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| C:\Users\bjaco\AppData\Local\Microsoft\Windows\INetCache\Content.Word\SLS-Teaching-Toolkit-Logo_Stacked-Initials.jpg | Student Learning Outcome (SLO) Rubric: SLO 1 - “Identify relationships among ecological, social, and economic systems” |
| **Discipline:** All | **Type:** Take-home assignment, project | **Time Commitment:**45 mins-2 hrs | **Category:** Systems; Science & Technology |
| **Big Ideas:** [Systems Thinking](https://serve-learn-sustain.gatech.edu/big-idea/systems-thinking); [Social, Cultural & Environmental Context](https://serve-learn-sustain.gatech.edu/big-idea/social-cultural-environmental-context); [Interconnectedness](https://serve-learn-sustain.gatech.edu/big-idea/interconnectedness); [Infrastructure: Physical, Technological, Social](https://serve-learn-sustain.gatech.edu/big-idea/infrastructure-physical-technological-social) |
| **OVERVIEW:**The following rubric assesses SLO 1: Students will be able to identify relationships among ecological, social, and economic systems. The goal of this SLO is for students to develop a baseline schema to identify both existing and novel examples of relationships among key sustainability components (ecological, social, and economic systems), which students demonstrate through cross disciplinary and multimodal artifacts.This tool was contributed by Jennifer Hirsch, Emanuele Massetti, Darcy Mullen, Chelsea Murdock, Raghu Pucha, Jennifer Singh, Beril Toktay, McKenna Rose, and Emily Weigel.  |
| **INSTRUCTIONS:**1. Provide the rubric to students before they begin an assignment. Posting rubrics on the web and including them in the course pack for in-class writing promotes their usefulness.
2. Consider involving students in a dialogue about the rubric criteria, and/or inviting students to use the rubric to respond to their or their peers’ work in a class activity. Students gain a keen sense of your expectations for learning by explicitly understanding the criteria and by contributing to the modification of criteria in a rubric to enhance clarity.
3. Use the appropriate row or rows of the rubric to evaluate student work and assign a score.
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| **SLS STUDENT LEARNING OUTCOMES & ASSESSMENT:**The Serve-Learn-Sustain toolkit teaching tools are designed to help students achieve not only SLS student learning outcomes (SLOs), but the unique learning outcomes for your own courses. Applying rubrics to student work and using assessment data to modify your assignments or refine your curriculum have been shown to improve student learning. **This tool achieves SLOs 1. See the end of this tool for further details.** |

**Want Help?**

Serve-Learn-Sustain is the contact for this tool. You can reach us at serve-learn-sustain@gatech.edu

Student Learning Outcome 1

**OVERVIEW**

Thisrubric is designed to assess students’ understandings of the three sustainability systems (ecological, economic, and social sustainability) and their ability to identify and demonstrate relationships between and among them.

In using this rubric, please note:

* The rubric is intentionally broad in order to be applicable across courses. Students are expected to achieve mastery of the different dimensions over time. In other words, they should progress (rightward) in their abilities to identify each of the four “degrees of complexity” over the course of the semester.
* If your assignment does not ask students to identify novel sustainability relationships (examples external to those supplied directly by instructors), simply omit the “Identifies novel examples of systems and their relationships” dimension from your use of this rubric.
* In using this rubric to score student work, evaluators should assign a zero to work that does not meet benchmark level performance (cell one).

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| **SLO 1: Students will be able to identify relationships among ecological, social, and economic systems***Evaluators are encouraged to assign a zero to any work sample or collection of work that does not meet benchmark (cell one) level performance.*  |
| **Dimensions** | **Degree of understanding** |
| **Beginning****1** | **Developing****2** | **Competent****3** | **Accomplished****4** |
| **Degree of complexity** | **Recognizes the three systems that make up sustainability (ecological, economic, and social)** | The student exhibits difficulty recognizing and defining even one system.  | The student adequately recognizes and defines one system, exhibiting a sufficient understanding of basic subcomponents and their connections (e.g. within the social system: economic growth and income inequality). | The student adequately recognizes and defines two systems, exhibiting a sufficient understanding of basic subcomponents and their connections within each. | The student recognizes and adequately defines all three systems, exhibiting a strong understanding of basic subcomponents and their connections within each.  |
| **Describes relationship among systems** | The student exhibits difficulty describing even one relationship between two systems. For example, a relationship may be inaccurately communicated (e.g., a negative relationship is described between two that are positively related, such as describing a synergy where a trade-off exists). | The student adequately describes one relationship between two systems, identifying key synergies and trade-offs. | The student adequately describes at least one relationship among all three systems, identifying key synergies and trade-offs. | The student describes at least one relationship among all three systems, in depth, identifying key synergies and trade-offs supported by data, literature, or policy. |
| **Recognizes the complexity of the relationship among systems** | The student demonstrates no or minimal understanding of how the relationships among the sustainability systems change across space, time and context.  | The student demonstrates a basic understanding of how the relationships among the sustainability systems change across space, time and context. | The student demonstrates a deep understanding of how relationships among the sustainability systems change across space, time and context, generating one argument with evidence about a sustainability challenge and solution. | The student demonstrates a deep understanding of how relationships among the sustainability systems change across space, time and context, generating one argument with evidence about a sustainability challenge and solution. The student draws parallels to arguments about another challenge and solution, demonstrating a broad understanding of the complexity of the sustainability system overall. |
| **Identifies novel examples of systems and their relationships** | The student identifies no examples of how even one system plays out, from outside the course.  | The student identifies one example of how one or more systems play out, from outside the course, in ways not previously introduced. The relationship to other systems is not demonstrated or is superficial and limited to ways previously introduced.  | The student identifies one or more examples of how one or more systems play out, from outside the course, in ways not previously introduced. The relationship to other systems is demonstrated in some depth, in ways not previously introduced. | The student identifies one or more examples of how one or more systems play out, from outside the course, in ways not previously introduced. The relationship to other systems is demonstrated in significant depth, in creative and unpredictable ways not previously introduced. |

Student Learning Outcomes

1. Identify relationships among ecological, social, and economic systems.
2. Demonstrate skills needed to work effectively in different types of communities.
3. Evaluate how decisions impact the sustainability of communities.
4. Describe how to use their discipline to make communities more sustainable. \*

\* *Note:* SLO 4 is intended to be used by upper division, project-based courses such as Capstone.