BIOINFORMATICS MINOR FOR CHEMISTRY MAJORS

The purpose of this interdisciplinary minor is to prepare students to enter the computer-intensive fields of bioinformatics, computational biology, computational chemistry, and molecular modeling, including genomics and proteomics. With the ever-increasing number of fully sequenced genomes, including the human genome, biological databases have grown at such a rate that storing, organizing, indexing, and ultimately mining the data have become key to answering biological questions. The methodologies of genomics, transcriptomics, and proteomics analyze genome structures, patterns of gene expression, and protein structure and function, respectively. Information obtained by computational biology and computational chemistry is used in the design of new drugs to treat a variety of diseases. Major drug and biotechnology companies are eager to hire people trained in the combination of biology and computer science skills that this minor provides.

Bioinformatics Minor for Chemistry Majors

Program Requirements

Code	Title	Credits
CS-135	Programming for Non-CS Majors	3
BI-141	Intro to Cellular and Molecular Biology	4
BI-203	Genetics	4
BT-378	Bioinformatics	4
Electives - take two courses		*5-8*
CS-131	Data Visualization and Statistical Analysis	
CS-234	Data Mining for Non-Cs Majors	
BT-350	Genomics	
BI-354	Systematics and Evolution	
BI-401	Selected Topics: Biological Sciences ((as approved by the Bioinformatics advisory board))	
MA-260	Linear Algebra	
MA-302	Probability and Statistics	
MA-303	Mathematical Modeling	
CH-350	Medicinal Chemistry ((will not double count as an elective for the major))	
PH-134	Computing Ethics	
Research/Internship in Bioinformatics		
BI-240	Research Experience	
BI-403	Internship: Biology	
BI-440	Advanced Research Experience for Undergraduates	
CS-498	Internship: Computer Science	
CS-499	Independent Study: Computer Science	
CH-480	Internship: Chemistry ((will not double count as an elective for the major))	
Total Credits		**20-23**

1. Understand the intersectionality of biology, computer science, and mathematics in the context of the field
2. Utilize existing tools to evaluate bioinformatics data, discover patterns, and draw conclusions
3. Communicate bioinformatics information in both written and oral forms
4. Develop laboratory skills that are used in the bioinformatics field