BIOL 368

Term: FALL 2016  
Course No. & Section: BIOL 368-01

Course Title: BIOINFORMATICS LABORATORY

Professor: DR. KAM DAHLQUIST

Course Description:

Objectives:
- To gain foundational knowledge about molecular evolution, protein structure, and gene expression.
- To gain computer, data, and information literacy skills.
- To ask your own biological questions and answer them with the appropriate bioinformatics tools and techniques.
- To read and critically evaluate the primary scientific literature.
- To give effective scientific presentations.
- To be confident in “leaving your comfort zone”, flourishing outside of it, and learning more about bioinformatics on your own.

Content: Bioinformatics is the application of information technology (informatics) to biological data. Informatics is the representation, organization, manipulation, distribution, maintenance, and use of digital information. When applied to biological data, informatics provides databases and analytical tools for answering biological questions. Bioinformatics is inherently interdisciplinary, involving aspects of biology, computer science, mathematics, physics, and chemistry. While computers have been used to analyze biological data since their invention, the need for computational methods has recently exploded due to the huge amounts of data produced by genome sequencing projects and other high-throughput technologies. Bioinformatics techniques are being used to move the field of biology from a “one gene at a time” approach, to the analysis of whole systems. In this course, students will learn current bioinformatics techniques to address systems-level biological questions. Topics include sequence alignment and phylogeny, protein structural biology, and the analysis of DNA microarray data.

Prerequisites/Recommended Background:
- BIOL 112 (Gen Bio Lab II)
- BIOL 202 (Genetics)
- CHEM 220 (Organic Chemistry I)

Required Texts/References:
No required text to purchase. Reading materials will be posted on the course web site or placed on reserve at the library.

Course Work/Expectations:
- Weekly homework/journal assignments on a Wiki
- 6 Group Oral presentations

Comments:
- Counts as an upper division lab
- Counts as Information Literacy and Oral Communication flags for the University CORE Curriculum