

Austin Community College

BITC 2350 Bioinformatics



For Registration information please Contact Steven Spurlock at sspulock@austincc.edu or 512-223-5915



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Eastview campus
10503 Twilight Vista
Austin, TX 78702
www.austincc.edu/biotech

Phone: 512-223-5915
E-mail: biotech@austincc.edu

Staff Profile:

Dr. Porter is currently the Director of Education & Co-Director of Research, Geospiza Inc. Geospiza is known world-wide for their bioinformatics software products and data management systems. Porter has over twenty years of experience sequencing DNA, analyzing DNA sequence data, and teaching courses in molecular biology. Her current interests focus on the application of bioinformatics algorithms in genomics research and include studies on genetic variation, SNP discovery, and the use of assembly algorithms in detecting alternative splicing. A former college professor and director of a nationally-acclaimed biotechnology education program, Dr. Porter leads Geospiza's educational offerings for college faculty, high-school teachers, and biotechnology professionals.

Dr. Porter continues to be active in the education community and serves on the advisory board for several high-school biotechnology programs. Dr. Porter believes bioinformatics provides an amazing opportunity for biology students to perform authentic research and that bioinformatics activities should be standard in all biology courses. Through her efforts, Geospiza has obtained funding from the National Science Foundation to develop laboratory manuals, data sets, and animated tutorials that allow instructors to use bioinformatics in their classrooms.

Short Course Description:

No matter what terms we use to describe it, digital biology or bioinformatics, the computational side of biology is becoming more important with each passing year. As our ability to gather molecular data increases, so too does our need to access data in public repositories and interpret data from such diverse activities as DNA sequencing, genotyping assays, microarrays, proteomics, X-ray crystallography and NMR. We also need the ability to work with data on unprecedented scales. It's not enough anymore to work with one sample and interpret a few results, now we need to be able to look at thousands of samples and quickly identify global trends and patterns in the data.

In this course, we are going to learn how to work with data from multiple types of experiments. We will learn how to interpret data on a small and large scale from DNA sequencing experiments, learn how to find information in molecular databases, learn how to conduct and interpret the results from database searching, how to work with molecular structures in order to gain insights into protein function, and see how new knowledge is obtained by comparing the information from genes and proteins in different species.