Syllabus Information

- Lab Reports due every Thursday, Coding and Report portion
    - Code online using moodle
    - Lab Reports in class, if not in class → they're late
- moodle2.bard.edu, register using key **sequenceS18**
- Pen & paper exams

Lab Reports

1. Introduction/Purpose
    a. Discuss biological significance and computational methods,
    b. Purpose of assignment
    c. Hypotheses and expected outcomes
2. Methods
    a. Outline of the code that was developed, classes/fxns/etc.
    b. Which biological data
    c. Statistical tests that were being run
3. Results
    a. Results of experiment
    b. What do they say about purpose
    c. Is Hypotheses correct?
4. Conclusion
    a. Summarize results in just one section
5. Citations and Acknowledgements
    a. Cite any books, websites, etc.
    b. Acknowledge any person that you worked with.

Data Sources

- Using a website NCBI to get and collect Data - sequencing, etc.
- Protein Data Bank, PDB, for data on Proteins

Course Goals

- Looking at Protein Structures, looking at shape, formation, and combinations
- Sequence Alignments
    - Compare sequence alignments, and understand how they relate to one another
    - Use alignments to develop phylogenetic trees with blast searches
- Microarray - A collection of genes, looking at their gene expression profiles
- Image Processing
    - Created an automated system, and reliably able to process and count information based on markers
- Clustering
- Markov Models
    - The current state is based on your previous state
    - Used to predict a Nucleotide sequence

- Develop Computational Skills for answering Biology Question
- Implement methods in Python
- Analyze Biological Data
- Scientific Writing for explaining research
- Discussing bioinformatics across disciplines
- Reading and writing Code in Groups

Final Project:

- Take one of the subjects covered, and then provide an in-depth examination