**Biological Sciences (BIOL_SCI)**

**BIOL_SCI 302-0 Fundamentals of Neurobiology (1 Unit)**
Cellular and biochemical approaches to the nervous system, focusing on neuron structure and function.
Prerequisite: Students must have completed BIOL_SCI 201-0 or BIOL_SCI 215-0 and BIOL_SCI 202-0 or BIOL_SCI 219-0, and BIOL_SCI 217-0 or BIOL_SCI 310-0, and BIOL_SCI 301-0 to register for this course. May not receive credit for both BIOL_SCI 302-0 and NEUROSCI 202-0.

**BIOL_SCI 305-0 Neurobiology Laboratory (1 Unit)**
Hands-on experience in the performance of experiments in cellular neurophysiology.
Prerequisite: Students must have completed BIOL_SCI 302-0 or NEUROSCI 311-0 and BIOL_SCI 222-0 or BIOL_SCI 234-0 to register for this course.

**BIOL_SCI 315-0 Advanced Cell Biology (1 Unit)**
Relationship of shape, structural dynamics, and function with the cellular state and gene expression; cell-to-cell communication.
Prerequisite: Students must have completed BIOL_SCI 201-0 or BIOL_SCI 215-0 and BIOL_SCI 202-0 or BIOL_SCI 219-0, and BIOL_SCI 301-0 to register for this course.

**BIOL_SCI 323-0 Bioinformatics: Sequence and Structure Analysis (1 Unit)**
Use of informational and modeling techniques to explore evolutionary and other problems related to the genome.
Prerequisite: Students must have taken BIOL_SCI 241-0 or BIOL_SCI 301-0 in order to register for this class.

**BIOL_SCI 327-0 Biology of Aging (1 Unit)**
Biological aspects of aging, from molecular to evolutionary.
Prerequisite: Students must have completed BIOL_SCI 201-0 or BIOL_SCI 215-0 and BIOL_SCI 202-0 or BIOL_SCI 219-0, and BIOL_SCI 301-0 to register for this course.

**BIOL_SCI 338-0 Modeling Biological Dynamics (1 Unit)**
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.
Prerequisites: at least one of MATH 218-1, MATH 220-1, MATH 240-0, STAT 202-0, BIOL_SCI 337-0, OR equivalent.

**Biological Sciences (BIOL_SCI)**

**BIOL_SCI 341-0 Population Genetics (1 Unit)**
Processes that affect allele frequency change and thus cause evolution.
Prerequisite: Students must have completed BIOL_SCI 203-0 or BIOL_SCI 215-0 and BIOL_SCI 202-0 or BIOL_SCI 219-0, and a course in statistics to register for this course.

**BIOL_SCI 345-0 Topics in Biology (1 Unit)**
Topics vary but always deal with an area of advanced study in the life sciences. May include laboratory, depending on topic. May be repeated for credit with different topic.
Prerequisites: Students must have completed BIOL_SCI 203-0 or BIOL_SCI 215-0, BIOL_SCI 202-0 or BIOL_SCI 219-0, and BIOL_SCI 234-0 to register for this course.

**BIOL_SCI 346-0 Field Ecology (1 Unit)**
An intensive experience in field ecological research.

Prerequisite: Students must have completed BIOL_SCI 203-0 or BIOL_SCI 215-0 and a course in statistics to register for this course.

**BIOL_SCI 347-0 Conservation Biology (1 Unit)**
Evolution, ecology, and conservation of patterns of biological diversity.
Prerequisite: Students must have completed BIOL_SCI 203-0 or BIOL_SCI 215-0 or ENVR_SCI 202-0 and a course in statistics to register for this course.

**BIOL_SCI 354-0 Quantitative Analysis of Biology (1 Unit)**
Random genetic processes, gene expression, cell adaptation, cell cycle, developmental morphogens, phylogenomics.
Prerequisite: Students must have completed BIOL_SCI 201-0 or BIOL_SCI 215-0, and BIOL_SCI 202-0 or BIOL_SCI 219-0 to register for this course.
**Natural Sciences Distrito Area**

**BIOL_SCI 355-0 Immunobiology (1 Unit)**
Nature of host resistance; characteristics of antigens, antibodies; basis of immune response; hypersensitivity.
Prerequisite: Students must have completed BIOL_SCI 203-0 or BIOL_SCI 215-0 and BIOL_SCI 202-0 or BIOL_SCI 219-0, and BIOL_SCI 301-0 to register for this course.

**BIOL_SCI 356-0 Endocrinology (1 Unit)**
Physiology and biochemistry of hormones and glands of internal secretion in vertebrates; endocrine glands.
Prerequisite: Students must have completed BIOL_SCI 325-0 to register for this course.

**BIOL_SCI 358-0 Advanced Physiology Laboratory (1 Unit)**
Experiments in several physiological systems. Design, techniques, data analysis, and report writing emphasized.
Prerequisite: Students must have completed BIOL_SCI 310-0 or BIOL_SCI 217-0, and BIOL_SCI 234-0 or BIOL_SCI 222-0 to register for this course.

**BIOL_SCI 361-0 Protein Structure and Function (1 Unit)**
Structure and function of proteins; x-ray crystallography and NMR.
Prerequisites: Students must have completed BIOL_SCI 301-0 to register for this course.

**BIOL_SCI 378-0 Functional Genomics (1 Unit)**
Patterns of gene expression and their causes.
Prerequisite: Students must have completed BIOL_SCI 203-0 or BIOL_SCI 215-0 and BIOL_SCI 202-0 or BIOL_SCI 219-0, to register for this course.

**BIOL_SCI 390-0 Advanced Molecular Biology (1 Unit)**
Nucleic acid structure; DNA mutation, repair, recombination, replication, restriction, and modification; translation.
Prerequisite: Students must have completed BIOL_SCI 201-0 or BIOL_SCI 215-0 and BIOL_SCI 202-0 or BIOL_SCI 219-0, and BIOL_SCI 301-0 to register for this course.

**BIOL_SCI 391-0 Developmental Biology (1 Unit)**
Molecular mechanisms underlying early embryonic development, including establishment of the body and organogenesis. Discussion of original literature.
Prerequisite: Students must have completed BIOL_SCI 201-0 or BIOL_SCI 215-0 and BIOL_SCI 202-0 or BIOL_SCI 219-0, and BIOL_SCI 301-0 to register for this course.

**BIOL_SCI 395-0 Molecular Genetics (1 Unit)**
Exploration of recent advances that have revolutionized the fields of gene expression and cell regulation. Discussion of articles and primary research papers.
Prerequisite: Students must have completed BIOL_SCI 203-0 or BIOL_SCI 215-0, and BIOL_SCI 202-0 or BIOL_SCI 219-0, and BIOL_SCI 301-0 to register for this course.