

Genetics and Genomics

Genetics is the study of genes, genetic variation, and heredity, which all have at their core nucleic acid sequences. The field of genetics examines how genetic information is transmitted from parent to offspring or from cell to cell, and the term genetics also broadly encompasses the use of mutant organisms to assign biological functions to DNA sequences. With advances in DNA sequencing methods, genomic analyses have become common. Genomics studies include investigations such as identifying all of the genes that are activated in response to infection with a particular pathogen

Graduate programs. Graduate students with a BS degree may pursue careers in medicine, genetic counseling, biotechnology, bioinformatics, forensics, or work as technicians in university, hospital, government, or industrial research laboratories.

GENERAL BIOLOGY COURSE REQUIREMENTS FOR THE BIOLOGY BS DEGREE

1. BIOL 2000 Molecules and Cells
2. BIOL 2010 Ecology and Evolution
3. BIOL 2040 Investigations in Molecular Cell Biology
4. Category A: Genetics and Genomics. Choose one course from the following
 - " BIOL 3050 Genetics
 - " BIOL 3060 Introduction to Genetics
 - " BIOL 3150 Introduction to Genomics
5. Category B: Physiology and Organismal Biology. Choose one course from the following
 - " BIOL 3030 Comparative Vertebrate Physiology
 - " BIOL 3210 Plant Biology
 - " BIOL 4110 Ornithology
 - " BIOL 4330 Human Physiology
 - " BIOL 4450 Behavioral Ecology
6. One Advanced Experience course (see current listing on the Biology Checklist)

ADDITIONAL COURSE REQUIREMENTS TO COMPLETE A CONCENTRATION IN GENETICS AND GENOMICS

1. BIOL3050 Genetics (
2. Choose FIVE courses from the following list:

BIOL 2300 Biostatistics	BIOL 4830 Research in Molecular Biology Lab
BIOL 3150 Introduction to Genomics	BIOL 4870 Research in Molecular Genetics
BIOL 4200 Introduction to Bioinformatics	BIOL 5040 Topics in Developmental Biology
BIOL 4220 Research in Molecular Cell Biology	BIOL 5060 Recombinant DNA Technology
BIOL 4250 Population Genetics	BIOL 5210 Molecular Basis of Infectious Disease
BIOL 4400 Molecular Biology	BIOL 5430 Genomics and Personalized Medicine
BIOL 4570 Principles of Immunology	BIOL 5700 Biology of the Nucleus
BIOL 4802 Research in Evolutionary Genomics	

See the following faculty for advice about course selection and/or post-