

Submitted by Christine Boradbridge, Ph.D., Dept. of Physics

1

Physics 309W: Modern Physics

Formal Written Assignment #1

Prof. C. C. Broadbridge

September 8, 2009

Assignment:

Read at least the first two chapters of the book *The End of Science: Facing the Limits of Knowledge in the Twilight of the Scientific Age* by John Horgan.

In this book Horgan undertakes a quest toward addressing several major questions including:

- “Have the big questions all been answered?”
- “Has all the knowledge worth pursuing become known?”
- “Will there be a final ‘theory of everything’ that signals *the end*?”
- “Is the age of great discoveries behind us?”
- “Is science today reduced to mere puzzle solving and adding details to existing theories?”

Respond to Horgan’s writing. How well does he support the arguments presented?

Is

there additional information that should be considered? Do you agree? Explain your position while providing as much supporting information as possible. In particular, focus

on current trends in scientific research. When possible, you should use specific examples

from information covered in class. It is also highly recommended that you use the results

of a literature review as supporting evidence for your thesis.

You will be required to submit two versions of this paper. The first should be considered a final draft (it should be thoroughly proof read etc). The second paper will be a re-write (revision)* of the first.

AUDIENCE AND PURPOSE:

Your audience for this paper is a person (e.g., a classmate) who has read the book, but

may have interpreted it differently from the way that you have.

ORGANIZATION:

Write a clear introductory paragraph that provides a **brief overview of your paper** and contains a **clear, specific thesis statement that makes an arguable claim**. Underline the thesis statement in your text. Because your reader does not know the book well, your introduction should also **briefly summarize** the author's argument(s). As a result of the fact that this introduction must address all of the above components, it may be as long as three or four paragraphs. Remember that even though this introduction must come first in your paper, you might end up composing it last in the writing process.

2

In the body of your paper, build each paragraph around a claim you make (this should be the paragraph's opening sentence, and its topic sentence). Develop each body paragraph by explaining how you support its opening claim. You should provide evidence by citing not only the book itself, but also other sources (e.g., journal articles, other texts etc.).

Your paper should include a clear conclusion paragraph that summarizes your papers content and, in particular, your thesis.

LENGTH:

Your paper should be 4-5 pages in length (double spaced, 1 inch margins, 12 point maximum).

GUIDELINES:

For discipline specific information regarding writing style and citing sources, refer to the American Institute of Physics (AIP) Style Guide. This guide can be downloaded, free of charge, at <http://www.aip.org/pubservs/style/4thed/toc.html>. You should appropriately cite all references using the techniques described in this manual.

GRADES:

Important qualities of student writing: Clarity of focus, content (development of thesis), audience awareness, coherence in organization, style, word choice and mechanics (e.g., correctness in

grammar, punctuation, and spelling) will be considered in determining the grade for student papers.

Refer to the attached writing rubric for additional information.

This assignment will count as 50% of the corresponding exam grade. Late acceptances will result in a reduction in the possible score by 5 points per day. 25% of your final grade for this paper will be determined by your score on its revision paper.

Assignment Due date: Formal writing assignment 1 (**due October 6**) at the beginning of class. Rewrite for Formal writing assignment 1 (**due October 27**) at the beginning of class. Your final grade on the paper will be determined after considering both papers.

* A writing assignment is considered “revised” when changes are global in nature. Editing of a paper is not considered revision. Revision implies making substantive changes in writing: rethinking the thesis, organization, support, or content, rather than simply correcting surface errors.

Consider the following rules or re-writes:

1. Re-writes are due ONE WEEK from the day that I return the papers to you. Late re-writes will not be accepted.
2. YOU MUST submit your original paper along with the revised draft.
3. Remember that a re-write is NOT just an edited version – there must be substantial change.

Writing Rubric* (From Prof. Shea, SCSU English Dept.)

CONTENT

- Thesis is original.
- Thesis is significant.
- Thesis makes an arguable claim.
- Thesis is not too broad for paper length.
- Evidence supporting all claims is cited.
- Paper addresses interesting and complex issues.
- Supporting detail is clearly and thoroughly explained.
- The argument has more analytical than descriptive material.

ORGANIZATION

- Paper sticks to thesis and develops it.
- Paragraphs develop topic sentences fully.
- Topic sentences in paragraphs make claims.
- Topic sentences relate back to paper's thesis.
- Paragraphs explain their claims clearly.
- Transitions between paragraphs are clear.
- Transitions between sentences are clear.
- Paper's argument is logical and clear.
- Paper's structure is sound: words, sentences, ideas, paragraphs are presented in the most effective order.

EXPRESSION

- Sentences are clear.
- Word choice is accurate.
- Diction is appropriate for purpose and audience.
- Sentences are not choppy.
- Sentence structure is varied.
- Sentence structure is effective.
- Sentences are free of awkwardness.
- Unnecessary words have been eliminated.
- Paper reads easily out loud.
- Paper does not use repetition except for clarity or effect.
- Paper employs parallelism well at all levels (words, sentences, paragraphs).

MECHANICS

- Paper follows directions of assignment.
- Paper adheres to basic conventions of format (as stipulated).
- Grammar is correct.
- Punctuation is clear.
- Spelling is accurate.
- Paper has been thoroughly proofread.

Physics 309W: Modern Physics
Formal Writing Assignment #2
Prof. C. C. Broadbridge
October 20, 2009

Assignment:

Read the book "Copenhagen" by Micheal Frayn. This book is the script for the Tony Award-winning play "Copenhagen." The setting for the play is a wartime meeting between two Nobel laureates. Specifically, the play depicts the 1941 meeting between

German physicist Werner Heisenberg and his Danish counterpart Niels Bohr in Copenhagen. Bohr and Heisenberg are old friends and close colleagues that are now on opposite sides in a world war. Bohr's wife Margrethe is the third character in the play.

Heisenberg and Bohr are major figures in modern physics. Their work together on quantum mechanics and the uncertainty principle revolutionized atomic physics.

Why

Heisenberg went to Copenhagen and what he wanted to say to Bohr are questions that historians have considered ever since.

Based on your reading of the play and outside sources (e.g., historical accounts, course materials and discussions), you are asked to consider the following questions when developing your thesis:

What was the significance of the meeting?

What was the purpose of Heisenberg's visit? What did he wish to tell Bohr?

What role does Margrethe play in the discussion? Does she impact the outcome?

You will be required to submit two versions for this paper. The first should be considered a final draft (it should be thoroughly proof read, etc.). The second paper will be a revision* of the first.

AUDIENCE AND PURPOSE:

Your audience for this paper is a person (e.g., a classmate) who has read the play, but may have interpreted it differently from the way that you have.

ORGANIZATION:

Write a clear introductory paragraph that provides **a brief overview of your paper** and

contains a **clear, specific thesis statement that makes an arguable claim.**

Because your

reader does not know the book well, your introduction should also **briefly**

summarize

the plot, setting and characters in the play. As a result of the fact that this introduction

must address all of the above components, it may be as long as three or four paragraphs.

Remember that even though this introduction must come first in your paper, you might

end up composing it last in the writing process.

In the body of your paper, build each paragraph around a claim you make (this should be

the paragraph's opening sentence, and its topic sentence). Develop each body paragraph

by explaining how you support its opening claim. You should provide evidence by citing

2

not only the book itself, but also other sources (e.g., published reviews, historical accounts.).

Your paper should include a clear conclusion paragraph that summarizes your papers

content and, in particular, your thesis and supporting evidence.

LENGTH:

Your paper should be 4-5 pages in length (double spaced, 1 inch margins, 12 point maximum).

STYLE and CITATION GUIDELINES:

For discipline specific information regarding writing style and citing sources, refer to the

American Institute of Physics (AIP) Style Guide. This guide can be downloaded, free of

charge, at <http://www.aip.org/pubservs/style/4thed/toc.html>. You should appropriately

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GRADES:

Important qualities of student writing: Clarity of focus, content (development of thesis), audience

awareness, coherence in organization, style, word choice and mechanics (e.g., correctness in

grammar, punctuation, and spelling) will be considered in determining the grade for student papers.

Refer to the attached writing rubric by Dr. Shea for additional information.

Assignment Due date: Formal written assignment 2 (**due November 17**) at the beginning of class. Rewrite* for Formal written assignment 2 (**due December 1**) at the **beginning** of class. Your final grade on the paper will be determined after considering both drafts.

This assignment will count as 50% of the corresponding exam grade. Late acceptances will result in a reduction in the possible score by 5 points per day. 25% of your final grade for this paper will be determined by your score on its revision paper.

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Consider the following rules or re-writes:

1. Unless told otherwise revision papers are due ONE WEEK from the day that I return the papers to you. Late re-writes will result in a reduction in the final paper grade.
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3

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