BIOLOGY (BIOL)

BIOL 50900 - Introduction to Computational Biology (3)
This course will cover the computational techniques used to access, analyze, and interpret the biological information in common types of biological databases and the biological questions that can be addressed by such methods, applicable to the study of the context of genes within the same genome and across different genomes, the study of molecular sequence data for the purpose of inferring the function, interactions, evolution, and structure of biological molecules, and the study of annotation and ontology.

BIOL 51000 - Data Systems in the Life Sciences (3)
This is a continuation of BIOL 50900. Students will examine how bioinformatics, statistics and computation are being used to support the discovery of new biomedical knowledge and learn the basics of computational methods used to analyze molecular sequences and structures.
Prerequisite: BIOL 50900 (may be taken concurrently) and (CPSC 51100 (may be taken concurrently) or DATA 51100 (may be taken concurrently))

BIOL 51200 - Research in Biotechnology (3)
Methods and sources for conducting research in biotechnology. A series of guest presentations will expose students to current trends in and applications of biotechnology. Students will conduct their own research based on these presentations. Use of primary sources, data collection techniques, and ethical conduct of research will be emphasized.
Prerequisite: BIOL 51000 (may be taken concurrently)

BIOL 59000 - Data Science Project for Life Scientists (3)
The student will pursue a research project that makes a scholarly contribution to existing knowledge and practice in the field of data analytics as it is applied to the Life Sciences. The student will write a formal report that documents the conduct, results, and conclusions of his or her project. Upon successful completion of the report, the student will submit the paper for review by a committee consisting of faculty in the Biology and Computer and Mathematical Sciences Departments, possibly along with additional experts from industry. The student will make an oral defense of the work to the committee.
Prerequisite: BIOL 51200 (may be taken concurrently)