

## 2025-2026 Major in Biological Sciences

### Biochemistry and Biophysics Concentration Worksheet

Any three of the following courses:

**BIOL\_SCI 323-0 Bioinformatics: Sequence and Structure Analysis** - Use of informational and modeling techniques to explore evolutionary and other problems related to the genome. *Prereqs: BIOL\_SCI 301-0.*

**BIOL\_SCI 338-0 Modeling Biological Dynamics** - Mathematical and computational techniques for analyzing and predicting biological dynamics. Techniques include statistical models, discrete- and continuous- time dynamical models, and stochastic models. Applications cover a range of scales, with an emphasis on common mathematical concepts and computational techniques, the interpretation of existing data, and making predictions for new experiments. *Prereqs: at least one of MATH 218-1, MATH 220-1, MATH 240-0, STAT 202-0, BIOL\_SCI 337-0, OR equivalent.*

**BIOL\_SCI 354-0 Systems Biology** - Random genetic processes, gene expression, cell adaptation, developmental processes, genomics. *Prereqs: BIOL\_SCI 201-0 and BIOL\_SCI 202-0.*

**BIOL\_SCI 360-0 Principles of Cell Signaling** - Emphasis on principles, components, and logic that are common to different cell signaling systems. Modern experimental strategies for studying cellular signaling as well as the implications of disrupting cell communication pathways in disease will be described. *Prereqs: BIOL\_SCI 202-0 or BIOL\_SCI 240-0, and BIOL\_SCI 203-0 or BIOL\_SCI 241-0.*

**BIOL\_SCI 361-0 Protein Structure and Function** - Structure and function of proteins; x-ray crystallography and NMR. *Prereqs: BIOL\_SCI 301-0.*

**BIOL\_SCI 363-0 Biophysics** - Protein interaction with small molecules; protein tertiary structure determination. *Prereqs: BIOL\_SCI 202-0 or BIOL\_SCI 240-0, BIOL\_SCI 203-0 or BIOL\_SCI 241-0, and BIOL\_SCI 301-0.*