

**WILMINGTON UNIVERSITY
COLLEGE OF ARTS AND SCIENCES
BASIC COURSE INFORMATION**

COURSE NUMBER: BIO 453

COURSE TITLE: Bioinformatics

CREDITS 3

PREREQUISITE SCI 251

FACULTY MEMBER

TERM

METHOD OF CONTACT/ OFFICE HOURS

COURSE TIME BREAKDOWN

64 Hours of Structured Learning Activities

TEXTBOOKS

*A list of course textbooks are available on the Wilmington University Bookstore website:

<http://bookstore.wilmu.edu/>

COURSE DESCRIPTION:

This course will introduce students to the concepts and tools involved in bioinformatics. Topics include biological databases, gene prediction, phylogenetic tree construction and protein structure basics. Students will be introduced to R programming, and will then apply understanding of R using hands-on activities and biological examples.

At the conclusion of this course students will be asked to evaluate the course based on the following objectives:

COURSE OBJECTIVES:

This course will provide students with the knowledge and skills to:

1. Produce solutions to problems using scientific reasoning. Apply the scientific method and critical thinking skills to draw logical conclusions based on the analysis of scientific data. Demonstrate the collection, analysis and reporting of data using the scientific method. Apply scientific principles and methods to real-world processes
2. Apply the use of bioinformatics databases and identify novel aspects of each. Produce database queries using key bioinformatics databases. Compare nucleotide sequence, protein and amino acid databases. Explain sequence alignment. Summarize fundamentals of protein structure and function.
3. Understand phylogenetic basics and perform phylogenetic tree construction. Summarize key

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