

**Systems Biology 201:
Systems Biology of Animals: Genetics, Genomics, Development and Evolution
Spring 2010 – Updated 20100210**

Chalk Talks and Reviews

For each class, one student will sign up to present the paper in a *chalk talk*, and two students will prepare short (1 pg) reviews.

Expectations for Chalk Talk

The principle goal of your chalk talk is to describe the context of the paper and where it fits into the field at large. The talk should be more focused on the field than on the paper. To learn the necessary context, the presenting student will be expected to find and read 2-4 additional background papers. Suggestions are available upon request. The chalk talk is your opportunity to learn a lot about a field and teach your peers why this paper matters.

In a 12-15 minute presentation, you should present:

- The context and relevant background that motivated the work (Is this paper part of a debate in the field? Did it confirm or overturn a long-standing model?)
- The big question central to the work (What did they want to answer?)
- A brief sketch of the methods (very brief: organism, technique, scale)
- Major findings (again brief, we've all read the paper)
- Implications of the work for the field (Was there a paradigm shift?)
- Implications for biology (How do the findings extend across biology?)

It is an opportunity to.

Please end your presentation by identifying two or three questions (or major ideas) that you would like to use to focus the discussion. You may choose to dive into the guts of the method (How does fluorescence correlation spectroscopy work and what does it teach us?), or speculate on any implications (or contradictions) that emerge if the findings are universal (When might cell-to-cell communication be necessary in tissue patterning? When might it be expendable?).

A central goal of these presentations is to help you develop the skill of preparing concise talks. To this end, you are required to meet once with the course teaching fellow (Max Staller) to practice your chalk talk. These meetings will generally be 2-3 days before your presentation to give you time to revise. You may choose to decline this rehearsal but it is discouraged.

Checklist for preparing chalk talks

1. Prepare an outline that addresses the following questions (1 sentence each)
 - a. What field is this talk about?
 - b. What is the big question behind the paper?
 - c. How does this question fit into the field?
 - d. What methods did they use?
 - e. What was the most exciting finding?
 - f. What is the implication of this finding for the field?
 - g. What did the paper add to the field?
 - h. How has the field changed?
2. Choose your discussion points
 - a. These can be questions or observations
 - b. They can discuss the method
 - c. This is your chance to influence the direction of the class.
3. Layout your use of chalk board
 - a. Think about how to use cartoons instead of words (words are slow to write and hard to read).
 - b. Take a sheet of paper and fold it into thirds (like a letter). Each third will be one section of whiteboard.
 - c. Draw your talk on the paper
 - d. Pay attention to where on the board your figures sit. Put important cartoons at the top of each section
 - e. Leave some extra space for drawing during the discussion
 - f. Spread out your figures, they'll look better
 - g. A talk should take 3-4 white boards (columns on your sheet)
4. Practice drawing and writing on the white board
 - a. It's hard
5. Memorize the first 2-3 minutes of your talk, the momentum will help you.
 - a. Begin your talk with a spoken outline or roadmap
 - b. Some people like to make a check list on the left-most board
6. Time yourself with your cell phone timer or alarm clock
 - a. Staying under time is an invaluable life skill
7. Practice before coming to rehearsal
8. If you are super nervous, make an extra appointment with the TF.

Extra tips:

- When you face into the board, you need to speak more loudly.
- Try to limit yourself to using only two colors. It's a manageable number to markers to hold.

Expectations for the Written Review

For your written review, you will answer the following question: for this paper, are the conclusions supported by the data, and if so, are the conclusions interesting. Based on a close reading of the paper, you will prepare a short review that will be read and discussed in class. These reviews should:

- Summarize the context of the work (more briefly than the chalk talk)
- Clearly state the major question motivating the work
- Summarize the major findings
- Identify the strengths of paper
- Make some constructive criticism or discuss implications

The opening summary can closely resemble the first reviews in Faculty of 1000. The reviews must fit on one side of a sheet of letter paper. 12 pt font, 1 inch margins, 1.5 or double spacing encouraged. Please send reviews to Max (mstaller@fas.harvard.edu) by 9:30 am on the day we are reading the paper. He will bring both copies of both reviews for everyone to read near the end of class

Examples of constructive criticism:

- If a major finding were universally true, what would that mean for biology? (Maybe an internal contradiction arises?)
- Significant technical flaws or limitations (major issues)
- Are there other areas of the literature that might be relevant to this work that the authors have not introduced

Examples of poor criticism (to be avoided):

- This work is incomplete
 - All papers are incomplete - a paper should be judged on what's in it, not what's not in it
- Unrealistic expectations for more experiments
 - They are likely harder to do than they look
- This work is not completely original, it is a repeat of an experiment performed in another species
 - Demonstrating principles carry across species is important

Please focus on the positive aspects of the work.

Techniques for writing reviews:

For the summary, look at example "first reviews" from the Faculty of 1000 website.

Spend 1-2 sentences on each of the following

- Background and motivation
- The big question
- Strengths of the paper
- Implications of the findings
- Constructive criticisms