

**CARLETON UNIVERSITY COMMITTEE ON  
QUALITY ASSURANCE  
Cyclical Review of the Undergraduate Programs in Earth Science**

**Executive Summary and Final Assessment Report**

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

**EXECUTIVE SUMMARY**

The undergraduate programs in Earth Science reside in the Department of Earth Science, a unit administered by the Faculty of Science.

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 Chair of the Department of Earth Science and the Dean of the Faculty of Science in a response to the External Reviewers' report and Implementation Plan that was submitted to SQAPC on September 9, 2021.

**Earth Sciences**  
**Unit Response to External Reviewers' Report & Implementation Plan**  
**Programs Being Reviewed: Undergraduate Programs**

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

**Introduction & General Comments**

Please include any general comments regarding the External Reviewers' Report.

*[Sample Text: The Department/School/Institute was pleased to receive the Reviewers' very positive External Reviewers' report on [date]. This report was shared with our faculty and staff, and we are committed to the continual improvement of our programs to enhance the student, staff, and faculty experience. 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).*

For each recommendation one of the following responses must be 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).

**Calendar Changes**

If any of the action items you intend to implement will result in calendar changes, please describe what those changes will be. To submit a formal calendar change, please do so using the Courseleaf system.

## Introduction and General Comments

The Department of Earth Sciences is extremely pleased with the feedback in the positive External Reviewers report, received on March 24, 2021. These comments have been shared with our faculty, staff and student representatives. As outlined below, we will implement the suggestions of the External Review Committee that will improve our programs and enhance the faculty/staff/student experience in our Department.

<b>UNIT RESPONSE AND IMPLEMENTATION PLAN</b>					
<b>Programs Being Reviewed: Earth Sciences (UG)</b>					
<b>Prepared by (name/position/unit):</b>					
<b>External Reviewer Recommendation &amp; Categorization</b>	<b>Unit Response:</b> 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	<b>Action Item</b>	<b>Owner</b>	<b>Timeline</b>	<b>Will the action described require calendar changes? (Y or N)</b>
1. <b>Opportunity:</b> Core geoscience program - As described in the following document, the program is excellent, providing a mixture of teaching and assessment methods, outstanding experiential learning, and ample student research opportunities. In this context, we encourage the department to continue to build the earth science program.	<i>Agreed to unconditionally.</i>	<i>We will continue to identify opportunities to diversify our programs, including increasing the environmental earth sciences component of our teaching and research, expanding our Outreach programs to engage a new cohort of potential earth sciences students, developing collaborations with other departments and faculties, and expand our recruitment efforts.</i>	<i>Faculty members, staff, department Strategic Planning Committee</i>	<i>Ongoing</i>	<i>No</i>
2. <b>Concern:</b> Enrollment - As the Department is aware, they are a small unit with a narrow enrollment base. The unit is already undertaking numerous steps to address this concern, including an exemplary outreach program.	<i>Agreed to unconditionally</i>	<i>We will continue to build on our Outreach program, expand our High School teachers workshop to aid teachers in developing earth science curriculum in their courses, improve department advertising in Ontario high schools, strive to offer an Enrichment Mini-Course annually, add recruiting materials to our department website and</i>	<i>Chair, Department Recruiting Committee, Undergraduate Administrator</i>	<i>Ongoing</i>	<i>No</i>

		<i>social media platforms, and expand our service course selection to attract new students.</i>			
3. <b>Opportunity:</b> Outreach - There is a deep commitment by the department to earth science outreach, particularly to high school students, but also alumni and the wider community. Our sense was that there is an opportunity for the university to coordinate with and enhance departmental outreach efforts.	Agreed to if additional resources permit	We request a multipurpose teaching room dedicated to Outreach school visits, potentially for all Science departments. We request improvements to the outdoor area between Richcraft and Herzberg used for our Summer Sports Camps. We request the establishment of the Alice Wilson Geoheritage Park on campus. The Department/Faculty can help to better advertise and promote Geoheritage Day.	Dean, FMP, Chair, staff	As soon as possible – Winter 2022?	No
4. <b>Opportunity:</b> Interdisciplinarity - There are potential opportunities for the department to further engage and interact with other programs on campus. The university is prioritizing interdisciplinarity, as discussed in the Strategic Plan. The department has some obvious and existing connections to the environment, sustainability, and climate change. We encourage thinking about other opportunistic areas that are new for the discipline, interdisciplinary, and/or address grand challenges, such as data science, machine learning, and perhaps governance and policy in applied social sciences. Perhaps codeveloped programs in the direction of data science may also bring in new students to the earth sciences. Other areas of potential interdisciplinarity are in evolutionary	Agreed to if additional resources permit	<i>The department recognizes the value of collaborations with other departments and faculties. We agree that data science, computer programming, and public policy programs that exist at Carleton may be programs that our students could connect with, and also serve to attract new students into Earth Sciences from those fields. Our department experience is that new programs require faculty support – an “in-house driver” - (e.g., our Vertebrate Paleontology program) to be successful. For example, we can envision a new degree program based on a broad understanding of earth sciences coupled with other disciplines, such as history, economics, social studies, and archeology. We also see an opportunity to offer a program on Canada’s North, including earth sciences,</i>	Faculty, Dean	Ongoing	Yes

<p>biology and geobiology, given the interest that these topics are receiving, along with potential connections to biology and evolutionary ecology.</p>		<p><i>geography, social sciences, public policy, history, and climate change – but our department currently has no expertise in the geology of the North.</i></p>			
<p>5. <b>Opportunity:</b> Enhanced Indigenous and racialized engagement – both to target Indigenous students, but also to enhance student understanding of cultural, social, political aspects related to the environment and resource development in traditional territories.</p>	<p><i>Agreed to unconditionally</i></p>	<p><i>We have contacted both University Advancement and the Awards Office about establishing scholarships for under-represented students, especially Indigenous students. We will work with the Centre for Indigenous Initiatives to improve communication of concerns from Indigenous groups to our students and all members of the Department. We will also approach Equity and Inclusive Communities to evaluate how to improve the diversity of our student population.</i></p>	<p><i>Faculty, staff, students, department EDI member on Faculty of Science EDI Committee</i></p>	<p><i>Ongoing</i></p>	<p><i>No</i></p>