

Suggested Grading Rubric for Short-Answer Essays				
	Understanding of Theme and Relationship to Topic	Use of Supporting Examples or Details	Appropriate Use of Terminology	Quality of Writing
4	Evidence of full and complete understanding	Examples well chosen, details accurate and applied to theme – SPECIFIC TEXT REFERENCES, images	Accurate scientific terminology enhances the essay	Excellent organization (paragraphs), sentence structure, and grammar
3	Evidence of good understanding	Examples or details are generally well applied to theme	Terminology is correctly used	Good sentence flow, sentence structure, and grammar
2	Evidence of a basic understanding	Supporting examples and details are adequate	Terminology used is not totally accurate or appropriate	Some organizational and grammatical problems
1	Evidence of limited understanding	Examples and details are minimal	Appropriate terminology is not present	Poorly organized; grammatical and spelling errors detract from essay
0	Essay shows no understanding of theme	Examples lacking or incorrect	Terminology lacking or incorrect	Essay is very poorly written

Exemplar: Page 45, Question 11.

The complex shapes of biological molecules determine the great specificity with which they interact with one another and form weak or strong bonds.

Hypothesis: Receptor cells on the filaments of the male silkworm moth's antennae contain cell-surface molecules that are complementary in shape to sex attractant molecules (pheromones) produced by the female silkworm moth.

This hypothesis leads to several testable predictions. (1) Silkworm moth pheromones will bind to specific sites on the cells of the filaments of the male's antennae. (2) If it is possible to synthesize molecules that are very similar in shape to silkworm moth pheromones, these molecules will also attract male silkworm moths. (3) Chemical or temperature treatments that modify the molecular shape of silkworm moth pheromones will reduce the attractiveness of these molecules to male silkworm moths.

Page 19 in our textbook details how to design an experiment which could test the prediction. A number of male silkworm moths could be exposed to two separate treatments. In the first treatment, unaltered pheromones would be released near male silkworm moths, and the response of the moths would be noted. The second treatment would be identical in every way except that the pheromone would be heated to permanently modify its molecular shape before it was released.

SCI-1124 Lab Write-Ups Guidelines

All labs must use this format for the lab write-up. Do not forget the proper heading on your lab write-up. You must put each heading at the beginning of each section of the lab write-up (e.g. **Results**).

All labs must be typed in 12 pt. Times New Roman font and be double spaced with 1” margins.

(This document is formatted this way).

1. **Title (10 pt)**- Often written last. Should be descriptive and can re-state the major conclusion.
2. **Abstract (10 pt)**- State the hypothesis or problem—what question are you trying to answer—along with a succinct summary of the experimental design and key findings. Citations are appropriate here if they indicate the reason why the study is important.
3. **Procedure (20 Pt): Materials and Methods**
 - a. A list of what you are using
 - b. A numbered, step by step procedure that you followed.
 - c. Citations are appropriate here if someone else’s work has influenced your materials and methods.
4. **Results (30 pts)**
 - a. Observations
 - b. Charts and/or graphs
 - c. If appropriate, equations and calculations go here.
5. **Discussion & Conclusion (30 pts)**
 - a. Answer the question posed in the title and/or abstract.
 - b. Calculate percent error, if appropriate. Show all work.
 - c. List any sources of error. What could you have done differently to have reduced the amount of error in the experiment? Be thoughtful.
 - d. Draw conclusions about what happened during your experiment by relating your results to what you have learned in class. If you use outside sources to inform your conclusions here (recommended), they must be cited using the **Chicago Manual of Style guide**. (See Attached) You may use parenthetical citations within the text (Author, Year) and then list full bibliographic entries on a Literature Cited page at the end of the paper.
 - e. Suggest ideas for additional experiments. If you use outside sources to inform your ideas here (which is a very good idea), they must be cited using the **Chicago Manual of Style guide**. (See Attached) You may use parenthetical citations within the text (Author, Year) and then list full bibliographic entries on a Literature Cited page at the end of the paper.

Chicago-Style Citation Quick Guide

http://www.chicagomanualofstyle.org/tools_citationguide.html

Free Online Citation Generators:

<http://www.easybib.com/>

<http://www.bibme.org/>

<http://www.citationmachine.net/>

The Chicago Manual of Style presents two basic documentation systems: (1) notes and bibliography and (2) author-date. Choosing between the two often depends on subject matter and the nature of sources cited, as each system is favored by different groups of scholars.

The notes and bibliography style is preferred by many in the humanities, including those in literature, history, and the arts. This style presents bibliographic information in notes and, often, a bibliography. It accommodates a variety of sources, including esoteric ones less appropriate to the author-date system.

The author-date system has long been used by those in the physical, **natural**, and social sciences. In this system, sources are briefly cited in the text, usually in parentheses, by author's last name and date of publication. The short citations are amplified in a list of references, where full bibliographic information is provided. (This is illustrated in the boldface examples below for a variety of media).

Book

One author

1. Michael Pollan, *The Omnivore's Dilemma: A Natural History of Four Meals* (New York: Penguin, 2006), 99–100.

2. (Pollan, *Omnivore's Dilemma*, 3.)

Pollan, Michael. *The Omnivore's Dilemma: A Natural History of Four Meals*. New York: Penguin, 2006.

Two or more authors

1. Geoffrey C. Ward and Ken Burns, *The War: An Intimate History, 1941–1945* (New York: Knopf, 2007), 52.

2. (Ward and Burns, *War*, 59–61.)

Ward, Geoffrey C., and Ken Burns. *The War: An Intimate History, 1941–1945*. New York: Knopf, 2007.

For four or more authors, list all of the authors in the bibliography; in the note, list only the first author, followed by *et al.* (“and others”):

1. Dana Barnes et al., *Plastics: Essays on American Corporate Ascendance in the 1960s . . .*

2. (Barnes et al., *Plastics . . .*)

Journal article

Article in a print journal

In a note, list the specific page numbers consulted, if any. In the bibliography, list the page range for the whole article.

1. Joshua I. Weinstein, "The Market in Plato's *Republic*," *Classical Philology* 104 (2009): 440.
2. (Weinstein, "Plato's *Republic*," 452–53.)

Weinstein, Joshua I. "The Market in Plato's *Republic*." *Classical Philology* 104 (2009): 439–58.

Article in an online journal

Include a DOI (Digital Object Identifier) if the journal lists one. A DOI is a permanent ID that, when appended to <http://dx.doi.org/> in the address bar of an Internet browser, will lead to the source. If no DOI is available, list a URL. Include an access date only if one is required by your publisher or discipline.

1. Gueorgi Kossinets and Duncan J. Watts, "Origins of Homophily in an Evolving Social Network," *American Journal of Sociology* 115 (2009): 411, accessed February 28, 2010, doi:10.1086/599247.
2. (Kossinets and Watts, "Origins of Homophily," 439.)

Kossinets, Gueorgi, and Duncan J. Watts. "Origins of Homophily in an Evolving Social Network." *American Journal of Sociology* 115 (2009): 405–50. Accessed February 28, 2010. doi:10.1086/599247.

Article in a newspaper or popular magazine

Newspaper and magazine articles may be cited in running text ("As Sheryl Stolberg and Robert Pear noted in a *New York Times* article on February 27, 2010, . . .") instead of in a note, and they are commonly omitted from a bibliography. The following examples show the more formal versions of the citations. If you consulted the article online, include a URL; include an access date only if your publisher or discipline requires one. If no author is identified, begin the citation with the article title.

1. Daniel Mendelsohn, "But Enough about Me," *New Yorker*, January 25, 2010, 68.
2. Sheryl Gay Stolberg and Robert Pear, "Wary Centrists Posing Challenge in Health Care Vote," *New York Times*, February 27, 2010, accessed February 28, 2010, <http://www.nytimes.com/2010/02/28/us/politics/28health.html>.
3. (Mendelsohn, "But Enough about Me," 69.)

Mendelsohn, Daniel. "But Enough about Me." *New Yorker*, January 25, 2010.

4. (Stolberg and Pear, "Wary Centrists.")

Stolberg, Sheryl Gay, and Robert Pear. "Wary Centrists Posing Challenge in Health Care Vote." *New York Times*, February 27, 2010. Accessed February 28, 2010. <http://www.nytimes.com/2010/02/28/us/politics/28health.html>.