CS499 Bioinformatics and Computational Biology I (Spring 2009)

Information

Instructor: Anwara Shehu, anwara@ATU.com
Office and Times: M/W, 1-2:30; T/R, 1:30 - 2:10 pm
Office Hours: M/W, 11:30 - 12:30 pm

Description

This course will introduce students to the rapidly growing field of computational biology. Students will learn how computer science, mathematics, and engineering can be applied to various biological problems, such as understanding sequence alignment, gene and motif finding, structure and function prediction and modeling, and designing biological experiments. This course will also present topics on advanced bioinformatics techniques, including sequence analysis, database searching, and molecular modeling.

Format

Material will be disseminated in the form of lectures. Students will be tested on understanding through weekly homeworks, some of which will contain simple programming assignments. Students can choose the language of their choice. Students will learn computer programming skills in their coursework and be encouraged to practice it as much as possible.

A class make-up of students with different backgrounds, encompassing biology, chemistry, statistics, computer science, and electrical engineering, will give students a glimpse of the interdisciplinary and highly collaborative work between the exact sciences and the life sciences. The environment and the class will give the experience of each individual student in the class.

Students will work in two to three member teams to complete their final project. They should choose a topic of interest and study the literature. The final presentation of selected research articles on a chosen topic will conclude their coursework.

Grade Breakdown

Hw 1: 10%
Hw 2: 10%
Hw 3: 20%
Hw 4: 25%
Presentation: 15%

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Designed by Brian Olson

http://cs.gmu.edu/~ashehu/Spring2009
CS499 Objectives and Outcomes

Information
Instructor: Amanda Shehu
Place and Time: STC #120, R 1:10 - 4:10 pm
Office Hours: STH #417, T 4:00 - 6:00 pm

Outcomes
At the end of this course, students will be able to implement alignment algorithms on protein sequences, modify and implement gene and motif finding algorithms, gather and present statistics on protein structures, implement simple geometric manipulations of protein chains, implement energy functions to rank structures of a protein chain, implement search algorithms to compute protein structures, and apply existing software to dock structures of proteins and ligands.

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Designed by Brian O'Brien

http://cs.gmu.edu/~astehu/?p=Outcomes#Spring2009#23Outcomes
CS499 Prerequisites and Reading

Information

Instructor: Ananda Shehu, ashehu@gmu.edu
Place and Time: STR A417, M 1:30 - 4:10 pm
Office Hours: STR A417, T 4:00 - 6:00 pm

Prerequisites

CS 499 is cross-listed as BINF 401 and ECE 499. No hard prerequisites are needed for this course beyond a programming course.

Reading


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Designed by Brian Olson

http://cs.gmu.edu/~ashehu/fsp/PrereqsAndReading/Spring2009#23[PrereqsAndReading]
# CS499 Syllabus

**Information**

Instructor: Amanda Sheto, amanda@cs.wwu.edu  
Email: amanda@cs.wwu.edu  
Office Hours: TTh 1-2, F 12-2,  
Phone: 360-624-2016

**Tentative Syllabus**

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<th>Date</th>
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<td>Analyzing Sequences (Alignments)</td>
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<td>Feb. 19</td>
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**Teaching**

Spring 2010  
Fall 2009

Spring 2009:  
CS499 Bioinformatics & Computational Biology  
Description and Format  
Objectives and Outcomes  
Prerequisites and Reading  
Tentative Syllabus  
Honor Code and Disability  
Fall 2008