

General Education Curriculum: Natural Science Inquiry (NSI) Rubric

The Natural Science Inquiry (NSI) rubric was developed through faculty and student consultation and members of the General Education Oversight Committee at Wayne State University (WSU). The rubric was modeled after VALUE rubrics created by the Association of American Colleges and Universities (AAC&U). The rubric articulates fundamental criteria for each learning outcome required for NSI under the General Education program. It contains performance descriptors demonstrating progressively higher levels of learnedness. The rubric is intended for institutional-level use in evaluating and discussing student learning within the General Education curriculum, not for grading.

NSI is a Group Requirement (Inquiry Courses) of the General Education program at WSU. The overall goal of the inquiry courses is “to help introduce students to the different perspective, methodologies, and questions that shape the production of knowledge” (see [Academic Bulletin](#)).

NSI has [four program learning outcomes](#). After successful completion of the NSI requirement, students will be able to demonstrate their ability to:

1. Explain natural phenomena using scientific concepts, theories, and/or principles.
2. Describe the process of scientific inquiry.
3. Analyze historical or contemporary societal subjects using scientific concepts and principles.
4. (Lab courses only) Apply the scientific method to evaluate data.

Glossary for Terms and Concepts Used in the Rubric

The definitions that follow were developed to clarify terms and concepts used in this rubric only.

- Natural phenomena: Any state or process known through the senses (i.e. observable, measurable) rather than solely by intuition or reasoning.
- Scientific concepts/theories/principles: Propositions formulated to explain facts or phenomena in the natural world and confirmed through experiment or observation.
- Scientific inquiry: The pursuit of coherent, mechanistic accounts of natural phenomena. Scientific inquiry may or may not follow the strict steps of the scientific method.
- Societal subject: Issues and/or events that affect or occur within or among human populations.

How to Use the Rubric

- Faculty teaching NSI courses select one or more assignments that elicit the NSI learning outcomes.
- Faculty use the rubric to score their students’ work on the 4-point rubric scale.
 - Details for reporting the results for your course(s) are provided on the GEOC website.
- The rubric scale is implicational: A “moderate” score indicates that the student has met the criteria for “low” AND “moderate”. A “high” score indicates that the student has met the criteria for “low”, “moderate” AND “high”.

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Learning Outcome	(High) Articulate/explain	(Moderate) Describe/define	(Low) Identify	(No) Limited Evidence
LO1: Explain natural phenomena using scientific concepts, theories, and/or principles.	Applies scientific concepts, theories, and/or principles to explain natural phenomena.	Correctly describes natural phenomena using scientific concepts, theories, and/or principles.	Identifies natural phenomena.	Unable to identify natural phenomena.
LO2: Describe the process of scientific inquiry.	Articulates how scientific inquiry can be used to make valid inferences about patterns, relationships, or themes involving natural phenomena.	Discriminates between valid and invalid inferences using basic concepts and methods of scientific inquiry.	Identifies basic concepts or methods of scientific inquiry.	Unable to identify or define basic concepts of scientific inquiry.
LO3: Analyze historical or contemporary societal subjects using scientific concepts and principles.	Applies scientific perspectives to evaluate historical or contemporary societal subjects.	Describes scientific concepts and principles germane to a historical or contemporary societal subject.	Identifies a historical or contemporary societal subject related to scientific concepts and principles	Unable to identify or describe historical or contemporary societal subjects related to scientific concepts or principles.
LO4: Apply the scientific method to evaluate data.	Interprets the meaning of data collected via the scientific method and articulates its relevance to stated hypotheses.	Describes data collected via the scientific method using scientific theory, concepts, or principles.	Identifies data collected via the scientific method.	Demonstrates little to no ability to recognize data collected with the scientific method.

Source: Appropriated and modified from the VALUE rubrics developed by the Association of American Colleges and Universities (AAC&U).

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