

## Department of Biological Sciences CELL and MOLECULAR Track

This sequence of courses is specifically aimed at those students interested in biological processes that occur at the cellular and sub-cellular levels. The major breakthroughs in biomedical research over the past few decades have depended on persons trained to study fundamental cellular processes such as DNA replication, recombination, transcription, translation and signal transduction. An emphasis in Cell and Molecular Biology is excellent preparation for admission to graduate programs in such diverse fields as Immunology, Biochemistry, Molecular Biology and Physiology. Careers that students might pursue with this degree plan include basic and applied biomedical research in industrial, clinical and academic settings.

### **Required Courses**

*BIOL 200*: Biology Today (1)  
*BIOL 204*: Concepts in Biology I (5)  
*BIOL 205*: Concepts in Biology II (5)  
*BIOL 350*: General Genetics (4)  
*CHEM 125, 127 & 128 or 135, 137 & 138*: General Chemistry (10)  
*CHEM 306 or 341, 344 & (345 or 346)*: Organic Chemistry (4-10)  
*MATH 131 or 134 & 135*: Calculus (5-6)  
*PHYS 201*: College Physics (5)  
Biochemistry strongly recommended

In addition to completion of the required courses, a minimum of 17 hours of Biology electives must be completed. At least one course from each Group (I, II, III) must be completed as part of the 17 hours, and 10 of those hours must be 400 level.

### **Recommended Courses**

*Group I. Biology of Organisms*  
BIOL 313: Microbiology (4)

*Group II. Ecology, Evolution & Behavior*  
BIOL 451: Evolution (3)

*Group III. Cellular, Molecular & Regulatory Biology*  
BIOL 407: Cell Biology (4)  
BIOL 408: Molecular Biology (3)  
BIOL 421: Molecular Biotechnology (3)  
BIOL 431: Developmental Biology (3)  
BIOL 447: Microbial Genetics (3)

*Biology Electives*  
BIOL 352: Laboratory in Genetics (2)  
BIOL 401: Independent Research (1-4)

**The following courses are also good choices to fulfill Biology elective requirements.**

Group I: Human Anatomy & Physiology I (331), Human Anatomy & Physiology II (332)

Group II: Chemical Ecology (441), Microbial Ecology (445)

Group III: Animal Physiology (411), Plant Physiology (417), Neurophysiology (418), Endocrinology (438), Immunobiology (439), Molecular Neurobiology (440), Plasmid Biology (442), Microbial Physiology (443)

Biology Electives: Topics in Biology (400), Developmental Biology Lab (431L), Microbial Physiology Lab (444), Internship (489), Seminar (490)