

MISSISSIPPI STATE UNIVERSITY | AdvantaGE

Natural Sciences — Signature Assignment Supplement

Using this rubric: These criteria must be included in evaluation of the signature assignment and the results reported to OIRE for General Education Assessment Reports. Additional outcomes/criteria may be added by the instructor to assist in evaluation of the assignment for purposes of awarding student grades. Suggested signature assignments include a final project, a project report, a course capstone assignment, etc.

DESIGNING YOUR SIGNATURE ASSIGNMENT

Your Signature Assignment does not need to be a new or additional assignment. It may be an existing assignment, a collection of assignments, or specified questions/items within an examination. The important question is whether the student work provides enough evidence to evaluate the domain outcomes using the rubric below.

Before submitting, ask: *If I gave the student work to someone who did not teach this course, could that person reasonably use this rubric to determine whether the student demonstrated each outcome?*

Outcomes / Criteria	Excellent	Very Good	Acceptable	Developing	Unsatisfactory
1. Effectively communicate scientific principles and/or theories describing the interrelationships among the natural sciences.	Communicates with clarity, depth, and meaningful insight.	Communicates well, with minor clarity, depth, and insight issues.	Communication lacks clarity, depth, and/or insight.	Communication has critical errors in clarity, depth, and/or insight.	Communication is unclear with little/no depth and insight.
2. Solve scientific problems using creative thinking and exploring new methodologies or theories, demonstrating ethical scientific behavior – integrity, safety, and social responsibility.	Data analysis is thorough, well-structured, and clearly presented.	Data analysis and presentation are effective with minor clarity issues.	Data analysis is adequate but lacks clarity in presentation.	Data analysis and presentation have substantial errors.	Data analysis and presentation are missing or incorrect.
3. Compile, analyze, and evaluate student-generated data (quantitative or qualitative) relating to the natural sciences.	Data is appropriate, thorough, and consistent with the assignment and accurate.	Data is appropriate and consistent with the assignment and mostly accurate.	Data is generally consistent with the assignment but may lack completeness or accuracy.	Data is inconsistent with the assignment or incomplete.	Data is missing, irrelevant, or significantly flawed.
4. Apply critical thinking skills to examine real-world problems aimed at understanding science's impact/role in society and in historical and/or contemporary issues.	Applies critical thinking with clarity, depth, and meaningful insight to explain science's role or impact in the issue examined.	Applies critical thinking effectively, with minor gaps in clarity, depth, or insight.	Applies critical thinking adequately but the examination lacks clarity, depth, and/or insight.	Application of critical thinking is limited or contains substantial errors in examining the issue.	Little or no meaningful application of critical thinking to the issue is demonstrated.
5. Differentiate between science-based evidence and opinions expressed as fact.	Consistently and accurately distinguishes science-based evidence from opinions expressed as fact.	Distinguishes science-based evidence from opinions expressed as fact with minor errors or omissions.	Generally distinguishes science-based evidence from opinions expressed as fact but shows some inconsistency or misunderstanding.	Distinguishes science-based evidence from opinion inconsistently or with substantial errors.	Does not meaningfully distinguish science-based evidence from opinions expressed as fact.
6. Draw reasoned conclusions by analyzing and interpreting scientific information from course-provided materials.	Conclusions are meaningful, well-supported, and clearly articulated.	Conclusions are strong, with minor gaps in clarity or support.	Conclusions are reasonable but lack clarity or lack support.	Conclusions are unclear, inconsistent, or lack support.	No meaningful interpretation provided.

Possible formats: project • essay • presentation • portfolio • reflection • case analysis • laboratory work • applied examination • selected exam questions • other appropriate student work

REMEMBER: The AdvantaGE rubric is used to assess evidence of student learning; it does not have to be the rubric you use to grade the assignment. You may evaluate the assignment for the course using different or additional criteria.