**Curriculum Renewal:**

**Analysis and Action Plan Template 2013/14**

| **Program Coordinator:**  | **Eric Sager** | **School:** | **SENRS** |
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| **Program Code:** | **ERJ** | **Date Completed:** | **October 31,2014** |
| **Program Name:**  | **Ecological Restoration Joint Honours B.Sc.** |

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| **A. Analysis of Indicators**Note: data is **not** recorded in this section of the template.**Reflect on, and discuss, the following indicators in the context of the curriculum and program:**   |
| 1. **Industry / Sector Trends**
	1. Are there new or emergent *industry or sector* related issues and trends identified over the past year and their potential impact on the program?

**The change in the federal environmental legislation this past year clearly creates a climate of resource development in Canada across all sectors (mines, gas/oil, aggregate), but there is also increased attention being paid to post-development remediation and reclamation. As such, there is significant demand for graduates that have some hands-on experience as well as a strong understanding of the discipline of ecological restoration. In addition, many of the new development projects are occurring on lands that are under current treaty negotiations with First Nations Communities or are happening in direct partnerships with First Nations. Thus there is also a need for practitioners to have a working knowledge of the important cultural practices and accommodations that need to be undertaken, which aligns quite nicely with our current curriculum and partnerships with the Indigenous Environmental Studies Program at our partner institution.****In addition to this new development, there continues to be a need at a more regional and local level to deal with legacy sites related to invasive species, eutrophication, resource extraction, intensive silvicultural, and industrial agriculture. These projects require individuals with a range of quantitative and qualitative skill sets at both the organismal, chemical, and ecosystem level.*** 1. What are the Advisory Committee recommendations from the past year that will affect the positioning, nature, or scope of the program?

**There was some discussion about integrating a more formal internship experience for all of our students in their 4th year so they can get some very practical experience. This happens for a proportion of our students already as they are participating in community based education projects through the Trent Centre for Community Based Education. This may also create opportunities for increased student mentoring opportunities between upper year students in our program and 1st or 2nd year students. We’ve already had situations whereby upper year students have been involved in the scoping and planning end of a community based restoration project and then have worked with program faculty to have 1st or 2nd year students provide the labour to implement the project.*** 1. What information / observations have been generated via faculty and staff professional development, engagement in sectoral and profession associations, and involvement in community and employer networks connected to the field?

**Faculty at both institutions are have active research programs related to mine site restoration, air pollution monitoring and effects, invasive species management, climate change impacts, lake management, and conservation biology. They are routinely attending applied and professional meetings at the regional, national, and international level and incorporating their own experiences and that of their research colleagues into their course curriculum. This approach is vital for ensuring that our students are receiving living curriculum and can be provided with practical case studies of which faculty are intimately familiar. Through these faculty networks our students have been involved with research projects ranging from the impacts of the tar sands in northern Alberta to Socio-cultural restoration in South Africa. They’ve been involved with partnerships with local lake associations (Kawartha Lakes Stewards Association, Haliburton Coalition of Lake Associations), Conservation Authorities (Kawartha Conservation, Toronto Region Conservation, Ottonabee Region Conservation), First Nation Communities (Curve Lake, Aldervilee, Hiawatha, Six Nations), provincial and federal government agencies (Ministry of the Environment, Ministry of Natural Resources and Forestry, Environment Canada), and a number of private sector companies.*** 1. Are there new or changing employment trends in the industry or sector?

**We are finding that the degree/diploma credential that our students are receiving is seen as quite valuable by potential employers. We are also finding that a large proportion of our students are choosing to pursue additional studies at the masters and Ph.D. level and the feed back which sets them up well for positions more senior positions in the private sector and government agencies.*** 1. What are the curriculum issues / strengths that have been identified by employers pertaining to graduate job readiness?

**Employers and graduate supervisors routinely comment about the strength of our students in the field setting. They are very familiar with the different methodological approaches to sampling and characterizing terrestrial and aquatic communities as well as being prepared for the rigors of field work. Employers also routinely emphasize the need for graduates to be able to work effectively in a group setting, to be effective communicators, and to be effective problem solvers. These skills are addressed directly in a number of our courses, but are also woven into the fabricate of our entire curriculum.**  |
| **2. Curriculum Development*** 1. Have there been any curriculum changes in the last year such as changes in course content and course materials, course / program outcomes, innovative delivery approaches, assessment practices, applied learning experiences, e-learning / blended learning? If yes, please provide details.

**Faculty are routinely updating curriculum to meet with emerging trends in their respective disciplines. They routinely look for opportunities whereby students can get involved with applied experiences (i.e. work with Community based education and research centres (TCCBE, ULinks, Clinks)). There will likely be updates/changes to our curriculum in years 1 and 2 to align our program with recent changes in curriculum within the School of Environmental and Natural Resource Sciences at Fleming, but at this point we have maintained our original selection of courses. At the university, our students have much more flexibility and thus are able to take advantage of special interest courses that may be offered by visiting faculty. The goal is to continue to offer our students a good balance of applied and theoretical curriculum that exposes them to the latest trends and technological advances in the field.*** 1. Does the current curriculum align with the college’s e-learning strategy which strives to have all Fleming graduates experience e-learning in each semester of their program?

**Yes*** 1. Are there any recent or anticipated initiatives that promote student pathways including dual credits, partnerships with high schools, program laddering, and university transfer / articulations, continuing education?

**To the extent that the above apply, we have no new initiatives planned.*** 1. Are there any new competitor programs and/or re-positioning of existing programs?

**We are still the only program offering the dual credential in Ecological Restoration.*** 1. Are there any new or changing provincial standards, standards for accreditation, credentials, and / or industry or sector certifications over the past year?

**Given the multidisciplinary nature of our program, there are many different credentials and accreditations that our students have gained, but largely on their own volition.*** 1. What is the progress made from the last curriculum renewal initiative?
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| **3. Applied Learning*** 1. Does the current program contain a discrete Applied Learning opportunity for students? If yes, which category of Applied Learning is fulfilled?

**Our students participate in field work (direct and indirect supervision) and some will also undertake an applied research project through the Community Based Education Program during years 3 and 4 of their studies.**\_**X**\_ Field Work (Indirect Supervision)\_**X**\_ Field Work (Direct Supervision)\_\_\_ Co-op\_**X**\_ Applied Project / Applied Research Project* 1. If the answer to 3.1 is no, are there plans to create a discrete Applied Learning opportunity for students within this program? Why or why not?
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| **4. Student and Graduate Satisfaction**4.1 Key performance indicators # 4, 8, 9, and 11 (see **Appendix of Curriculum Guide** for a description of these).

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| **KPI**  | **Program** | **College** | **System** |
| **KPI # 4 Graduate Satisfaction with Generic and Vocational Learning Outcomes – 2012/2013** | 6(N), 71.60(%) | 925(N), 86.07(%) | 75(N), 75.86(%) |
| **KPI # 8 Student Satisfaction with Learning Experience – Winter 2014** | 40(N), 92.5(%) | 3730(N), 82.58(%) | 546(N), 83.44(%) |
| **KPI # 9 Student Satisfaction with Teachers – Winter 2014** | 40(N), 87.5(%) | 3730(N), 73.92(%) | 546(N), 79.37(%)  |
| **KPI # 11 Graduate Satisfaction with Program - 2012/2013** | 11(N), 76.26(%) | 1513(N), 82.66(%) | 166(N), 75.39(%) |

4.2 Review and discuss student retention on a semester by semester basis over the past year. |
| **B. Curriculum Strengths and Challenges** Summarize the curriculum strengths and challenges identified by the team.  |
| **We will be graduating our 4th cohort at the end of this academic year and continue to conduct our own informal exit interviews to get important feedback from the students. We also have created partnerships with some of our recent graduates who are working in the field which is an excellent way for our current students to gage their own future opportunities.*** **Between 40-50% of our students are successful in meeting the academic requirements (minimum 65 in SCIE118) to progress from Semester 1 to Semester 2. The main reason for this trend seems to be related to a range of issues including lack of individual effort, personal complications, lack of interest in the program, and the students being more interested in a post-secondary program that is shorter in duration.**
* **We have assembled an excellent team of instructors from multiple programs and disciplines to deliver our curriculum and continue to receive excellent feedback from students. Since many of the same courses are being offered at the university we are fortunate to have attracted some of those same individuals to offer their course with us (i.e. James Wilkes (Indigenous Environmental Studies who is also teaching in the Indigenous Environmental Studies Program at Trent), Dr. Mark Dzurko (a SENRS faculty teaching chemistry), Dr. David Woodfine (Summer Field Camp), Dr. Peter Lapp (from the School of General Arts and Sciences who teaches the 1st eyar Critical Reading and Writing and Readings in Restoration courses), Dr. Gord Balch (Senior Scientist in the CAWT and co-instructor of our Methods in Environmental Science course), and Dr. Lisa Kraemer (who teaches our Introduction to Math courses and the Ecology course and has a long history of teaching in the Environmental and Resource Studies Program at Trent). As well, we’ve been fortunate to take advantage of the excellent curriculum already being delivered by Brian Gerry, Karen Whillans-Browning, and Barb Elliot in their home programs, as well as some of the curriculum of the common 1st and 2nd Semester courses at SENRS. We have also been exceptionally pleased with the efforts of our technical staff – specifically Mark Newell and Scott Miles.**
* **Through connections of our faculty, we are exposing our students to many on-going and applied research and restoration projects. Examples include the work underway in the Sudbury region of Ontario following decades of mining activities, Kawartha Lakes planning initiatives being carried out by Kawartha Conservation, stream and wetland restorations being carried out by OFAH, Tall grass prairie restoration at the Alderville Black Oak Savannah and Nature Conservancy of Canada (this is a partnership created by one of our most recent graduates, Val Deziel), sustainable forest management activities at the Haliburton Forest and Wildlife Reserve, long-term watershed monitoring at the Dorset MOE site, invasive aquatic plant management with the Ministry of Natural Resources and Forestry, and many more.**
* **We routinely get comments from university faculty that the ERJ students that are completely years 3 and 4 at Trent are confident in their contributions to class discussions, incredibly comfortable in field settings, and have a very solid foundation in communication skills with respect to their writing abilities and oral presentation skills. Essentially our students are behaving no different than their counterparts – they represent some of the brightest and more motivated students.**
* **Challenges that we are faced with are related to space at the FROST campus for storage of field samples, equipment, and program resources. Currently some of this is stored in the office of the coordinator and program technician. In addition, since Scott Miles primary responsibilities are to the ET program here at SENRS, he has graciously carved out some space in his lab/office. Our long-term hope would be to have our own prep space – similar to that provided to the other SENRS programs. Our University partner has provided dedicated lab space for our upper year students that are completing independent projects, which has been invaluable.**
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| **C. Action Plan**Identify priority actions for the next year and the rationale for their inclusion. For each, indicate the project lead, and the proposed timelines for completion. **What resources are required to complete the action plan, i.e., software, equipment, and training?**  |
| * **We will continue to work with our partners at the university to gain feedback from students that are exiting the program and also continue to track the activities of our graduates. We’ve started asking those students that are completing graduate work to come and speak to our 1st and 2nd year students to get them interested in future research and also expose them to a broader network of post-secondary institutions that are involved in restoration research.**
* **We will continue to create opportunities where our third and fourth year students can mentor and interact with our first and second year students. In past summers, two of our fourth year students completed a community-based education course centered around the creation of an outdoor classroom. We then had the outdoor classroom “assembled” by our second year students during their summer field camp. We are also having those students that are completing a fourth-year honour’s thesis at Trent provide an overview of their research to the first and second year students as a way of providing some context to the opportunities that await them at the university. We are also supporting our students in their desires to create a formal student chapter of the Society of Ecological Restoration which would foster participation among students in all four years of our program.**

**As with many applied environmental programs, excellent summer job opportunities in the field are an essential component for our students in terms of applying classroom knowledge and skills and the creation of an individuals network. We continue to try and secure funding to create those opportunities through individual faculty research, but also are trying to establish connections with local government agencies and communities. We think that the Centre for Alternative Wastewater Treatment at Fleming offers an excellent opportunity to secure funding that can be used to hire our students and thus give them important on the job training. This past summer, with a partnership with Envirocience, Ltd., and Fleming faculty, we hired two ERJ students to carry out research related to aquatic plant management.** |
| **D. Deferred Actions**Record any issues that will need to bemonitored, researched, or deferred for future action. |
| * **We are waiting for the complete roll out of new SENRS programs until we change the curriculum for the first two years of our program. We will continue to conduct exit interviews to ensure that the course experience in years 3 and 4 is additive and not redundant, relative to years 1 and 2.**
* **We will continue to search for partnerships with industry and government agencies for research placements and summer job opportunities for our program students.**
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| **E. Attach an updated Program Curriculum Map to your report**  |
| Please file an updated Program Curriculum Map in folder named Program Curriculum Map.: **S:\shared data\CLT\School Name\Program Name\Program Curriculum Map** |