Machine Learning Bioinformatic BIOL 47106 Course Outline: Described by Dr. Konstantinos Krampis in Office hour meeting.

Notes taken by Srinjoy Goswami

PLEASE NOTE THAT THIS IS ALL TENTATIVE INFORMATION GIVEN. THIS IS SUBJECT TO CHANGE.

**THIS IS NOT A SYLLABUS. IT IS A ROUGH OUTLINE OF THE COURSE. **

This course will be replacing the Seminar Course Elective BIOL 47119 Biomedical Genomics I for Biology Majors in the Bioinformatics Concentration

****This course does have Computer Science (CSCI) Prerequisites that need to be met in order to register and take this course. ****

Semester When Course Will Be Offered: Fall Semester 2021

Professor teaching the course: Dr. Konstantinos Krampis of the Biology Department

Method of Instruction: Online Synchronous Lectures Wednesdays 10:00am-12:30pm

Note: In November, that month will be asynchronous (no live lectures)

Lectures will instead be video recordings that will be sent out on Blackboard, It will be Dr. Krampis speaking during lecture time about a topic. Lecture will be sent out at standard lecture time.

Weekly Homework, final project and participation are the criteria for grading.

Initially course will go over basics of:

- Calculus
- Linear Algebra
- Linear Regression
- Exponential and Linear Analysis
- Python

In addition to topics focused on Machine Learning.

Since it is a new course offering and in its first year, it will be lighter level in terms of course content as he will be trying to gauge and how students respond to different units in terms of difficulty. That means he can spend more time on one unit versus another. So, overall a slow approach in course content and speed.

The course will have focus on Biological Applications such as:

- Genomics and Gene Prediction
- Proteomics: focus in protein structure prediction
- Deep CNF (deep convolution neural fields) and image recognition and its applications in Bioinformatics and Biology
- Training to program and code to detect patterns in genomics and other applications.
- Analysis of sequencing data and imaging data

He also plans to discuss other topics that are still under review and thus not discussed.