Biology 446 - Unsolved Problems in Cell Biology - Fall 2020

This course, which usually enrolls about 30 students, begins with everyone reading James Watson's autobiographical book "The Double Helix", about how the molecular structure of DNA was discovered and related to its genetic function. This is combined with summaries of writings by Karl Popper and Thomas Kuhn about the Philosophy of Science, especially the criteria that real scientists have actually used to decide answers to specific questions. These historical, philosophical and even sociological aspects of research then serve as foundations for class discussions of a long series of specific research problems about which large amounts of information has been accumulated, but central questions continue to resist explanation.

Meets Monday, Wednesday and Friday, 10:40 AM - 11:30 AM, online.

Albert Harris: akharris@bio.unc.edu

Dr. Harris will not have in-person office hours this semester, but can be reached by e-mail, and will be happy to schedule zoom discussions on request.

Reading for the first week:

Monday, August 10: Philosophy of Science Assignment
 Please read this web page.

Wednesday, August 12: Read the book "The Double Helix" by James Watson.

Friday, August 14: Continue discussing the lessons of Watson's autobiography.

Pre-Crick-Watson Knowledge About Genes

What Watson Knew

Questions for discussion of Watson and Crick

Reading for Wednesday, August 19: Gastric Ulcers and Helicobacter pylori
Please read this web page and look at the links.

Reading for the week of Monday, August 24: Immunology and Autoimmune Diseases, such as Multiple Sclerosis
Please read the following web page. We will continue the discussion of autoimmune diseases over several classes.

We will develop the syllabus for the remainder of the semester over the coming weeks, with student input.

There will be written assignments along the way.

Final exam Monday, November 23, 8:00 AM

The exam will consist of essay questions to be chosen from a list that will be posted on the class web site and in Sakai.