

2025-2026 Major in Biological Sciences

Molecular Genetics and Genomics Concentration Worksheet

Any three of the following courses:

BIOL_SCI 332-0 Conservation Genetics - Critical issues in the management and understanding of endangered populations. *Prereqs: BIOL_SCI 203-0 or ENVR_SCI 202-0.*

BIOL_SCI 341-0 Population Genetics - Processes that affect allele frequency change and thus cause evolution. *Prereqs: BIOL_SCI 203-0 or BIOL_SCI 241-0, and BIOL_SCI 337-0 or another course in statistics.*

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 378-0 Functional Genomics - Patterns of gene expression and their causes. *Prereqs: BIOL_SCI 202-0 or BIOL_SCI 240-0 and BIOL_SCI 203-0 and BIOL_SCI 241-0.*

BIOL_SCI 390-0 Molecular Biology of Genome Editing and Engineering - Nucleic acid structure; DNA mutation, repair, recombination, replication, restriction, and modification; translation. *Prereqs: BIOL_SCI 301-0.*

BIOL_SCI 391-0 Developmental Biology - Molecular mechanisms underlying early embryonic development, including establishment of the body and organogenesis. Discussion of original literature. *Prereqs: BIOL_SCI 202-0 or BIOL_SCI 240-0, and BIOL_SCI 203-0 or BIOL_SCI 241-0, and BIOL_SCI 301-0.*

BIOL_SCI 392-0 Morphogenesis - Development of overarching principles alongside classic readings of experiments exploring key concepts in developmental biology. *Prereqs: BIOL_SCI 202-0 or BIOL_SCI 240-0, BIOL_SCI 203-0 or BIOL_SCI 241-0, BIOL_SCI 234-0, and BIOL_SCI 301-0.*

BIOL_SCI 393-0 Human Genomics - This course will examine how the analysis of the human genome and its variation provides insight into diversity, human health and our evolutionary history. *Prereqs: BIOL_SCI 203-0 or BIOL_SCI 241-0.*

BIOL_SCI 395-0 Molecular Genetics - Exploration of recent advances that have revolutionized the fields of gene expression and cell regulation. Discussion of articles and primary research papers. *Prereqs: BIOL_SCI 202-0 or BIOL_SCI 240-0, BIOL_SCI 203-0 or BIOL_SCI 241-0, and BIOL_SCI 301-0.*

BIOL_SCI 396-0 Evolution and Diversity: Mushroom Genetics and Genomics - The occurrence of natural genetic variation is the raw material with which evolution has sculpted every species that has ever existed. In this laboratory-based course, students are immersed in the world of a widespread and biologically famous mushroom-forming fungus. *Prereqs: BIOL_SCI 202-0 or BIOL_SCI 240-0, BIOL_SCI 203-0 or BIOL_SCI 241-0, and BIOL_SCI 301-0.*