

Typical Concentration Area Elective courses for **Bioinformatics**

Important: The courses listed below are *typical* of Concentration Area Elective (CAE) courses chosen by Bioinformatics students. This is NOT a complete list of appropriate courses. Specific course choices should be made in consultation with the advisor. Appropriate CAE courses will provide depth in the discipline of Bioinformatics *and* help to make the student competitive for the position or program that will be entered after the B.S. CAE courses must comply with the guidelines listed on the Concentration Area Elective form, available in the BioE office or under the Forms link on the BioE web site. Be sure to use the CAE form for the curriculum you are following.

Course	Relevance
BioE 407 – <i>Pattern Recognition I</i>	Methods for analyzing DNA and protein sequences
BioE 482 – <i>Introduction to Optimization Methods in Bioinformatics</i>	Optimization algorithms and modeling
BioE 483– <i>Molecular Modeling in Bioinformatics</i>	Fundamentals of protein structure analysis and modeling
BioS 422 – <i>Cell and Molecular Biology</i>	Fundamentals of cell and molecular biology
BioS 430 – <i>Evolution</i>	Mechanisms of genetic and phenotypic stability and change in populations and species
BioS 452 - <i>Biochemistry I</i>	Chemistry of proteins, nucleic acids, carbohydrates and lipids
BioS 454 – <i>Biochemistry II</i>	Metabolism of amino acids, nucleic acids, proteins. Biosynthesis of macromolecules and regulation of macromolecular synthesis.
CS/MCS 401 - <i>Computer Algorithm I</i>	Foundations of algorithm and data structure
CS 480 - <i>Database Systems</i>	Foundations of database and design
Stat 401- <i>Introduction to Probability</i>	Foundations of probability