UNIVERSITY OF CALGARY | FACULTY OF SCIENCE

CURRICULUM REVIEW REPORT

NATURAL SCIENCES PROGRAM

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The Natural Sciences (NTSC) Program is a multidisciplinary undergraduate Program within the Faculty of Science. It offers students the flexibility to tailor their degree around their scientific interests and the opportunity to gain a big picture perspective on science as they build collaborative competencies. Our staff numbers are small (9 academic staff members, 1 administrator) but our student numbers are substantial (Fall 2014 – 539 students), and the needs in the Faculty of Science that we contribute to are significant.

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also benefit from our multidisciplinary courses; our science writing course serves Geology and Chemistry majors, and our course in the nature of science serves non-science students. These courses have been collaboratively built and involve a variety of high impact teaching practices. Experiences in these classes have been informed by findings from current scientific research and educational research on learning.

Program Learning Outcomes (PLOs):

By the end of the Natural Sciences Program, students will be expected to be able to:

1. Collaborate with people from different disciplines to enable a multidisciplinary approach to solving problems.

2. Find, read, and evaluate scientific evidence and use this evidence to support or reject a scientific argument.

3. Negotiate conflicting sources of evidence and interpretation to arrive at well-reasoned conclusions.

4. Communicate scientific ideas to a range of audiences in written, oral or graphical formats to create a bridge between scientific research and society.

5. Apply scientific knowledge and skills to design experiments and draw valid inferences from data analyses.

6. Develop awareness that science is a human endeavor and is situated in social contexts.

Natural Science Program Questions:

1. How does the Natural Sciences Program prepare students for further study?
2. How can the Natural Sciences Program enhance the student experience through teaching and learning activities?
3. Does the Natural Sciences Program provide interdisciplinary opportunities and develop collaborative competencies?

Faculty-Wide Questions:

Based on the data from the National Survey of Student Engagement, the Faculty of Science is seeking additional information regarding High-Impact Educational Practices. High-Impact Practices (HIPs) share several traits: They generally demand considerable time and effort, facilitate learning outside of the classroom, require meaningful interactions between faculty and students, encourage collaboration with diverse others, and provide frequent and substantive feedback. Examples of HIPs include, but are not limited to:

- Learning community or some other formal program where groups of students take two or more classes together
- Courses that included a community-based project (service-learning)
- Work with a faculty member on a research project
- Internship, co-op, field experience, student teaching, or clinical placement
- Study abroad
- Culminating senior experience (capstone course, senior project or thesis, comprehensive exam, portfolio, etc.)

1. Are High Impact Practices being used regularly in the Natural Sciences Program?
2. If not, what is preventing these practices from being used?

Recommendation	Action Item	Who is Responsible?	Due Date
Program goals: Align with Faculty of Science values on interdisciplinarity and support this alignment to enhance student learning [to address our Guiding Question 3 & the Faculty-Wide Questions]	1. Encourage conversation at Faculty of Science level surrounding the value of a multidisciplinary approach and how the Natural Sciences Program can serve as a resource for this.	Program Director in consultation with other NTSC faculty members	Ongoing to 2021
	2. Encourage conversation at Faculty of Science level around how to best support students, faculty, and courses within the Energy Science concentration	Program Director in consultation with other NTSC faculty members	Ongoing to 2021
	3. Build community via a HIP at the program level to improve our communication with students and the wider community about the advantage a NTSC degree offers	Program Director in consultation with other NTSC faculty members	Ongoing to 2021
	4. Develop connections with Natural Sciences Student Association to promote program (e.g. inquire about NTSC gear at U of C bookstore)	Program Director in consultation with other NTSC faculty members	Summer/Fall 2017
Course design: Highlight expectations of the development of skills throughout required courses [to address our Guiding Questions 1 & 3]	5. Add PLOs and Graduate Attribute information to our course syllabi to reveal these goals of progression to students in the required courses (SCIE 301, SCIE 403, SCIE 501/529)	Course Lead faculty members in consultation with other NTSC faculty members	Fall 2018
	6. Prepare notes on direction for further course design of SCIE 423 (e.g. would be ideal for CLOs to develop PLO1); these notes would be starting point for next instructor staffing the course.	Program Director (or delegate)	Summer 2017
Teaching and Learning: Provide professional development opportunities for academic staff to communicate successes in teaching and learning innovations	7. Develop an online resource for NTSC faculty members to stay connected about important curricular issues within the	Curriculum Review Lead	Completed December 2016.

	program and beyond to continue the process of Curriculum Review
Teaching and Learning: (continued) [to address our Guiding Questions 2&3]	8. Plan session for instructors to share strategies and techniques.
	9. Explore resources for enhancing student experience through in-class experiment opportunities
	10. Generate a list of titles for historic SCIE507 offerings 1

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The Natural Sciences (NTSC) Program is a multidisciplinary undergraduate Program within the Faculty of Science. The Natural Sciences Program fits between Science Departments and offers courses to help students see connections across science as a whole. The Natural Sciences Program at the University of Calgary is positioned to help students develop a multi-