Reading in Macromolecular Structure-Function Analysis (200B)

9a-noon, Mondays in the Ros-Kos connector (4RK-02)
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Overview:

This course will teach you how to establish a research program. This skill is essential for anyone who wants to be in a leadership position in a science-related job. It is also essential for passing the Biochemistry Ph.D qualifying exams (the inside and outside propositions). This course is intended for first-year Ph.D. students or M.S. students who are about to enter the Ph.D. program. Together we will cover the elements of a research plan, such as:

1. Identifying suitable research questions.
    - Is the question both scientifically important and yet still tractable?
    - Defining an underlying hypothesis that can test the question.

2. Proposing experiments that address your question.
    - Using quantitative models with testable predictions.
    - Integrating control experiments into a research plan.

3. Writing a clear research plan, in the NIH format.
    - Organizing your plan around discrete experiments.
    - Identifying potential pitfalls in experiments.
    - Explaining anticipated outcomes of experiments.

4. Communicating results to other scientists.
    - Providing concise answers and simple drawings.
    - Using schemes to describe molecular mechanisms.
    - Prioritizing important information.

Grades:

Grades are determined from writing assignments, in class presentations, and participation.

Citations:

In written assignments please follow standard procedures for attribution.

1. Figures from papers must be cited (for example: “Figure adapted from ref. 12”)
2. Text that comes from someone else must be quoted and referenced.
3. Ideas and interpretations of someone else’s data must be cited.