

## Natural Sciences<sup>1</sup>

Catalog Copy: As science and technology come to play an increasingly important role in contemporary life, it is essential for all educated persons to have a fundamental understanding of science and its methods. All students should be familiar with one or more scientific disciplines and the role of science in contemporary society. Such familiarity may be gained through acquisition of knowledge of a discipline's basic vocabulary, chief discoveries, and fundamental principles; exposure to a discipline's experimental techniques; and the ability to analyze issues with scientific dimensions.

1. *Students will demonstrate ability to use the basic vocabulary of a course's discipline.*
2. *Students will demonstrate knowledge of fundamental principles, experimental techniques or chief discoveries of a course's discipline.*
3. *Students will demonstrate understanding of experimental techniques used by a course's discipline.*

### NS Benchmark Scale—Used with exam data

- 1 (Inadequate): Mastery is not evident in most samples of the sample set (< 20% correct)
- 2 (Adequate): Mastery is minimally evident throughout the sample set (21% < X < 50% correct)
- 3 (Effective): Mastery is evident in most samples of the sample set (51% < X < 80% correct)
- 4 (Outstanding): Mastery is evident in the vast majority of the samples throughout the set (>81% correct)

BIOL 140 Rubric (SLO 3). A specific rubric was created to assess students' PowerPoint presentations. Scores were given according to a scale of 1 (poor) to 5 (excellent), with 3 indicating midrange work for the following categories: Hypothesis, Experimental Design, Results, Conclusions/Interpretation.

- Hypothesis: A score of 1 indicates hypothesis and prediction not clear. A score of 5 indicates hypothesis and prediction clearly identified.
- Experimental Design: A score of 1 indicates uncreative and inappropriate experimental design. Does not test hypothesis, does not include details such as variables and replicates. A score of 5 indicates excellent experimental design that addresses the hypothesis. Creative and well explained. Included explicit identification of variables and replicates.
- Results: A score of 1 indicates no potential results presented, or of an extremely poor quality. A score of 5 indicates excellent understanding of potential results. Examples of data for supported prediction and data for non-supported prediction are clear.
- Conclusions/Implications: A score of 1 indicates student did not explain what could be learned from this experiment. Did not address

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<sup>1</sup> Note: the numbered student learning outcomes (in italics) and the rubrics are not yet official in the *Catalog*; however, these were developed and approved by the General Education Committee in 2013-14 to assess student work.

potential weaknesses in the literature. A score of 5 indicates student gave a clear explanation of what could be learned from this experiment and the implications of these results. Take home points summarized. Addresses weaknesses in the literature.

Mastery was rated based on the following benchmark scale:

Mastery is not evident in most samples of the sample set (average score of  $< 2.00$ )

Mastery is minimally evident throughout the sample set (average score of  $2.00 < X < 3.00$ )

Mastery is evident in most samples of the sample set (average score  $3.00 < X < 4.00$ )