

This assignment is designed to have you engage with the original scientific literature so as to learn to think about it critically and creatively. You are to read the papers addressing your chosen topic, communicate their interest and substance, and synthesize, evaluate, and criticize their arguments. The essays will be approximately 20% summary of the articles and 80% analysis/criticism/synthesis. Do not model your writing on the original literature; rather, write reviews or proposals for an imagined audience of other interested Yale students. Essays should be 15-20 pages, double-spaced. Your essay will take one of two distinct forms: a research proposal, or a review essay.

If you choose the format of a **Research Proposal**, your essay should include:

1. An introduction that convinces your readers that what you propose is important and interesting. It should start from the general and move to the particular, and it should make explicit connections to ideas and results widely recognized as important.
2. At the end of your introduction, clearly frame your proposal as a list of questions or hypotheses.
3. Demonstrate that it can be done. Here you must rely on the papers you have read. This step has both a logical and a practical part. The logic must be clear and convincing. The methods proposed must be doable and must have a clear, demonstrable relationship to the logic. Always remember that at the end of a scientific project someone is going to ask,

Does their experiment have anything to do with their hypothesis?
What is a clever alternative explanation that they have not thought of
and for which they have not planned a control?

Your experiments should be designed to provide convincing answers to such questions. Thus it may be appropriate to have both a section on logical derivation that

makes clear why you chose to test these particular hypotheses, and a section on experimental methods that shows how you are going to test them. If you can, describe explicitly the statistical tests you will use and the sample sizes that you will have. Describe your methods clearly and in enough detail so that someone else could repeat your experiment in a manner you would accept as fully comparable even if they got different results.

4. Include at the end of the proposal a section in which you discuss how you will interpret the results and what you will do next if they do not support your hypothesis.

If you choose the format of a **Review Paper**, your essay should include:

1. A general introduction to the field and topic being discussed (1-2 pages).
2. BRIEF summaries of the papers coordinated with EXTENSIVE critical evaluation of the issues presented arranged under subheadings that order ideas by logical relationship, not by papers read (12-16 pages).
3. A strong conclusion (1-2 pages)
4. Good grammar and clear, concise writing.

Grading criteria:

1. mechanics (10%)
2. effectiveness and accuracy of the summaries (20%)
3. clarity and grace of the style (20%)
4. the substance of thought, both critical and creative (50%)

Deadlines

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| 1. Choose the focus of your project | By midnight, February 8th |
| 2. Locate 5-10 recent papers relevant to your project | By midnight, February 15th |
| 3. Submit a 2-3 page outline of your project | By midnight, February 22nd |
| 4. Get feedback on outline from TF | By end of section, March 2-6 |
| 5. Write a first draft before section | Week of March 30th |
| 6. Trade drafts, give and assimilate feedback | Week of April 6th |
| 7. Submit draft to TF | By class, April 13th |
| 8. Receive feedback from TF | By end of section, April 20-24 |
| 9. Submit final draft | May 4 th , Midnight |
10. All written material should be sent to your TA in digitally readable form in the ClassesV2 Drop Box to facilitate feedback.
11. Drafts that are late on April 6th will be accepted with a penalty of 1/2 a letter grade per day late. Drafts more than 3 days late will not be accepted unless accompanied by a dean's excuse. May 4th is the final date for submitting papers under Yale College regulations. Anything handed in after that will only be counted if accompanied by a dean's excuse. You can use your one free pass for any earlier deadlines but not for the May 4th deadline, which is determined by Yale College policy.

Questions to ask while reading/writing

1. What are the central questions being addressed?
2. What are the main conclusions?
3. If the paper describes specific experiments:
 - a. Are the methods sound? e.g. How was the experiment structured? Are there appropriate controls? Was there sufficient replication? Was the statistical analysis appropriate? (We understand that you probably don't have the background necessary to answer these questions completely, but these are critical questions to ask when evaluating the scientific merit of a paper, and it is a good idea to start thinking about them). There are plenty of examples of published studies that use questionable methods!
 - b. Do the experiments really address the questions the author posed?
 - c. Are interpretations of the data believable? Are there alternative conclusions that can be drawn? Do the data show what the authors say they show?
4. Are the conclusions overstated?
5. Why are the conclusions important? Do they significantly advance our knowledge?

6. Do the conclusions point to directions for further research? Can you think of experiments that might resolve issues raised by the articles? This is especially important if you have chosen the proposal format.
7. Which paper/argument is most convincing?
8. How do the papers relate to each other?
9. Does YOUR essay have cohesive logic?

A good essay should move from the general to the specific, guiding the reader deeper into the subject being addressed. This does not always happen; authors sometimes assume the reader is familiar with the jargon specific to that field.

While you should be able to complete the assignment relying only on the papers supplied for each topic, feel free to seek out additional sources to fill in some of the background information necessary to understand them. However, this assignment is not meant to be a comprehensive review of your chosen topic and you should therefore concentrate on 5-10 papers to make your arguments.

Comment on citations and plagiarism:

The Writing Center has developed excellent web resources on why we cite and on what constitutes plagiarism. Please visit them, absorb their messages, and be aware that we can now easily check, using web-based resources, for plagiarism in papers. You can find the Writing Center resources here:

<http://www.yale.edu/bass/writing/sources/why.html>
<http://www.yale.edu/bass/writing/sources/plagiarism/index.html>

Here is an excerpt from a letter that Prof. Stearns wrote to his students in Beijing when he discovered plagiarism in their papers: “Plagiarism ... corrodes my relationship with you because I work hard to be a good teacher... It is hard work. You cannot imagine what it is like to correct the details of the 500th essay until you have done it yourself. I do that to help you learn to think more clearly, to express yourself convincingly, and to develop your intellectual power, your ability to understand the world. I also do it because I value you, I value your ideas, and I think the world will be a better place when you can all think clearly and behave intelligently. Later in life, some of you will be leaders with important positions. I want you to be competent and honest, for I have seen too often what terrible can things can happen when leaders are incompetent and dishonest. Leadership aside, I want all of you to be able to create value in your lives, whatever you end up doing, and you cannot do that if you deceive.

“When a student whom I am teaching steals words and ideas from an author without acknowledgment, I feel cheated, dragged down into the mud. I ask myself, why should I teach people who knowingly deceive me? Life is too short for that. There are better things to do.”