of Management of the Ottawa-Carleton Geoscience Centre.

- *“the numbering of elements in columns 2 and 3 . . . “*
We followed the template provided to us that lists required numerated responses from the Unit: 1 – agree to unconditionally; 2 – agreed to . . . , etc. Furthermore, our numbers have the attached headers in bold.
- *Recommendation #3: . . . “who will be responsible for website”*
The owner of the website will be the OCGC and will have a domain name affiliated with neither university. The website will have general information about the OCGC and appropriate links to relevant parts of both institutions. Once a website design/template is established, there is need only to modify content as required. As recommended by the external reviewers, increased/guaranteed administrative support dedicated to the OCGC under direction of the Director forms the basis for website updates. The administrator will have the responsibility to make changes as needed: updating seminars, defense notices, and maintaining longer-term information about the OCGC operations, research directions, and personnel. Longer term information will need updating once a year or through retirements and new hires. Thus, once set up, the amount of work required to maintain the website will be relatively minor. At present discussions of a permanent funding mechanism, principally annual maintenance fee for the domain name, and also for minor website support (building of the initial website and populating it with up-to-

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date material), have taken place with the Dean of Science at the University of Ottawa, who then will follow-up with their counterpart at Carleton.

- *Recommendation #4: . . . “should the role of the Director be specified”*
This requires, as noted, discussion within the OCGC about future design and purpose of the OCGC (e.g., revise constitution as noted).
- *Recommendation #6: . . . “consider removing the sentence. . . ”*
OK
- *Recommendation #12: . . . “the owner of the actions has not been specified”*
OCGC seminars remain the jurisdiction of the OCGC administration; there is no change with the exception of improved communication and increased breadth and integration of earth and environmental sciences.
- *Recommendation #14: “vague timeline: ASAP”*
Sept 2022; in recognition of new incoming students
- *Recommendation #25: “owner and timeline vague”*
EDI development for the OCGC is a product of the institutional frameworks and constituent departments that make up the OCGC; as these come into practice their relevance to the OCGC is immediate.
- *Timelines with Sept 2021*
Several action times were defined for Sept 2021; however, due to COVID protocols and restrictions timelines have been revised in order to re-engage faculty/students in the process, and provide the time needed for internal discussions about the future direction and organization of OCGC.



George Dix
Past-Director, OCGC

Bill Arnott
Director, OCGC

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