

## St. Lawrence University Gen Ed Environmental Literacy Assessment Spring 2024 University Assessment Committee

The Assessment Committee conducted in Spring 2024 the assessment of our Environmental Literacy **General Education graduation requirement**. This requirement was approved by the SLU faculty in 2013 as part of a larger curriculum revision.

Courses fulfilling the Environmental Literacy (EL) requirement have primary learning goals in which students develop:

- a) a recognition of the consequences of human activities on natural systems (LG1); and/or
- b) an awareness of the cultural, economic, and political forces that affect environmental policies (LG2); and/or
- c) an understanding of natural systems and/or the impacts they can have on the environment, human life, health, and welfare. (LG3)

To this end, the Assessment Committee developed a simple, 4-point rubric with the scoring levels of “absent”, “emerging”, “proficient” and “exemplary”. All faculty who taught one or more environmental literacy courses in Spring 2024 were asked to participate. A total of 11 faculty did, contributing to 191 scored papers from 184 unique students at the end of the Spring semester.

We then merged some demographic information into the file, such as students’ class year, gender, race/ethnicity, and how many environmental literacy courses (including this one) had been taken thus far. Data were analyzed by student characteristics and course level (but not by any other course characteristics) as this is not a departmental assessment project but general education assessment (see Table 1). The discussion below is based on frequencies analyses.

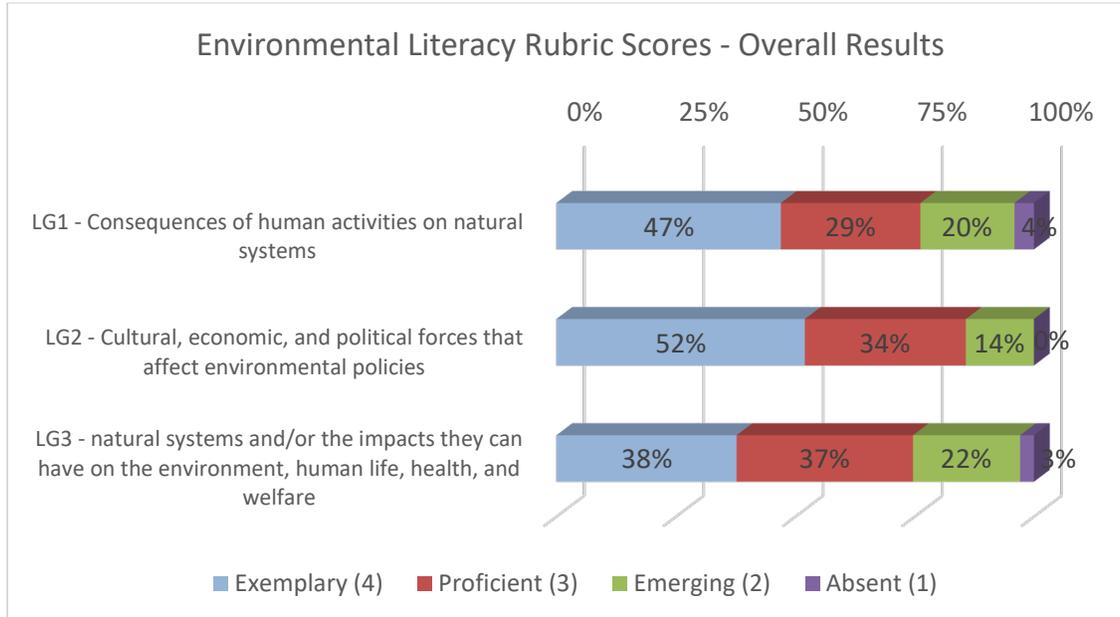
Table 1 Characteristics of Artifacts Assessed

Class Level	43% FY; 34% SO; 10% JR; 13% SR
Gender	46% Male - 54% Female
Race/ethnicity	8% SOC - 7% International - 85% US White
Course level	73% 100 level – 27% 300 level

### Overview of Findings

**76%** of papers that were scored met **LG1** “Recognition of the consequences of human activities on natural systems,” **86% of papers scored met LG2**, “Awareness of the cultural, economic, and political forces that affect environmental policies,” and **75% of papers scored met LG 3**, “Understanding of natural systems and/or the impacts they can have on the environment, human life, health, and welfare.” Meeting learning goals means scoring “proficient” or “exemplary” on the 4-point rubric (see Figure 1).

Figure 1 – Overall Results



Nine courses were 100-level courses and three were upper-level (300-level) courses. Nine courses assessed for LG1, four courses for LG2, and six courses for LG3.

There was balance between learning goals in the papers collected on LG1 and LG 3 with half of as many papers collected on LG 2: 147 papers (from 9 courses) were scored for learning goal one (LG1); 77 papers (from 3 courses) were scored for learning goal two (LG2); 138 papers (from 3 courses) were scored for learning goals three (LG3).

While there is not a great difference in whether students are meeting the learning goals between LG1, LG 2 and LG3, the difference in scores – LG1 with a mean of 3.2 and LG 2 with a mean of 3.4 compared to LG3 with a mean of 3.1 – suggests that it is easier for students to reach “exemplary” for LG2, “being aware of the cultural, economic and political forces that affect environmental policies.”

Courses offered for meeting the Environmental Literacy General Education goal are predominantly at the 100 course level. We did not have sufficient papers to explore whether learning outcomes differed between across course levels.

The data did not point to meaningful differences by gender. Proficiencies by class level showed some difference with Sophomores having the highest proficiency scores and Seniors the lowest; however, the pattern is not consistent. (See figure 2)

Figure 2: Environmental Literacy Assessment Scores by Gender and Class Level

**LG1 Recognition of the consequences of human activities on natural systems; and/or**

Rubric Score	All	Female	Male	1-FY	2-SO	3-JR	4-SR
Exemplary (4)	47%	49%	45%	46%	62%	47%	21%
Proficient (3)	29%	31%	28%	27%	21%	41%	42%
Emerging (2)	20%	21%	19%	22%	15%	12%	29%
Absent (1)	4%	0%	9%	5%	2%	0%	8%
Total	147	78	69	59	47	17	24
<b>Mean</b>	<b>3.2</b>	<b>3.3</b>	<b>3.1</b>	<b>3.1</b>	<b>3.4</b>	<b>3.4</b>	<b>2.8</b>
Not evaluated	44	26	18				

**LG2 Awareness of the cultural, economic, and political forces that affect environmental policies; and/or**

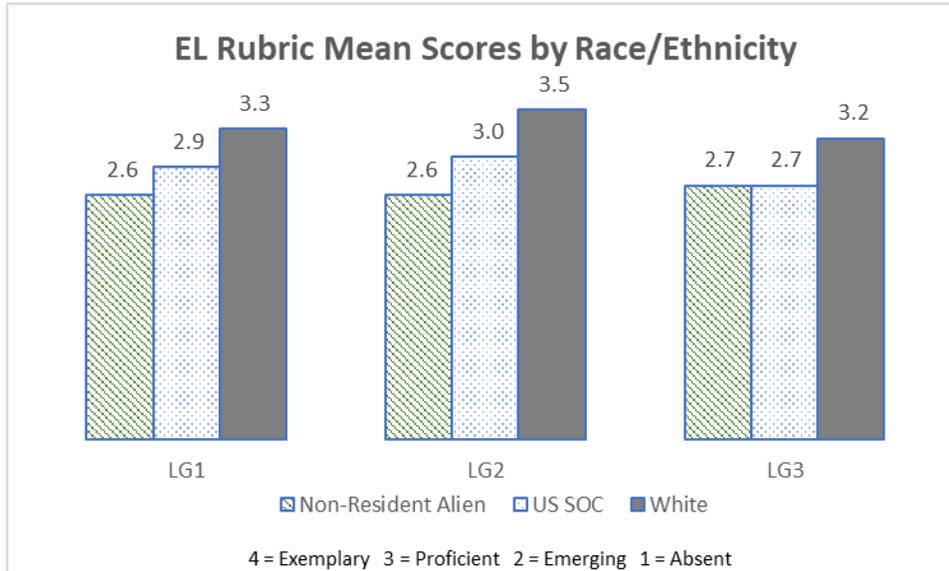
Rubric Score	All	Female	Male	1-FY	2-SO	3-JR	4-SR
Exemplary (4)	52%	52%	52%	48%	55%	43%	60%
Proficient (3)	34%	31%	38%	38%	39%	29%	10%
Emerging (2)	14%	17%	10%	14%	6%	29%	30%
Absent (1)	0%	0%	0%	0%	0%	0%	0%
Total	77	48	29	29	31	7	10
<b>Mean</b>	<b>3.4</b>	<b>3.4</b>	<b>3.4</b>	<b>3.3</b>	<b>3.5</b>	<b>3.1</b>	<b>3.3</b>
Not evaluated	114	56	58				

**LG 3 Understanding of natural systems and/or the impacts they can have on the environment, human life, health, and welfare.**

Rubric Score	All	Female	Male	1-FY	2-SO	3-JR	4-SR
Exemplary (4)	38%	37%	39%	46%	28%	17%	33%
Proficient (3)	37%	38%	35%	29%	50%	50%	17%
Emerging (2)	22%	23%	21%	20%	22%	33%	50%
Absent (1)	3%	1%	5%	5%	0%	0%	0%
Total	138	81	57	76	50	6	6
<b>Mean</b>	<b>3.1</b>	<b>3.1</b>	<b>3.1</b>	<b>3.2</b>	<b>3.1</b>	<b>2.8</b>	<b>2.8</b>
Not evaluated	53	23	30				

While the number of papers graded from international students and US students of Color was small (n=28) compared to US White students (n=163), data suggests that US White students reach higher proficiency levels than non-white students. (See figure 3).

Figure 3: Environmental Literacy Assessment Mean Scores by Race/Ethnicity



### Open-Ended Comments

In addition, faculty were encouraged to comment on the assessment project itself and/or the learning goals. A summary of the comments is below:

- Overall, faculty found the rubric good and easy to use.
- They found it a valuable tool to assess the learning goal of the course- and it allowed them to critically evaluate how the assignment connects to the learning goal of the course.
- One faculty member from the humanities noted that the learning goal's key verbs (such as "recognizing" and gaining "understanding") suggested that proficiency with respect to the goal was a matter of learning objective content and encouraged us to think about the goal in terms of a trajectory of development of one's attitudes, behaviors, and relationship with the environment.
- One faculty commented on how this rubric is leading to a change in pedagogy by incorporating weekly quizzes into the syllabus to increase students' engagement with the material and more frequent opportunities for feedback.

### Conclusions

Students seem to be meeting the learning goals of our Environmental Literacy. Introducing faculty to the rubric was helpful because it helped them think more about broader learning goals.

Differences of meeting proficiency across the three learning goals were relatively small, suggesting that our current learning goals as defined as three different learning goals, one of which only must be met, is okay.

The difference in proficiency between international students, US students of color and US white students should be explored further, to understand if some of the differences stem from different cultural references or from assumptions that need to be better explained.

Departments participating in the assessment of Environmental Literacy included Biology, Environmental Studies, Geology, Physics, Philosophy, Education and English.

## RUBRIC FOR GENERAL EDUCATION ASSESSMENT

**Environmental Literacy (EL) Courses** have primary learning goals in which students develop:

- (a) a recognition of the consequences of human activities on natural systems; and/or
- (b) an awareness of the cultural, economic, and political forces that affect environmental policies; and/or
- (c) an understanding of natural systems and/or the impacts they can have on the environment, human life, health, and welfare.

Instructions:

1. Choose an individual course assignment in an EL course from the second half of the semester in which students must demonstrate an understanding of learning goal a) and/or b) and/or c).
2. Score each student's assignment and enter the score in the EXCEL spreadsheet that Christine will provide to you.
3. After scoring, please use the text box to provide feedback to the Assessment Committee reflecting on how the rubric and the scoring worked, what you learned from this assessment, and sharing any reflections on the Learning Goals as currently written.

LGs	Exemplary	Proficient	Emerging	Absent
Recognition of the consequences of human activities on natural systems; and/or	Shows sophisticated recognition of the consequences of human activities on natural systems; and/or	Shows sufficient recognition of the consequences of human activities on natural systems; and/or.	Shows minimal recognition of the consequences of human activities on natural systems.	<p>Mark X if the student submitted the assignment, but evidence of an understanding of the LG was absent.</p> <p>Mark NA if the student did not submit the assignment.</p>
Awareness of the cultural, economic, and political forces that affect environmental policies; and/or	Shows sophisticated awareness of the cultural, economic, and political forces that affect environmental policies; and/or	Shows sufficient awareness of the cultural, economic, and political forces that affect environmental policies; and/or	Shows minimal awareness of the cultural, economic, and political forces that affect environmental policies.	<p>Mark X if the student submitted the assignment, but evidence of an understanding of the LG was absent.</p> <p>Mark NA if the student did not submit the assignment.</p>
Understanding of natural systems and/or the impacts they can have on the environment, human life, health, and welfare.	Shows sophisticated understanding of natural systems and/or the impacts they can have on the environment, human life, health, and welfare.	Shows sufficient understanding of natural systems and/or the impacts they can have on the environment, human life, health, and welfare.	Shows minimal understanding of natural systems and/or the impacts they can have on the environment, human life, health, and welfare.	<p>Mark X if the student submitted the assignment, but evidence of a capacity for critical self-reflection on social location was absent.</p> <p>Mark NA if the student did not submit the assignment.</p>