

Biol 801
Graduate Seminar: Elegant Experiments in Biology
Bob Goldstein

The goal of this course is to discuss some of the most important and beautifully designed experiments from across the diverse fields of biology. Students gain experience in reading papers spanning the breadth of biological research as well as explaining key experiments from their own field of study to other grad students. This is expected to strengthen your understanding of diverse fields of biology and to inspire creative thinking about designing experiments in your own research.

Students in the course choose the research papers that we will discuss by proposing candidate papers in the form of a short written blurb on a course blog:
<http://biol801.blogspot.com/>

Writing your blurb

Blurbs should be 100 words or fewer, plus a picture or movie (with an appropriate image credit included). Each person should have only one blurb, but you can modify it or replace it with one about a different paper at any time. Your blurb should be written for an intelligent audience who understands biology but not the particular subfield you're writing about, replace jargon with terms that make sense to everyone. Informal wording is fine.

Please provide a link to the paper you chose along with a link to one companion paper of any type that can help put the paper in context. Winning blurbs should stay up as a record of what we've chosen to read, and the person who wrote it should add an additional blurb sometime in the week following its discussion.

Voting

Voting will take place each Friday, 9am-5pm on a poll that will be provided at the blog. Each poll will include all blurbs posted by that Friday at 9am.

Please vote every Friday. Please don't vote for your own selection or for the shaded entries, which have already been presented. The voting will decide which topic (pair of papers) we'll read for the following Wednesday's meeting. Bob will break any voting ties, at least until we come up with a better solution to this.

Meetings

Each week we'll discuss the winning paper and its companion paper. Bob will bring donuts. If anyone knows of other papers that are especially relevant to the topic, please bring these along to present briefly and informally to everyone. Tracking down relevant research and relevant historical information and contributing it to the discussions is one of the most interesting parts of the course.

We'll try a different format in the 5th, 10th and final week. For these meetings, several people will present the main paper in their blurb for 5 minutes, and we'll leave 3 minutes for everyone to ask questions. We'll use a timer to ensure that these meetings don't exceed two hours. Please write a new blurb in the week after you do one of these short presentations.

BIOL 801

A NON-PUBLIC PLACE FOR OUR BLURBS ABOUT ELEGANT EXPERIMENTS

What protects chromosome ends from degradation?

Hermann Muller and Barbara McClintock discovered in the 1930s that broken chromosomes become degraded only at break sites and not at natural ends.

What protects natural chromosome ends from degradation? DNA polymerase can't replicate the very end of the lagging DNA strand, so there should be progressive shortening of chromosome ends with each replication cycle. In 1985, grad student Carol Greider did a clever experiment that revealed the solution: a telomere terminal transferase activity (telomerase) exists that can add a short repeat sequence to DNA at chromosome ends. Two weeks ago, she was up at 5am folding laundry when she got the call from Stockholm.




[Greider and Blackburn, 1985](#)

[Blackburn, Greider and Szostak \(who won the Nobel together this year\), 2006](#)

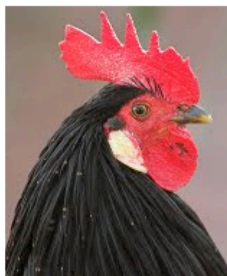
[...and a Washington Post story about the science, women in science, the prize and the laundry](#)

Image credit: townlinedrycleaners.com

POSTED BY BOB 0 COMMENTS 

Got Testes?

Arnold Berthold laid the foundation of modern endocrinology when he showed that the presence of testes were responsible for the secondary sexual characters (i.e, wattles, comb) of the rooster. It was known that removing the testes from a male chicken produced a capon, which failed to display the aggressive, sexual behavior of roosters.



Writing your blurb

Blurbs should be 100 words or fewer, plus a picture or movie (with an appropriate image credit included). Those who write more than 100 words will be flogged.

Each person should have only one blurb, but you can modify your blurb or replace it with one about a different paper at any time.

Your blurb should be written for an intelligent audience who understands biology but not the particular subfield you're writing about, i.e., avoid jargon. Informal wording is fine.

Please provide a link to the paper you chose along with a link to one companion paper of any type that can help put the paper in context.

Winning blurbs should stay up as a record of what we've chosen to read, and the person who wrote it should add an additional blurb sometime in the week following its discussion.

Voting

Voting will take place each Friday, 9am-5pm on a poll that will be provided here. Each poll will include all blurbs posted by that Friday at 9am.

Please vote every Friday. Please don't vote for your own selection or for the shaded entries, which have already been presented. The voting will decide which paper we'll read for the following Wednesday's meeting. Bob will break any voting ties, at least