

Systems Neuroscience Scientific Publication Report

Each student must choose one primary scientific paper. **Note that review articles, even those published in peer reviewed scientific journals are not acceptable for this report.**

- State the hypothesis or scientific question being asked.
 - o Describe briefly the previous work that led the authors to ask this question.
- Describe 2-3 of the central experiments in the paper.
 - o What methods were used?
 - o What variables were manipulated?
 - o What variables were measured?
 - o What were the results of the measurement?
 - o What control(s) were used?
 - o How do the authors interpret their results
 - o Is there another possible interpretation of the results? If so, what?
- Point out a shortcoming of the article. Explain why it is a shortcoming and how it could have been prevented. Discuss how the shortcoming might alter the interpretations of the results. Examples are:
 - o Methodological limitations
 - o Uncontrolled variables
 - o Partially or completely unfounded interpretations/conclusions
 - o Obvious open questions left unanswered
- Propose a follow-up experiment to extend the results or to test an alternate interpretation (this MAY NOT relate to the shortcomings described).
 - o Propose a hypothesis.
 - o What experimental techniques will you use?
 - o What variables will you manipulate?
 - o What variables will you measure?
 - o What results do you expect if your hypothesis is correct?
 - o What other results are possible? How would you interpret those results?

The paper is expected to be at least 8 pages long and should not be more than 13 (1.5x or 2x spaced). Spend ~15% of the report discussing the hypothesis and previous work, ~45% discussing the experiments and interpretation, ~20% discussing shortcomings, and the rest discussing follow-up experiments. It is expected that the follow-up experiment will be primarily the student's own ideas.

E-mail Dr. Brasier with the paper you want to analyze by 4:00 pm on 4/4. **The report is due on May 3rd at the 4:00 pm.** It is strongly recommended that you begin working on the report early enough that you have an opportunity to discuss the primary research publication with your classmates, Dr. Brasier, and Teresa.

Although you are welcome to discuss the primary research paper with other students, you must write the report entirely on your own. All guidelines for plagiarism are strictly enforced (see the syllabus or <http://www.cmu.edu/policies/documents/Cheating.html>). You are not required to read reviews or other publications. However, if you do so, you should add a page of references to the end of your report (the reference page does not count toward the 8-13 page total). You should reference any published or unpublished source from which you gained ideas and insights (even if you do not directly quote the source). Quotations must also be clearly attributed.

(see back)

Strongly recommended Journals:

J Neurosci (<http://www.jneurosci.org/>)

Neuron (<http://www.cell.com/neuron/home>)

Nature Neuroscience (<http://www.nature.com/neuro/index.html>)

Also, when you discuss results, be sure to refer explicitly to figures. You may copy them in to the report if you want, but even if you do, you should describe it in your own words thoroughly enough that the methods and results should be clear to someone reading your report without them having to look at the figures.