

Queen's University
Executive Summary of the Review of the Academic Programs in the Department of
Geological Sciences and Geological Engineering

In accordance with Queen's University Quality Assurance Processes (QUQAP), the Department of Geological Sciences and Geological Engineering submitted a self-study in August 2013 to the Faculty of Arts and Sciences, Faculty of Engineering and Applied Science, the School of Graduate Studies and the Office of the Provost and Vice-Principal (Academic) to initiate the cyclical program review of its undergraduate and graduate programs. The approved self-study presented program descriptions, learning outcomes, library report and analyses of data provided by the Office of Institutional Planning and the School of Graduate Studies. Appendices to the self-study contained CVs for each full-time member in the Department of Geological Sciences and Geological Engineering.

Three arm's-length reviewers (Dr. David Eaton, Professor, Department of Geoscience, University of Calgary, Dr. Douglas Stead, Professor and FRBC Chair, Simon Fraser University and Dr. Ralph Whitney, Associate Professor, Department of Chemistry) examined the materials and conducted a site visit on January 23 & 24, 2014. The site-visit included interviews with the Vice-Provost (Teaching and Learning), Vice-Provost and Dean of the School of Graduate Studies, Dean and Associate Dean of Arts and Science, Dean and Associate Dean of Engineering and Applied Science and meetings with undergraduate students, graduate students, post-doctoral fellows, librarians, cognate heads, staff and faculty.

In their report (February 14, 2014), the review team provided feedback that describes how the Department of Geological Sciences and Geological Engineering's programs meet the QUQAP evaluation criteria and are consistent with the university's mission and academic priorities. The review team noted that the undergraduate academic programs offered by the Department of Geological Sciences and Geological Engineering were excellent and the Department has maintained an internationally-recognized and broadly-based program of research and graduate supervision in earth-science related fields. The department also received high praise for fostering a positive atmosphere of learning and critical thinking while maintaining a tradition of addressing societal needs and practical applications in earth-science related problems.

The review team did report on a number of challenges including: time-to-completion for thesis-based graduate students within the Faculty of Arts and Science; lack of a renovation and equipment budget for teaching laboratories; heavy reliance on external funding to support some essential operations, including teaching assistants and technical staff; and, the lack of assistant professors on staff which places the faculty demographics in a vulnerable position.

Based on all of the above documentation, a *Final Assessment Report* and an *Implementation Plan* were prepared by the Vice-Provost (Teaching and Learning) and approved by the Provost (October 3, 2014).

The academic programs in the Department of Geological Sciences and Geological Engineering have been approved to continue and are scheduled for their next review in eight years (2021-2022)

**Prepared by the Vice-Provost (Teaching and Learning)
September 30, 2014**

Final Assessment Report & Implementation Plan for the Cyclical Program Review of the Academic Programs in the Department of Geological Sciences and Geological Engineering

In accordance with Queen's University Quality Assurance Processes (QUQAP), this final assessment report provides a synthesis of the external evaluation and the internal response and assessments of the graduate and undergraduate programs delivered by the Department of Geological Sciences and Geological Engineering. This report identifies the significant strengths of the programs, together with opportunities for program improvement and enhancement, and it sets out and prioritizes the recommendations that have been selected for implementation.

The report includes an Implementation Plan that identifies who will be responsible for approving the recommendations set out in the Final Assessment Report; who will be responsible for providing any resources entailed by those recommendations; any changes in organization, policy or governance that will be necessary to meet the recommendations; who will be responsible for acting on those recommendations; and, timelines for acting on and monitoring the implementation of those recommendations.

Summary of the Cyclical Program Review of the Academic Programs in the Department of Geological Sciences and Geological Engineering

The Department of Geological Sciences and Geological Engineering submitted a self-study to the Faculty of Arts and Sciences, Faculty of Engineering and Applied Science, the School of Graduate Studies and the Office of the Provost and Vice-Principal (Academic) on August 20, 2013. The self-study presented the program descriptions and learning outcomes, an analytical assessment of the academic programs, and program data including the data collected by the Office of Institutional Research and Planning and the School of Graduate Studies. Appended to the self-study were a number of documents including CVs for each member of the Department of Geological Sciences and Geological Engineering and the library report.

Two arm's-length external reviewers (Dr. David Eaton, Professor, Department of Geoscience, University of Calgary and Dr. Douglas Stead, Professor and FRBC Chair, Simon Fraser University) and one arm's-length internal reviewer (Dr. Ralph Whitney, Associate Professor, Department of Chemistry) were selected by the Vice-Provost (Teaching and Learning) in consultation with the Deans of Arts and Science and the School of Graduate Studies, from nominations submitted by the Department of Geological Sciences and Geological Engineering. The review team evaluated the self-study documentation and then conducted a site visit to Queen's on January 23-24, 2014. The site-visit included interviews with the Vice-Provost (Teaching and Learning), Vice-Provost and Dean of the School of Graduate Studies, Dean and Associate Dean of Arts and Science, Dean and Associate Dean of Engineering and Applied Science and meetings with undergraduate students, graduate students, post-doctoral fellows, librarians, cognate heads, staff and faculty.

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The review team did report on a number of challenges including: time-to-completion for thesis-based graduate students within the Faculty of Arts and Science; lack of a renovation and equipment budget for teaching laboratories; heavy reliance on external funding to support some essential operations, including teaching assistants and technical staff; and, the lack of assistant professors on staff which places the faculty demographics in a vulnerable position.

The head of the Department of Geological Sciences and Geological Engineering, after consultation with faculty and staff in the department, submitted a response to the review team report (March 24, 2014). The Dean of the School of Graduate Studies (March 31, 2014), the Dean of Arts and Science (April 3, 2014) and the Dean of Engineering and Applied Science (April 7, 2014) also submitted their responses to the Office of the Provost. Specific recommendations were discussed, and clarifications and corrections presented.

Subsequent to receipt of the review team report and the internal responses from the Department of Geological Sciences and Geological Engineering, the Dean of Arts and Science, the Dean of Engineering and Applied Science and the Dean of the School of Graduate Studies, the Senate Cyclical Program Review Committee (SCPRC) dedicated its meeting of April 22 and June 4, 2014 to this particular discussion.

The SCPRC would like to recognize the following strengths:

- **Well developed and articulated learning outcomes**
- **Excellent research profile**
- **Exceptional self-study document which not only provided a comprehensive synopsis since the last review but also articulated how the unit plans to move forward and advance its programs**
- **Impressive teaching and learning portfolio which incorporates inquiry-based learning and experiential learning opportunities**

The SCPRC would like to identify the following opportunities for enhancement. The Department of Geological Sciences and Geological Engineering is encouraged to continue to:

- **Explore ways to attract more First Nation students to its geological sciences programs**
- **Include students more extensively in the department's governance structures**
- **Take advantage of opportunities for collaboration with other units on campus, including the use of existing field stations and programs that feature GIS**

Summary of the Reviewer's Recommendations with the Department's and Deans' Responses

Graduate Program

The review team recommends developing strategies to reduce time-to-completion for thesis-based graduate students.

The department responded that it will ensure that students are aware of the mandatory requirement for annual student progress report which will assist both the student and unit with monitoring time-to-completion. In addition, the department will focus on clearer communications to students regarding the breakdown of student funding sources (scholarships, teaching assistantships, research assistantships) and how these funds are paid (monthly or by term) which will enable students to better manage their personal finances over the year.

Undergraduate Program

The review team recommended that the Geological Engineering component of APSC 151 should be retained and supported, as the current course content and delivery of this course enables Queen's to produce unique engineering graduates of value, internationally and nationally, to a resource-based economy.

The dean of engineering and applied science responded that Queen's engineering is unique because of its common first year with "free choice" into second year with very limited constraints. Therefore all courses in first year must meet CEAB requirements and provide a basis for admission to all ten engineering and applied science programs. Any changes to curriculum are undertaken through committees which involve representation from across the programs by both students and faculty members. The geological engineering program has a strong reputation and the FEAS would anticipate that its enrolment would remain strong should curriculum changes impact APSC 151.

Structure

The review team recommended that in the context of proposed changes to departmental budget processes, the Faculty of Arts and Science should strive to adapt policies that do not overreact to cyclical enrolment patterns.

The dean of arts and science responded that the faculty recognizes that cyclical enrolment patterns may be problematic for units like Geological Sciences and Geological Engineering in the context of an activity-based budget. The dean's response went on to say that the faculty intended to develop appropriate mechanisms in their implementation of the new budget model to buffer the department against budgetary fluctuations due to cyclical enrolment patterns.

Implementation Plan:

Recommendation	Proposed Follow-up	Responsibility for Leading Follow-up	Timeline for Addressing Recommendation
1. Improve lines of communication between the Faculty of Arts and Science and the Faculty of Engineering and Applied Science to ensure effective and integrated program decisions and continued student satisfaction.	Initiate retreat with relevant deans, associate deans, department head and senior faculty to ensure discussions involving strategic planning, budgeting and revenue generation are inclusive	Deans of Engineering and Applied Science and Arts and Science	Dean of Engineering and Applied Science's <i>Annual Report</i> to the Provost 2015 Dean of Arts and Science's <i>Annual Report</i> to the Provost 2015
2. Seek ways to reduce time-to-completion for thesis-based graduate students.	Consult with other departments and the School of Graduate Studies to identify best practices	Head, Department of Geological Sciences and Geological (GSGE) Engineering and the Vice-Provost and Dean, School of Graduate Studies	Vice-Provost and Dean of the School of Graduate Studies' <i>Annual Report</i> to the Provost 2015
3. Continue to develop the proposed two new professional master's program in <i>Natural Resource Intelligence</i> and in <i>Earth and Energy Resources Leadership</i> with an eye to diversifying the unit's program offerings by launching new credentials.	Department and School of Graduate Studies collaborate in steering proposal for new program(s) through QUQAP process	Head, Department of Geological Sciences and Geological (GSGE) and Vice-Provost and Dean, School of Graduate Studies	Dean of the School of Graduate Studies' <i>Annual Report</i> to the Provost 2015
4. Build on its pedagogical innovation by developing blended, online and modular courses as appropriate to its programs.	Initiate meeting with Associate Vice-Provost (Teaching and Learning)	Head, Department of Geological Sciences and Geological (GSGE) and Associate Vice-Provost (Teaching	Dean of Engineering and Applied Science's <i>Annual Report</i> to the Provost 2015

		and Learning)	Dean of Arts and Science's <i>Annual Report</i> to the Provost 2015
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The Deans of Arts and Science, Engineering and Applied Science and School of Graduate Studies, in consultation with the Head of the Department of Geological Sciences and Geological Engineering shall be responsible for monitoring the Implementation Plan. The details of progress made will be presented in the Deans' Annual Reports and filed in the Office of the Provost and Vice-Principal (Academic). Monitoring reports will be posted on the university web site.

Final Assessment Report & Implementation Plan

29 10-14

Approval Date

Vice-Provost (Teaching and Learning)

Signature

Dean, Faculty of Arts and Science

Signature

Dean, Faculty of Engineering and Applied Science

Signature

Vice-Provost and Dean, School of Graduate Studies

Signature

Final status of academic programs in the
Department of Geological Sciences and Geological Engineering

Approved to Continue

Date of next program review

2021/2022 Academic year

