

## Scoring rubric for the outline for the “Science as a Way of Knowing” lecture

Section	Weight	Score (0-4)	Weighted Score
A. Introduction	0.05		
B. Establish what is and is not science	0.15		
C. Explain how science is done (science as a process)	0.15		
D. Example of a significant botanical achievement described in the context of B and C	0.20		
E. Example, described in the context of B and C, of how evidence from basic scientific inquiry is used in an applied context or in making community or public policy decisions	0.20		
F. Conclusion	0.05		
G. References	0.10		
H. Evidence of revisions	0.10		
Total			

### A. Introduction

4 = The introduction puts science as a way of knowing in the broader context of how we know/learn/explore the world and our role or place in it. Introduce the specific topics you will be covering, in the same order that you will use in the body of the lecture; provide a preview of what is to come. Appropriate citations are used to support the information in the Introduction.

3 = As in 4, but the information provided is not as thorough and the supporting references are not as good.

2 = Some of the information needed for the Introduction is missing. References are primarily or exclusively from websites pitched toward K-12 instruction or science fair information.

1 = As in 2 but references are exclusively from websites pitched toward K-12 instruction or science fair information. The Introduction is inadequate.

0 = The Introduction is missing or is so sparse that it is essentially missing.

### B. Establish what is and is not science

4 = Thorough explanation of what can be known through science and the limits of science. The dual nature of science, as both a body of knowledge about the natural world and the process to obtain that knowledge, is explained. Explanations include appropriate and correct examples or analogies. Appropriate citations are used to support the information.

3 = As in 4, but the information provided is not as thorough, the supporting references are not as good, and examples or analogies used have errors or are not a good fit with the point to be made.

2 = Information is missing or has errors. References are primarily or exclusively from websites pitched toward K-12 instruction or science fair information. Examples or analogies used have errors or are not a good fit with the point to be made.

1 = As in 2 but references are exclusively from websites pitched toward K-12 instruction or science fair information. The lecture does an inadequate job of establishing what it and is not science.

0 = This section is missing, is so sparse that it is essentially missing, or is so full as errors as to be useless.

### C. Explain how science is done (science as a process)

4 = Thorough explanation of what constitutes the process of science, including research design, repetition, feedback, correction, and that science is never finished. Explanations include appropriate and correct examples

or analogies. Appropriate citations are used to support the information.

3 = As in 4, but the information provided is not as thorough, the supporting references are not as good, and examples or analogies used have errors or are not a good fit with the point to be made.

2 = Information is missing or has errors. References are primarily or exclusively from websites pitched toward K-12 instruction or science fair information. Examples or analogies used have errors or are not a good fit with the point to be made.

1 = As in 2 but references are exclusively from websites pitched toward K-12 instruction or science fair information. The lecture does an inadequate job of establishing what it and is not science.

0 = This section is missing, is so sparse that it is essentially missing, or is so full as errors as to be useless.

D. Example of a significant botanical achievement described in the context of B and C

4 = A good example was chosen. There is an explanation of why the chosen example is significant, such as triggered a paradigm shift, resolved a long standing debate, or filled in a key piece of information. The description of the example is in the context of the information given in B and C. The explanation is correct. Appropriate citations are used to support the information.

3 = As in 4, but the explanations are not as thorough, the supporting references are not as good, and/or there are minor errors.

2 = Information is missing or has errors. References are primarily or exclusively from sources pitched toward popular science. The lecture does a poor job of establishing the significance of the research used as the example.

1 = As in 2 but references are exclusively from sources pitched toward popular science. The case for the significance of the research is not made.

0 = This section is missing, is so sparse that it is essentially missing, or is so full as errors as to be useless.

E. Example, described in the context of B and C, of how evidence from basic scientific inquiry is used in an applied context or in making community or public policy decisions

4 = Problem to be addressed is clearly stated. Why it is a problem and the significance of the problem are explained. Stakeholders are identified. Possible solutions are presented along with how the solutions were identified. Results or hoped for outcomes are presented and explained. Factual information is correct and appropriate citations are used to support the information.

3 = As in 4, but the explanations are not as thorough, the supporting references are not as good, and/or there are minor errors.

2 = Information is missing or has errors. References are primarily or exclusively from sources pitched toward popular science. The lecture does a poor job of establishing the significance of the research used as the example.

1 = As in 2 but references are exclusively from sources pitched toward popular science. The case for the significance of the research is not made.

0 = This section is missing, is so sparse that it is essentially missing, or is so full as errors as to be useless.

F. Conclusion

4 = The conclusion parallels the Introduction, summarizes the main points, and unites the main points into a single take home message.

3 = As in 4, but not as thorough.

2 = Some of the information needed for the Conclusion is missing.

1 = The Conclusion is inadequate.

0 = The Conclusion is missing or is so sparse that it is essentially missing.

References

4 = over 9 references are cited; at least 2 of the references for D &/or E are from the primary literature

3 = 6-9 references are cited; at least 2 of the references for D &/or E are from the primary literature

2 = 2-5 references are cited or none from the primary literature

1 = 2-5 references are cited and none from the primary literature

0 = 0-2 references are cited and none from the primary literature

All uses of the primary literature must be significant in order to count. The primary literature cannot be used solely to corroborate basic information that is found in textbooks or similar uses.

#### H. Evidence of revisions

4 = All drafts done from BTNY 2121 and BTNY 4980. Suggested changes, additions, and deletions were made as the outline was revised.

3 = In between criteria for 4 and 2.

2 = Only drafts from BTNY 4980. Limited revision done to address shortcomings.

1 = Only the final version (4980) or the initial version (2121) of the outline is present.

0 = The lecture outline is missing.