

FINAL ASSESSMENT REPORT AND IMPLEMENTATION PLAN

PROGRAM UNDER REVIEW

PROGRAM	SENATE APPROVAL DATE	PREPARED BY
Biology and Chemistry	October 13, 2023	Provost and Vice-President

A. SUMMARY OF REVIEW PROCESS & LISTING OF PROGRAMS UNDER REVIEW

SELF-STUDY REVIEW TIMELINE	DATE
1. Self-Study Presented to AQAPC	April 22, 2022
2. Site Visit Conducted	April 17-19, 2023 (Virtually)
3. Reviewer's Report Received	April 27, 2023
4. Internal Reviewers Response Received	July 6, 2023
5. Dean's Response Received	July 6, 2023

The members of the review committee were:

- Dr. Joanna Freeland, Trent University
- Dr. Greg Thorn, University of Western Ontario

The academic programs offered by the Department which were examined as part of the review included:

- BSc Biology
- BSc Environmental Biology and Technology

This review was conducted under the terms and conditions of the IQAP approved by Senate on November 27, 2018 and re-ratified by Quality Council on April 26, 2019.

B. PROGRAM STRENGTHS

The Department of Biology and Chemistry at Nipissing University will provide students with a formative undergraduate experience that prepares graduates to make significant contributions to society. Our approach to student success will focus on the mastering of fundamental biological and chemical knowledge, as well as developing practical skills through significant hands-on laboratory and field experiences. We will encourage our students to pursue active roles in the community through their vocation, and will provide opportunities for engagement at the local, national and international levels.

C. OPPORTUNITIES FOR IMPROVEMENT AND ENHANCEMENT

External Reviewers Recommendation #1: Work with the Dean and Provost offices to develop a plan for faculty renewal, including tenure-track and full-time instructors lost in recent years. Develop a three-year faculty and technologist renewal plan which complements the curriculum review and proposals for new degrees (see [2,3,4,5])

Unit's Response: We completely agree that such a plan is needed. We are committed to working on such a plan, with the department having an opportunity to express its goals for growth in specific areas. New degree proposals should be considered dependent on appropriate faculty resources.

Dean's Response: I agree with the External Reviewers and Internal Reviewers recommendation to develop a plan for faculty renewal that compliments the curriculum review. However, I note that requests for positions are subject to budgetary processes and approvals within the Faculty and the University as a whole. The current number of full-time instructors is sufficient to cover the number of labs being offered.

Provost's Response: The University is committed to working with the unit and Dean on developing a plan that meets with needs of the students and supports academic program renewal.

External Reviewers Recommendation #2: Work with the Dean and Provost offices to agree on budget support, both personnel and operational, that acknowledges the significant service teaching by Biology & Chemistry over and above the respectable number of students enrolled in Biology and Environmental Science and Technology programs. This could include a new faculty member hired primarily to support the Nursing program, but who would be housed in the Biology and Chemistry Department where they could contribute to additional programs, collaborate with other biologists, and supervise undergraduate thesis students.

Unit's Response: We agree that the service Biology provides to other programs is undervalued and not reflected adequately in budgetary allotments or faculty hiring. We would welcome the opportunity to resolve this problem.

Dean's Response: I acknowledge that the Department of Biology & Chemistry provides valuable service teaching, particularly in the Nursing programs. Much of this service teaching is provided by the full-time lab instructors in the Department. The Dean's office has been working with the Department for the last 3-years to develop a budget that accurately captures the cost of delivering services courses to the other programs. There is a transfer funds from the Faculty of Education and Professional Studies to the Faculty of Arts and Science to deliver service courses. The Deans of both Faculties have had preliminary conversations about hiring personnel to support the Nursing program. However, I note that requests for positions are subject to budgetary processes and approvals within the Faculty and the University as a whole.

Provost's Response: The University appreciates the external reviewers' recommendation to review how service teaching is budgeted and more globally understood at Nipissing. And we will undertake a review of the dependencies between faculties as part of our ongoing review of program delivery and student support.

External Reviewers Recommendation #3: Conduct a thorough departmental curriculum review that considers pathways, prerequisites, and the feasibility of offering courses to students (i.e., teaching capacity). Courses that have not been offered for three or more years, and which are unlikely to be offered in the foreseeable future, should be removed from the calendar. Each year, update a three-year course plan on the department website so that students can better plan their progression through their degree. Identify upper-year courses that would benefit from labs, and build these into the renewal plan (see [1]). If new labs are added to existing courses or new stand-alone lab courses are created, these should be developed by faculty working together with the full-time lab instructors who would put these on.

Unit's Response: We acknowledge that the department is in critical need of a curriculum review. Our goal is to conduct such a review within one calendar year of the acceptance of this report.

Dean's Response: I agree with the External Reviewers and Internal Reviewers recommendation to conduct a thorough curriculum review. I agree that the faculty members should work in collaboration with the full-time lab instructors to help develop labs that complement the lecture material. I agree that a 3-year course cycling plan should be posted on the Department website so that students can plan their progression through their degree program.

Provost's Response: On a go-forward, the University expects that curriculum review will be an integral formal part of our quality assurances processes. Moreover, the University recognizes the importance of defining 3-year course cycles and being able to share this information with students.

External Reviewers Recommendation #4: Build on departmental strengths, including excellent student experience in first- and second-year teaching, a breadth of organismal biology including plant sciences (some strength lost recently due to leaves) and zoology (lost due to recent retirement), and general, organic, and analytical chemistry (lab instructors lost to recent departures). The proposed biomedical sciences program threatens to dilute these strengths and will require significant additional hires to build a credible and successful program; we argue that this proposal should be reconsidered. Students in a biomedical science program will not be satisfied (neither in terms of their wants nor their career requirements) with the existing courses offered in Biology & Chemistry, and developing the new courses required will necessitate new hires in areas of expertise beyond those currently available in the department. In contrast, we argue that a One Health program would require fewer new hires and would build on existing strengths in the departments of Biology & Chemistry and Geography. One Health should attract students who are more interested in 'health' streams than 'ecology' streams without unduly stretching the resources of the department and its collaborative departments.

Unit's Response: We appreciate the suggestion. The department will review the current biomedical science proposal (stage one approval) and consider the alternative option of a one-health program. We will consult with our partners (Psychology and Neuroscience) on this point. Our goal is to resolve this question within one year of the acceptance of this report.

Dean's Response: I agree with the External Reviewers recommendation that the curriculum review should consider the current breadth of course offerings, including plant sciences, zoology, and chemistry. I agree that the Department does not have complement of faculty expertise to offer a Biomedical science program. A Health Science program, with support from faculty members in Psychology and other programs, is a more realistic alternative.

Provost's Response: The University looks forward to the sober reflection of the unit, as their Stage One plan for a biomedical science program does not have the support of the external reviewers. Helpfully, the reviewers have proposed an alternative direction in Health Science that will align with the expertise and aspirations of the unit.

External Reviewers Recommendation #5: Build greater course diversity for students in the program through cross-listing relevant courses already offered by other departments at Nipissing University and by joining the Ontario Universities Program in Field Biology (OUPFB) to allow students to access field courses in topic areas that Nipissing University cannot offer. The registrar's office needs to work on a version of the calendar that more clearly identifies cross-listed courses regardless of the home department.

Unit's Response: We appreciate the suggestion. We will appoint a faculty member to examine this possibility and pursue membership in the OUPFB. Our goal will be to obtain such membership within two years of the date of the acceptance of this report.

Dean's Response: I agree with the External Reviewers recommendation to cross-list appropriate courses from other programs to increase the breadth of courses available to Biology majors. There are science courses within Psychology

and Geography that would be appropriate to cross-list. Participation in the Ontario Universities Program in Field Biology would give Nipissing students access to areas outside the expertise of the current faculty members.

Provost's Response: The University agrees that degree programs should search for affinities across Arts and Science to bolster their degree offerings and to support students' navigation of the academic journey. I caution the need for cross-listing; let's not rush to an administrative solution to what is, at first, an academic question of affinity.

External Reviewers Recommendation #6: Meet with the Dean and Provost offices to reconsider whether the proposed merger of the Biology & Chemistry and Geography departments will yield substantial savings that would offset the costs in reduced attractiveness to potential students and their parents. Mergers of small departments in cognate disciplines with few faculty and few students in their programs make sense, but a merger of two moderately large (for Nipissing University) departments with substantial numbers of students in their undergraduate programs does not.

Unit's Response: We continue in our opposition to the merger of Biology and Chemistry with Geography. We agree with the reviewers that this merger does not make sense and have argued in many previous fora that it will not generate sufficient savings to justify it.

Dean's Response: I respectfully disagree with the External Reviewers and Internal Reviewers opinion on the merger. While the Departments of Biology and Chemistry, and Geography are large by Nipissing's standard, even combined they are relatively small compared to Departments at other universities in the province. Students apply to programs not Departments, so we do not anticipate the merger will impact the attractiveness of the individual programs. There are teaching and research synergies among these units, specifically around the environment (land, water, people and place), which is a central focus of our institutional strategic plan. Biology, Chemistry and Geography has developed an Environmental Science program that is currently under review by the province. This is not simply a cost saving initiative.

Provost's Response: The University is committed to coherent academic units that provide an administrative home to multiple degree programs and that ensure that students can feel a sense of belonging in their areas of study and the academic community writ large.

External Reviewers Recommendation #7: The issue of student retention is complex but needs addressing. Introduce annual student surveys to quantify some of the roots of student dissatisfaction or failure, e.g. course options. Work with the Registrar's Office to test the hypothesis that students with lower incoming high school grades are less likely to complete their degrees. Regularly liaise with student advisors for insight into why students are not completing their degree and to better understand where students who leave the program are likely to go (e.g. college, other university, workforce). Consider adding a student representative to regularly scheduled faculty meetings.

Unit's Response: We are aware of the retention problem. The suggestions here for identifying and dealing with the causes of that problem are welcome, and we would fully participate in any efforts (e.g. surveys). We would like to point out that the lack of diversity in course offerings (a direct result of lack of faculty renewal) has already been identified in the report as a problem by the students.

Dean's Response: I agree with the External Reviewers and Internal Reviewers recommendation to investigate the reason(s) for poor retention in the program. A survey of students and feedback from Academic Advising on an annual basis is a good idea. Moving forward, the Dean's office will receive the Academic Probation list by program to help identify student retention issues.

Provost's Response: The University must understand with granularity the retention and persistence profile of each degree program. Retention is the responsibility of all members of the community and we must work in concert to ensure that all students have the best experience possible throughout their studies. It is certainly not enough to recruit an incoming class only to see students opt-out or lose their passion for post-secondary education. The

University must adopt a life cycle model of recruitment -> admission -> retention -> graduation and ongoing alumni involvement.

The external reviewers suggest that a student should be a regular member of faculty meetings; it is vital that real-time student voice inform ongoing conversations. To be clear, this is not NUSU representation, but instead a student interested in a role in helping to shape the departmental conversations.

External Reviewers Recommendation #8: Work with the Research Office to identify sources of research funding that are not limited to Tri-council funding, and work with the Dean's office to negotiate a broader incorporation of research funding into workload considerations. Use faculty renewal (see [1, 2]) and reasonable teaching release in recognition of research funding success as opportunities to build a greater research culture in the department.

Unit's Response: The department welcomes any and all support from the research office or other groups designed to increase our success in attracting research funding, training undergraduate and graduate students, and building partnerships with external agencies and community groups. We do have some examples of this already occurring within our department from which to build. There are likely additional supports required (outside this department) to build the research culture at Nipissing in general.

It is puzzling that only tri-council grants are treated as research funding deserving of support (course release), when in fact there are larger grants with more administrative requirements held by faculty that are not recognized by the university. We will gladly work with the Dean to resolve this.

Our lack of any greenhouse technical support causes that faculty to underachieve in terms of research productivity.

Dean's Response: The Office of Graduate Studies, Research and Innovation and the A&S Dean's office will continue to work with faculty to expand research activity within this unit. We do value all research activity regardless of the source of funding. However, I respectfully disagree with the External Reviewers and Internal Reviewers recommendation that additional support and course release be given to develop a research culture within the Department. The Office of Graduate Studies, Research and Innovation has led efforts to develop fee-for-service contracts with external partners to support the greenhouse facility, nuclear magnetic resonance spectroscopy, and the central analytical facility. The Office funds the operating and maintenance costs associated these and other laboratory equipment. The Office provides workshops on grant writing and circulates notices about external research funding opportunities. The faculty members need to take the lead on writing and submitting grant applications. Also, the FASBU Collective Agreement Article 28.2(f) provides the opportunity for faculty members to apply for a research intensive workload for research activity that is not supported by tri-council funding.

Provost's Response: Research is an essential part of every faculty member's contribution to Nipissing. Ensuring that all faculty contribute to a research culture that privileges original scholarship and knowledge mobilization which advances the discipline and animates teaching is a priority. All faculty need to be creative as they approach sources of funding and prospective partnerships. And, as an institution, we are committed to facilitating funding and partnerships that conform to our ethical obligations in community.

To clarify the reason why tri-agency funding is given paramountcy: All Canadian universities (in good standing) receive Research Support Fund funding which is based on a three-year rolling average of success in tri-agency research competitions. This funding is earmarked for research support, e.g., the research office staff, research software, etc. Course releases are an ineligible expense. However, the value of tri-agency funding to the university and to the researcher who receives funding through a rigorous peer-reviewed process is uncontested.

RECOMMENDATIONS BY THE PROVOST	RESPONSIBLE MEMBER/UNIT	PROJECTED COMPLETION
Recommendation #3: Urgent curriculum review will have implications for other recommendations especially #2, 4 and 5.	Chair and Dean	December 1, 2023
Recommendation #7: Review of retention concerns; this information should inform curriculum review and any other recommendations about program design and budget model.	Chair and Dean	November 1, 2023

E. CONFIDENTIAL COMMENTS

(This is an optional area that can be used to discuss confidential matters that need to be addressed. This section will be removed when posting the Final Assessment Report on the Quality Assurance Website)