NIH MARC PROGRAM
DEVELOPING BIOINFORMATICS PROGRAMS FOR MINORITY INSTITUTIONS

ESSENTIAL COMPUTING FOR BIOINFORMATICS

Professor: Bienvenido Vélez, PhD
Professor of Computer Science and Engineering
832-4040 ext. 5827
Bienvenido.Velez@upr.edu

Units: TBA

Day/Time: TBA

Description: This course provides a broad introductory discussion of essential computer science concepts that have wide applicability in the natural sciences. Particular emphasis will be placed on applications to Bioinformatics. The concepts will be motivated by practical problems arising from the use of bioinformatics research tools such as genetic sequence databases. Concepts will be discussed in a weekly lecture and will be practiced via simple programming exercises using Python, an easy to learn and widely available scripting language.

Objectives: To provide students with:

- Awareness of the mathematical models of computation and their fundamental limits
- Basic understanding of the inner workings of a computer system
- Ability to extract useful information from various bioinformatics data sources
- Ability to design computer programs in a modern high level language to analyze bioinformatics data.
- Experience with commonly used software development environments and operating systems
- Experience applying computer programming to solve bioinformatics problems

Prerequisites: Basic Biochemistry and Molecular Biology and undergraduate math.

Students: 25 students maximum

Textbook: How to Think Like a Computer Scientist: Learning with Python
Allen B. Downey
Green Tea Press (January 4, 2002)

Supplemental readings (will be provided by the Professor as needed):