

SCI 200 Project Part Two Guidelines and Rubric

Overview

Basic scientific literacy is essential for understanding real-world applications of the natural sciences. As a consumer and voter, you will be faced with issues that require a basic understanding of science. For example, you might ask yourself the following questions: How can genetically modified foods affect my health? Should scientists be held liable for not predicting earthquakes that led to human casualties, as they were in Italy in 2012? Is anthropogenic climate change real? Is fracking a concern where you live? Because of the prevalence of natural science issues such as these, it is important to understand basic natural science concepts and how they impact our daily lives.

The project for this course has two parts. In part one, you will conduct a research investigation that examines an issue in the natural sciences. You will identify appropriate resources for investigating the issue you select, use these resources to develop a question related to the issue, and apply natural science principles to the issue and question. In addition, you will identify an audience who would be interested in the selected issue. In Part Two, you will develop a presentation for the audience you identified in part one. In your presentation, you will explain how scientific thinking has impacted you and your audience, supporting your claims with evidence.

Part two of this project addresses the following course outcomes:

- Illustrate the impact of scientific thinking on personal and professional experiences
- Communicate effectively to specific audiences in examining fundamental aspects of the natural world
- Utilize empirical evidence in drawing conclusions about the impact of contemporary scientific issues on individuals and society

Prompt

Referring to your research investigation, create a presentation that explains how scientific thinking has impacted you and discusses the impact of your selected issue on your audience.

Specifically, the following **critical elements** must be addressed:

- I. Provide a brief overview of the **scientific background** of your issue and question. How does the issue relate to the natural sciences?
- II. Explain how the issue impacts the **audience**. In other words, how is the issue relevant to members of the audience? Why should the audience care about the response to your question or the outcome of your hypothesis? Support your response with specific examples from your research investigation.
- III. Describe the **empirical evidence** you have to support your conclusions about the impact of the issue on you personally and on your audience. Support your response with specific examples from your research investigation.
- IV. Explain why this issue is important to you **personally**. In other words, why did you select this issue to investigate?

- V. Illustrate how your **investigation** of the issue impacted the way you thought about the issue. In other words, how did thinking like a scientist to research, develop a question, and formulate a hypothesis affect what you thought about the issue you selected? How did scientific thinking change the lens through which you viewed the issue? Support your response with specific examples from your research investigation.
- VI. Communicate your **message** in a way that is tailored to your specific audience. For instance, you could consider your vocabulary, your audience's potential knowledge of current natural science (or lack thereof), and what is specifically important to the audience.

Project Part Two Rubric

Guidelines for Submission: Your presentation should have approximately 5–7 slides in Prezi, PowerPoint, or another comparable presentation tool. Make sure that you include speaker notes so that your instructor knows what you would say if you were actually giving the presentation.

| Critical Elements | Exemplary (100%) | Proficient (85%) | Needs Improvement (55%) | Not Evident (0%) | Value |
|--|--|---|--|--|-------|
| Scientific Background [SCI-200-04] | Meets “Proficient” criteria, and response expertly balances necessary detail with brevity | Provides brief overview of scientific background of issue and question, and explains how issue relates to natural sciences | Provides brief overview of scientific background of issue and question, and explains how issue relates to natural sciences, but with gaps in detail or clarity | Does not provide brief overview of scientific background of issue and question, and does not explain how issue relates to natural sciences | 15.8 |
| Audience [SCI-200-04] | Meets “Proficient” criteria, and explanation demonstrates sophisticated understanding of relationship between issue and audience | Explains how issue impacts audience, supporting response with examples from research investigation | Explains how issue impacts audience but with gaps in clarity, detail, or support | Does not explain how issue impacts audience | 15.8 |
| Empirical Evidence [SCI-200-04] | Meets “Proficient” criteria, and response demonstrates strong understanding of how to use empirical evidence in drawing conclusions about the impact of contemporary scientific issues | Describes empirical evidence that supports conclusions about impact of issues on self and audience, supporting response with examples from research investigation | Describes empirical evidence that supports conclusions about impact of issues on self and audience, but with gaps in clarity, detail, or support | Does not describe empirical evidence that supports conclusions about impact of issues on self and audience | 15.8 |
| Personally [SCI-200-01] | Meets “Proficient” criteria, and explanation demonstrates keen insight into impact of natural sciences on personal experiences | Explains why issue is important personally | Explains why issue is important personally but with gaps in clarity or detail | Does not explain why issue is important personally | 15.8 |
| Investigation [SCI-200-01] | Meets “Proficient” criteria, and response demonstrates insight into relationship between issue and scientific thinking | Illustrates how investigation of issue impacted thinking on the issue, supporting response with examples from research investigation | Illustrates how investigation of issue impacted thinking on the issue but with gaps in clarity, detail, or support | Does not illustrate how investigation of issue impacted thinking on the issue | 15.8 |
| Message [SCI-200-03] | Meets “Proficient” criteria, and presentation demonstrates understanding of effectively communicating with specific audiences by tailoring message | Communicates message effectively in a way that is tailored to specific audience | Communicates message to audience, but communication is not effective or is not tailored to specific audience | Does not communicate message to audience | 15.8 |

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|---------------------------------|---|---|--|---|-------------|
| Articulation of Response | Submission is free of errors related to citations, grammar, spelling, syntax, and organization and is presented in a professional and easy-to-read format | Submission has no major errors related to citations, grammar, spelling, syntax, or organization | Submission has major errors related to citations, grammar, spelling, syntax, or organization that negatively impact readability and articulation of main ideas | Submission has critical errors related to citations, grammar, spelling, syntax, or organization that prevent understanding of ideas | 5.2 |
| Total | | | | | 100% |