

### Syllabus Review Rubric: Scientific Literacy

**Learning Outcome:** *Apply the principles and language of the natural sciences and associated technologies to historical and contemporary issues.*

| Student Achievements  | Foundational-level Course: Archetypal Syllabus Requirements   | Integrative-level Course Syllabus Requirements   |
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| 1. Demonstrate understanding and use of the basic principles, concepts and terms of the specific scientific discipline.   | <p><i>Basic description of the approach, etc:</i> Introduces the basic principles, concepts and terms used by the natural sciences.</p> <p><i>Course content:</i> Should require students to understand and apply fundamental principles and laws of science and prepare them to demonstrate their knowledge and understanding of the terminology, principles and concepts of the discipline through theory and practical laboratory experience. Students should understand and describe natural phenomena, formulate questions and determine answers through research and inquiry, computational methods, and/or empirical reasoning.</p> <p><i>Student assignments:</i> Should be tailored in a way that allow the students to demonstrate their understanding of the basic terminology, principles and concepts of natural sciences through appropriate assignments (papers, quizzes, tests, practical lab exercises, etc.).</p> | Require students to consider scientific issues together with other issues (political, environmental, societal, public health, etc.) concerning international, national, or local decisions, and express positions that are scientifically and technologically informed.      |
| 2. Demonstrate and apply understanding of the scientific method using observations, inquiry, formulation of hypotheses, and experimentation to explain natural phenomena. | <p><i>Basic description of the approach, etc:</i> Introduces the scientific method to include inquiry, formulation of hypotheses, and experimentation.</p> <p><i>Course content:</i> Should require the students to demonstrate their understanding of the scientific method using observations, inquiry, and formulation of hypotheses to explain natural phenomena.</p> <p><i>Student assignments:</i> Should be tailored toward having the students demonstrate or apply their understanding of the scientific method approach through projects/experiments, papers, or other hands-on activities.</p>   | Require students to use projects and/or write papers that relate to the scientific method approach. Students are able to evaluate the quality of scientific information on the basis of how it is acquired including sources, methods, and technologies used to generate it. |
| 3. Evaluate relationships between science,  | <i>Basic description of the approach, etc:</i> Should introduce   | Require students to use critical thinking in   |

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| <p>technology, and society as these affect critical historical or contemporary issues.</p> | <p>students to: contemporary issues, how science and technology have affected the earth and humanity, and to an appreciation for the history of the science.</p> <p><i>Course content:</i> Should prepare the students to evaluate relationships between science, technology and society enabling them to consider challenges and solutions and to engage in public conversations about these issues fully and thoughtfully.</p> <p><i>Student assignments:</i> Should be adapted to modern society while gaining historical perspective such that the students would be able to evaluate relationships between science, technology, and society through critical thinking. Students should learn to find scientific sources for posing and evaluating arguments and drawing objective conclusions, in order to be able to develop science projects and papers.</p> | <p>applying scientific and technological advancements in addressing societal issues through observations, information provided by the scientific literature or media, and/or evidence through personal or learned experience.</p> <p>Students can identify scientific issues underlying international, national or local decisions and express positions that are scientifically and technologically sound.</p> |
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