

**UNIVERSITY OF SAN FRANCISCO**  
**Department of Environmental Science**  
**B.Sc. in Environmental Science**  
**Program Assessment**

---

**Scoring Rubric**

**Outcome 1a:** Explain the scientific basis for environmental problems and potential protection or solutions to these problems.

<b>1-Unacceptable</b>	<b>2-Acceptable</b>	<b>3-Exemplary</b>
Explanations contain numerous serious flaws and indicate gross conceptual errors. Discussion shows little awareness of potential solutions and few of their advantages and disadvantages.	Problems are explained in detail, with all concepts essentially correct. One or two components of an explanation may be missing. Discussion shows awareness of potential solutions and some of their advantages and disadvantages.	Concepts are clearly and thoroughly explained in detail. All key points are included, and connections between concepts made. Discussion shows firm grasp of potential solutions and most of their advantages and disadvantages.

**Outcome 1b:** Discuss ecological principles as they apply to environmental protection and sustainability.

<b>1-Unacceptable</b>	<b>2-Acceptable</b>	<b>3-Exemplary</b>
Students can explain basic ecological principles but cannot clearly relate them to protection practices.	Students explain the basic connection between principles and protection practices, though some details are missing.	Students draw clear, detailed connections between scientific principles and policies for environmental protection.

**Outcome 2a:** Apply statistics to describe and analyze environmental data sets.

<b>1-Unacceptable</b>	<b>2-Acceptable</b>	<b>3-Exemplary</b>
Students cannot determine appropriate statistical tools to apply to a problem, and they are unable to correctly apply any tools beyond very basic ones such as computing the mean for a data set.	With a minimal guidance, students can determine appropriate statistical tools to apply to data sets. Use of basic (mean standard deviation) and intermediate (regression, correlation) statistical methods is correct, but use of more advanced ones (comparison of means) contains some errors.	Students can independently decide on appropriate statistical tests. Use of basic, intermediate, and advanced statistical methods is correct.

**Outcome 2b:** Analyze actual and potential impacts of human activity on the environment.

1-Unacceptable	2-Acceptable	3-Exemplary
Students identify one or two impacts of a particular human activity, though the connection is	Students identify more than half of the impacts of a particular human activity.	Students identify all, or almost all, of the impacts of a particular human activity, and

**Outcome 3a:** Design and execute experiments involving environmental sampling combined with field and laboratory analysis.

1-Unacceptable	2-Acceptable	3-Exemplary
Experimental purpose is poorly described. Blanks, controls, and sampling protocols are either not employed or employed incorrectly. Methods are chosen in a way that reflects minimal understanding of the capabilities of the method. Measurements are performed improperly, with poor field or laboratory technique.	Experimental purpose is described in a way that reflects moderate understanding of hypotheses and the nature of testing. Blanks, controls, and sampling protocols are employed, but may contain small problems. Methods are chosen in a way that reflects basic understanding of the capabilities of the method. Measurements are performed properly, with reasonable field or laboratory technique.	Experimental purpose is described in a way that reflects firm understanding of hypotheses and the nature of testing. Blanks, controls, and sampling protocols are employed appropriately. Methods are chosen in a way that reflects firm understanding of the capabilities of the method. Measurements are performed properly, with good field or laboratory technique

**Outcome 3b:** Communicate scientific findings and analyses in a professional manner through written reports and oral presentations.

1-Unacceptable	2-Acceptable	3-Exemplary
Written reports are poorly organized and written, and contain numerous errors in spelling/grammar and/or content. Oral presentations are poorly organized and unclear, and students cannot answer questions on the work.	Reports are reasonably well written but contain some errors in either grammar or content. Students can explain findings orally, though with some hesitation. They may have difficulty addressing questions on details of the work.	Written reports are clear and well organized, with thorough background and appropriate analyses. Tables and graphics are skillfully employed to illustrate results. Oral presentations are clear, well organized, and smooth, and students can readily and correctly answer questions on the work.

**Outcome 4a:** Describe environmental conditions on local, regional, national, and global scales.

1-Unacceptable	2-Acceptable	3-Exemplary
Students cannot distinguish between local, regional, and global conditions regarding particular environmental problems.	Students can describe environmental problems on different scales, but their descriptions may lack specific details or examples.	Students provide clear, detailed descriptions of environmental problems on different scales, and provide specific examples or data to support their descriptions.

**Outcome 4b:** Evaluate environmental problems and their potential solutions with regard to social justice considerations.

1-Unacceptable	2-Acceptable	3-Exemplary
Students cannot make the connection between environmental problems/solutions and social justice, or they describe such connections only in vague terms.	Students can describe a few social justice implications of environmental problems/solutions. Evaluations consist of a mixture of specifics and vagaries.	Students accurately and thoroughly describe the social justice implications of problems and potential solutions. They provide details and/or examples to support their evaluations.