



5. Apply Markov chains and Hidden Markov Models to solve bioinformatics problems.
6. Use statistical tests commonly employed in bioinformatics.
7. Recognize modern statistical methods and software to solve problems in bioinformatics.
8. Interpret the statistical results as reported in the bioinformatics literature.

TEACHING STRATEGIES

A variety of teaching methods will be used, including in class lectures, exercises, quizzes, project, and



A project will explore a topic of the course in greater depth. A written report, along with a power point presentation, is required. A project that addresses a question through data analysis with a written report and summary of conclusions would be sufficient. More detailed descriptions of the project along with suggested topics will be posted to the course webpage at the appropriate times during the term. The due date for project submission is last week of the course.

COURSE SCHEDULE

Module	Date	Topic	Assignments	Quiz
1	8/31	Introduction to statistical methods in molecular biology		1
2	9/07	Introduction to R and Bioconductor	1	
3	9/14	Modeling DNA	2	
4	9/21	Markov Chains	3	2
5	9/28	Hidden Markov model	4	
6	10/05	Evolutionary models Phylogenetic tree estimation	5	
7	10/12	Statistical hypothesis testing	6	
8	10/19	Linear models	7	
9	10/26	Bayesian models		3
10	11/02	Analysis of frequency data	8	

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