BIOF 521: Bioinformatics for Analysis of Data Generated by Next Generation Sequencing

In this course, students will learn to analyze Next Generation Sequencing data particularly for DNA-seq, RNA-seq, CHIP-seq, and DNA-methylation. The course will be divided between lectures and hands-on sessions. Lectures will cover background knowledge and a survey of various software programs. For hands-on sessions, the course will primarily focus on the use of the Galaxy platform for analysis of raw data obtained from an Illumina's HiSeq-2000 and data available in the NCBI-SRA. Use of distributed and abstracted computing, such as Biowulf and cloud computing, will be also covered. There will be a term project in which students will design projects relevant to their research. INDIVIDUAL LAPTOP IS NEEDED FOR EACH CLASS.

Learning Objectives

- Learn to analyze Next Generation Sequencing data, including DNA-seq, RNA-seq, and CHIP-seq in Graphical User Interface, using Galaxy or in command line
- Write short scripts to do this analysis using command line resources

Credits: 3
Class Type: Graduate Course
Program: Bioinformatics and Data Science