



Small TLEF Project – Final Report

Report Completion Date: (YYYY/MM/DD)

1. PROJECT OVERVIEW

1.1. General Information

Project Title:	Themes to learn by - An integrated first year cohort option for Forestry and Land and Food Systems students		
Principal Investigator:	Christine Scaman		
Report Submitted By:	Christine Scaman		
Project Initiation Date:	July 1 2017	Project Completion Date:	July 31 2018

1.2. Project Summary

1.3. Team Members – (Please fill in the following table and include students, undergraduate or graduate, who participated in your project).

Name	Title/Affiliation	Responsibilities/Roles
Christine Scaman	Associate Professor, Associate Dean Academic, Food, Nutrition and Health, Faculty of Land and Food Systems	Principal Investigator: Lead and oversee the project, especially on matters relating to the Faculty of Land and Food Systems.
Robert Kozak	Professor, Associate Dean Academic, Department of Wood Science, Faculty of Forestry	Co-investigator: Lead and oversee the project, especially on matters relating to the Faculty of Forestry.
Guopeng Fu	Teaching and Learning Fellow, Faculty of Land and Food Systems	Project Coordinator: Manage the project including curriculum development, preparation for Faculties and Senate approval, course scheduling, program evaluation design.
Sophie Le Noble	Work learn student, Faculty of Forestry	Project Assistant: Course material development, literature search, course mapping and scheduling.

1.4. Courses Reached – Please fill in the following table with past, current, and future courses and sections (e.g. HIST 101, 002, 2017/2018, Sep) that have been/will be reached by your project, including courses not included in your original proposal (you may adapt this section to the context of your project as necessary).

Course	Section	Academic Year	Term (Summer/Fall/Winter)
BIOL 121	125	2018/2019, Sep & on	Fall



FRST 101	101	2018/2019, Sep & on	Fall
FRST 110	101	2018/2019, Sep & on	Fall & Winter
FRST 150	201	2018/2019, Jan & on	Winter
LFS 101	101	2018/2019, Sep & on	Fall
LFS 110	101	2018/2019, Sep & on	Fall & Winter
LFS 150	201	2018/2019, Jan & on	Winter
MATH 102	111	2018/2019, Sep & on	Fall

2. OUTPUTS AND/OR PRODUCTS

2.1. Please list project outputs and/or products (e.g. resources, infrastructure, new courses/programs). Indicate the current location of such products and provide a URL if applicable.

Product(s)/Achievement(s):	Location:
A 15-credit first year option jointly developed by the Faculty of Forestry and the Faculty of Land and Food Systems including FRST/LFS 101, FRST/LFS 110, FRST/LFS 150, BIOL 121 & MATH 102. The option has successfully admitted 52 students, 25 from the Faculty of Forestry and 27 from the Faculty of Land and Food Systems (This project planned to enroll a maximum of 60 students in total).	http://www.calendar.ubc.ca/vancouver/index.cfm?tree=12,203,1014,0
Five newly developed first year courses for Land One students: FRST/LFS 101, FRST/LFS 110, & FRST 150	http://www.calendar.ubc.ca/vancouver/courses.cfm?code=LFS & http://www.calendar.ubc.ca/vancouver/courses.cfm?code=FRST
A Land One website has been built to promote Land One, provide information to students, instructors, and other stakeholders, and collect student online application.	http://landone.ubc.ca

2.2. Item(s) Not Met – Please list intended project outputs and/or products that were not attained and the reason(s) for this.

Item(s) Not Met:	Reason:
N/A	



3. PROJECT IMPACT

3.1. What were you hoping to change or where were you hoping to see an impact with this project? – Please list the intended *benefits of the project* for students, TAs, instructors and/or community members.

In the TLEF application, we stated that the project objectives include:

The long-term objective is to implement a curriculum transformation for first year Forestry and Land and Food System students, by developing a 12-18 credit integrative course. This course will improve the learning of first year students in both Faculties by:

1. Providing a mechanism to integrate the learning outcomes of core courses (e.g. biology, chemistry, math, economics, statistics).
2. Recruiting students who would be attracted to the integrated 1st year experience of Science One but have a focus / interest in issues relevant to Forestry and/or Land and Food Systems (e.g. sustainability, climate change, food security, land use). It is expected that this course will attract additional high caliber students to both Faculties;
3. Providing a mechanism for the Faculties of Forestry / Land and Food Systems to ‘connect’ with first year students and give them an academic ‘home’ on the UBC campus.
4. Creating potential ‘added value’ for students in the forms of higher grades as documented by Science One (Dryden et al. 2012 http://ir.lib.uwo.ca/cjsotl_rcacea/vol3/iss2/4) and added value to the university in the form of improved teaching.

In the application, we also listed the expected benefits as:

1. Increase retention of students in FRST / LFS in year one and in subsequent years by improving their 1st year experience.
2. Land one students may attain a higher level of academic performance in year one and in subsequent years, relative to students with a similar academic standing who do not participate in the program. The integrative approach is also conducive to improved pedagogical skills for the instructors involved.
3. Better recognition of FRST and LFS as science Faculties. Recruitment/promotional materials developed for the course will increase the profile of the Faculties, and is expected encourage higher interest in general in both Faculty programs, resulting in an increase in the number and quality of applications to the Faculties.
4. Increased sense of belonging for students in 1st year to their home Faculty, resulting in improved retention of students.
5. Potentially improved mental well-being of students that are in the course. The 2016 Undergraduate Experience Survey indicated that LFS and FRST students experience higher levels of anxiety and stress, felt less likely to success in all courses, and were less able to balance academic and non-academic activities compared to other UBC students. By providing a different kind of 1st year experience, we hope that students will show greater resilience, which may be related to their connection to their home Faculty and familiarity with professors.
6. Attraction and development of an academically stronger cohort of students to both Faculties. These may be students that might otherwise have chosen another UBC Faculty such as Science. These academically stronger students are potential applicants to graduate programs in each Faculty, so a long-term benefit may be a larger cohort of high quality applicants for graduate study.



3.2. Were these changes/impacts achieved? How do you know they occurred? – *To what extent were intended benefits achieved or not achieved? What evaluation strategies were used? How was data collected and analyzed? You are encouraged to include copies of data collection tools (e.g. surveys and interview protocols) as well as graphical representations of data and/or scenarios or quotes to represent and illustrate key themes.*

We consider the major objective of this project has been achieved, indicated by the first offering of Land One option in September 2018. After one year preparation, the team developed a 15-credit first year option including five courses (BIOL 121, FRST/LFS 101, FRST/LFS 110, FRST/LFS 150, and MATH 102). Land One integrates these five courses through an integrative seminar (FRST/LFS 110). Using real-world cases within contexts of forestry and land and food systems, Land One values and exposes students to both First Nations (such as Traditional Ecological Knowledge) and Western science perspectives. Hands-on activities, experiential learning, and group works are employed to facilitate student learning and create a community of practice. This first year option has consulted with and received support from multiple units at UBC including First Nations House of Learning, the Centre for Teaching, Learning, and Technology, the Faculty of Science, the Faculty of Arts, the Department of Biology, the Department of Mathematics, Vancouver School of Economics, First Nations and Indigenous Studies, and UBC library.

In February 2018, Land One first year option has received UBC-V Senate Approval and started its implementation. The Land One teaching team consists of faculty members from a variety of disciplinary backgrounds including the Department of Zoology, Department of Mathematics, Department of English Language and Literature, the Faculty of Forestry, and the Faculty of Land and Food Systems. The teaching team committed to create an inter-disciplinary, supportive, and inclusive learning environment for students. Land One started its student recruitment process in April and received a total of 113 applications. After careful review of students' transcripts as well as their application letter, the Faculty of Forestry admitted 25 students and the Faculty of Land and Food Systems admitted 27 students. In summary, Land One achieved the TLEF objective by developing a 15-credit first year option and receiving the Senate approval, forming a diverse teaching team, and admitting students from both Faculties.

Specifically, we have achieved objective 1 (a 15-credit integrative first year option), 2 (student recruitment), and 3 (a mechanism that connects FRST and LFS students to their home Faculties). For objective 4 (add value to students in future years) and the potential benefits listed above (increase student retention, grades, mental wellbeing, and sense of belonging; improve faculty members' teaching; and improve both Faculties' profiles), the team have developed evaluation plans for the first offering of Land One and will implement the evaluation in 2018/19 academic year. The evaluation results will address these objectives and potential benefits. Thus, we attached the evaluation questions (survey tools and interview protocols) and timeline in this report (see Appendix B). Land One has received support from SoTL Seeds fund to implement its evaluation.

3.3. Dissemination – *Please provide a list of **past** and **upcoming** scholarly activities (e.g. publications, presentations, invited talks, etc.) in which you or anyone from your team have shared information regarding this project.*



The team presented *Land One: An integrative first year cohort option* in January 2018 at The First-Year Educators' Symposium at UBC, Vancouver, Canada. The team plan to disseminate Land One evaluation outcomes through publications, presentations, and invited talks after 2018/19 academic year. At present, we attached a brief literature list on integrative approaches, active learning in universities, and Indigenous perspectives.

4. TEACHING PRACTICES – Please indicate if **your** teaching practices or those of **others** have changed as a result of your project. If so, in what ways? Do you see these changes as sustainable over time? Why or why not?

As Land One's first offering is in September 2018. We cannot claim changes in teaching practice at this point. However, Land One emphasizes hands-on learning, group work, experiential learning, inter-disciplinarity, integration, and community of practice. We expect such pedagogies to be widely applied in Land One courses and thus will impact the teaching team's practice. At the end of the first offering (April 2019), we will interview Land One instructors regarding their experience and changes in teaching practice in Land One. With the continuous support from both Faculties, we expect a sustainable and evolving changes of teaching practice.

5. PROJECT SUSTAINMENT – Please describe the sustainment strategy for the project components. How will this be sustained and potentially expanded (e.g. over the next five years). What challenges do you foresee for achieving the expected long-term impacts listed above?

Five new courses (FRST/LFS 101, FRST/LFS 110, and FRST 150) and three special course sections (BIOL 121 section 125, LFS 150 section 201, and MATH 102 section 111) are created for Land One. These courses and course sections will continue to be implemented in future years with the support from both the Faculty of Forestry and the Faculty of Land and Food Systems. The course syllabi will continue to be used in future courses.

The collaboration mechanism between both the Faculty of Forestry and the Faculty of Land and Food Systems is likely to continue with the future implementation of Land One. The teaching team is developing a working mechanism through regular meetings. The case studies, learning activities, and indigenous initiatives developed for the integration of first year content will continue to serve this role in future Land One offerings.

The Land One website has been developed and now served as an information hub and the online application platform. In future, the website will continue to serve this role and support the growth of Land One. In future, the website will possibly extend to other functions (such as teaching tool, communication, and student work presentation platform) that can better serve Land One.

6. Acknowledgement

We gratefully acknowledge the financial support for this project provided by UBC Vancouver students via the Teaching and Learning Enhancement Fund. We also would like to thank the Centre for Teaching Learning and Technology and the Dean's Offices in both the Faculty of Forestry and the Faculty of Land and Food Systems for their generous support to Land One.



APPENDIX B: LAND ONE EVALUATION PLAN

Timeline:

Oct 2018 – April 2019

- Two rounds of quantitative and qualitative data collection with Land One students at mid-term (Nov 2018) and end-of-term (April 2019).
- End-of-term student survey and interview with students outside Land One (April 2019)
- One-on-one interview with the teaching team at end-of-term (April 2019)

May – Aug 2019

- Data analysis of the first year Land One evaluation and generate suggestions for year two modification
- Teaching team and stakeholder meeting to discuss the curriculum renewal, pedagogical change, enrolment expansion, and material updates for year two.
- Prepare evaluation results for dissemination through faculty meetings, CTLT institutes, conference presentations, and publications

Survey questions have been drafted and will be revised after further consultation with instructors.

APPENDIX C: LITERATURE LIST

Integrative approach in higher education

Becker, K., & Park, K. (2011). Effects of integrative approaches among science, technology, engineering, and mathematics (STEM) subjects on students' learning: A preliminary meta-analysis. *Journal of STEM Education: Innovations & Research*, 12.

Bendixen, L. D., & Rule, D. C. (2004). An integrative approach to personal epistemology: A guiding model. *Educational Psychologist*, 39(1), 69-80.

Copp, N. H., Black, K., & Gould, S. (2012). Accelerated integrated science sequence: An interdisciplinary introductory course for science majors. *Journal of Undergraduate Neuroscience Education*, 11(1), A76.

Dryden, N., Leander, C., Louis-Martinez, D., Nakahara, H., MacLean, M., & Waltham, C. (2012). Are we doing any good? A value-added analysis of UBC's science one program. *The Canadian Journal for the Scholarship of Teaching and Learning*, 3(2), 4.

McAlpine, L., & Norton, J. (2006). Reframing our approach to doctoral programs: An integrative framework for action and research. *Higher Education Research & Development*, 25(1), 3-17.

Pickar, A. D. (1970). Core course for science majors combining material from physics, chemistry, and biology. *American Journal of Physics* 38(3), 255-264

Ramsey, L. L., Radford, D. L., & Deese, W. C. (1997). Experimenting with interdisciplinary science. *J. Chem. Educ.*, 74(8), 946.

Spencer, A. L., Brosenitsch, T., Levine, A. S., & Kanter, S. L. (2008). Back to the basic sciences: an innovative approach to teaching senior medical students how best to integrate basic science and clinical medicine. *Academic Medicine*, 83(7), 662-669.



Indigenous and science perspectives

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- G.S. Aikenhead, & H. Michell. (2011). *Bridging cultures: Indigenous and scientific ways of knowing nature*. Don Mills, Ontario, Canada: Pearson Education Canada. 196 pp.
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- Lee H., Yen C-F., & Aikenhead, G.S. (2012). Indigenous elementary students' science instruction in Taiwan: Indigenous knowledge and Western science. *Research in Science Education*, 42, 1183-1199.
- Ogawa, M. (1995). Science education in a multisience perspective. *Science Education*, 79(5), 583-593.
- Snively, G., & Corsiglia, J. (2001). Discovering indigenous science: Implications for science education. *Science education*, 85(1), 6-34.

Active learning strategies

- Felder, R. M., & Brent, R. (2009). Active learning: An introduction. *ASQ higher education brief*, 2(4), 1-5.
- Freeman, S., Eddy, S. L., McDonough, M., Smith, M. K., Okoroafor, N., Jordt, H., & Wenderoth, M. P. (2014). Active learning increases student performance in science, engineering, and mathematics. *Proceedings of the National Academy of Sciences*, 111(23), 8410-8415.
- Freeman, S., O'Connor, E., Parks, J. W., Cunningham, M., Hurley, D., Haak, D., ... & Wenderoth, M. P. (2007). Prescribed active learning increases performance in introductory biology. *CBE—Life Sciences Education*, 6(2), 132-139.
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