BINF 734 Advanced Programming for Bioinformatics

Spring 2010

1Preliminaries


2Pre-requisites

The student should have some programming experience in a language like C++, Java, or Matlab. Knowledge of Python is not required as this language will be taught at the beginning of the semester. Students should also have a foundation in linear algebra.

3Overview

This course will create programs for algorithms commonly used in bioinformatics. These algorithms include dynamic programming, genetic algorithms, principal component analysis, and clustering. These programs will be applied to real problems. As the semester progresses the course will also consider recent publications in bioinformatics and replicate them in part.

4Style of the Class

This class will require a significant amount of programming. In fact, there is no final or midterm. The grade is almost completely based on the programming and a project.

The semester will begin with the basics of Python and some useful modules. The class will then explore common algorithms and construct codes for them. These programs will be applied to recently published cases.

The types of algorithms and cases may change according to the research interests of the students.

5Distance Learning Option

This course is being offered with a distance learning option for an additional fee. The lectures will be broadcast live but not archived. DL students will be able to see the lectures from their home computer. They will get the audio feed and a live feed of the lecturer's computer screen. There are also methods for the students to ask questions during class.

Students enrolling in this option must enroll in the DL version of the class.

6Honor Code

All GMU students abide by an honor code. Students in this class will do their own work and write their own programs.