CS4984 Introduction to Computational Biology

Department of Computer Science, Virginia Tech

Spring 2005

Course Description

This course gives an introduction to the basic computational methods used for problems arising in genomics. Topics include computational approaches to: pattern searching, sequence homology and alignment, and phylogeny.

Instructor: Liqing Zhang.   lqzhang@vt.edu

TA: Raghavendra Nyamagoudar.   raghavgn@vt.edu

Time & Place: Monday & Wednesday, 4-5:15pm, McB210

Office Hours: Wednesday 1-2:30pm

Prerequisites

Permission of the instructor.

Textbook

- Introduction to Bioinformatics Algorithms.

On Reserve

- Introduction to Bioinformatics Algorithms.

Syllabus

Time		Content
Week	1	Gene structure, mutation, and Genome Biology
Week	2	Molecular biology primer
Week	3	Perl
Week	4	Exhaustive search, chapter 4
Week	5	Dynamic programming, chapter 6
Week	6	Dynamic programming, chapter 6
Week	7	Combinatorial Pattern matching, chapter 9
Week	8	Combinatorial Pattern matching, chapter 9

Week	9	Clustering, chapter 10
Week	10	Trees, chapter 10
Week	11	Trees and overview of Bioinformatics areas
Week	12	Guest lecture
Week	13	Student presentation
Week	14	Student presentation

Homeworks

Each homework must be submitted by the beginning of class on the due date. No late homework is accepted.

Grading Policy

- 60% of the grade is from homework.
- 10% from the midterm exam.
- 20% from the final exam.
- 10% from the presentation.

Exams

- Midterm: Wednesday, March 2, 4-5:15pm, McB210
- Final: Saturday, May 7, 10-12noon, McB210

Ethics

The Honor Code applies. Students can discuss but their answers must show their own work.

Announcement

If any student needs special accommodations because of a disability, please contact the instructor during the first week of classes.