

Molecular Genetics & Genomics Concentration Worksheet

Major in Biological Sciences

To complete this concentration, Biological Sciences Majors may choose any 3 of the following courses:

- ___ **BIOL_SCI 332-0** **Conservation Genetics** - Critical issues in the management and understanding of endangered populations. *Prereqs: BIOL_SCI 201-0 OR 215-0 OR ENVR_SCI 202-0.*
- ___ **BIOL_SCI 341-0** **Population Genetics** - Processes that affect allele frequency change and thus cause evolution. *Prereqs: BIOL_SCI 201-0 OR 215-0; BIOL_SCI 202-0 OR 219-0; a course in statistics.*
- ___ **BIOL_SCI 353-0** **Molecular Biology Laboratory** - Project-based approach to learning lab skills in eukaryotic molecular biology. *Prereqs: BIOL_SCI 201-0 OR 215-0; BIOL_SCI 202-0 OR 219-0; BIOL_SCI 301-0.*
- ___ **BIOL_SCI 354-0** **Quantitative Analysis of Biology** - Random genetic processes, gene expression, cell adaptation, cell cycle, developmental morphogens, phylgenomics. *Prereqs: BIOL_SCI 201-0 or 215-0.*
- ___ **BIOL_SCI 359-0** **Quantitative Experimentation in Biology** - Laboratory in experimental methods in quantitative biology. Random genetic processes, gene expression, cell cycle, developmental morphogens, genome sequencing. *Prereqs: BIOL_SCI 201-0, BIOL_SCI 215-0, or BIOL_SCI 354-0.*
- ___ **BIOL_SCI 378-0** **Functional Genomics** - Patterns of gene expression and their causes. *Prereqs: BIOL_SCI 201-0 OR 215-0; BIOL_SCI 202-0 OR 219-0; a course in statistics.*
- ___ **BIOL_SCI 390-0** **Advanced Molecular Biology** - Nucleic acid structure; DNA mutation, repair recombination, replication, restriction, and modification; translation. *Prereqs: BIOL_SCI 201-0 or 215-0; BIOL_SCI 202-0 OR 219-0; and BIOL_SCI 301-0.*
- ___ **BIOL_SCI 391-0** **Development and Evolution of Body Plans** - Molecular mechanisms underlying early embryonic development, including establishment of the body and organogenesis. Discussion of original literature. *Prereqs: BIOL_SCI 201-0 OR 215-0; BIOL_SCI 202 OR 219-0; BIOL_SCI 301-0*
- ___ **BIOL_SCI 392-0** **Developmental Genetics Laboratory** - Development of independent projects alongside classic readings and experiments exploring key concepts in developmental biology. *Prereqs: BIOL_SCI 201-0 OR 215-0, BIOL_SCI 202-0 OR 219-0, BIOL_SCI 234 OR 222-0; BIOL_SCI 301-0*
- ___ **BIOL_SCI 393-0** **Human Genomics** - Recent advances in human ancestry and clinical medicine have underscored the importance of genetic principles. Biomedical Genetics will dive deeply into the logic and methods of transmission and regulatory genetics. *Prereqs: BIOL_SCI 201-0 OR 215-0; BIOL_SCI 202-0 OR BIOL_SCI 219-0; BIOL_SCI 301-0*
- ___ **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. *Prerequisite: BIOL_SCI 378-0, BIOL_SCI 390-0, or BIOL_SCI 393-0.*