

Genetics and Molecular Biotechnology (GNBT) Major Requirements

Lower-division requirements (72-73 units)

general biology (13-14 U): BIOL005A+B+C and BIOL05LA or BIOL020
general chemistry (15 U): CHEM001A+B+C and CHEM01LA+LB+LC (or honors versions)
organic chemistry (12 U): CHEM008A+B+C and CHEM08LA+LB+LC (or honors versions)
calculus (8 U): MATH007A+B or MATH009A+B or MATH09HA+B
general physics (15 U): PHYS002A+B+C and PHYS02LA+LB+LC (or honors versions,
or PHYS40 ABC series w/o labs)
intro statistics (5 U): STAT010
GNBT010 Genetics and Society (4 U)

Upper-division requirements (24 units)

BCH100 Introductory Biochemistry (4 U) or BCH110A (or honors) General Biochemistry (4 U)
BIOL102 Introductory Genetics (4 U)
BIOL107A Molecular Biology (4 U) or BCH110C (or honors) General Biochemistry (4 U)
GNBT100 Biotechnology (4 U)
GNBT110 Advanced Genetics (4 U)
GNBT114 Molecular Genetics Lab (4 U)

+ 16-20 units from one of the following tracks

Genetics & Genomics

a) GNBT130 Genomes: Structure and Evolution (4 U)

b) *One laboratory course* (4 units)

GNBT120 Analysis of Genomes (4 U)

BIOL118 Methods in Molecular Ecology and Evolution (4 U)

MCBL/BIOL121L Microbiology Laboratory (4 U)

GNBT197/199 Research for Undergraduates (4 U total)

c) *Two or more electives* (8-12 units)

BCH185 Epigenetics in Development and Disease (4 U)

BCH188 Fundamentals of Genomics Technologies (4 U)

BIOL105 Evolution (4 U)

BIOL107B Advanced Molecular Biology (4 U)

BIOL108 Population Genetics and Genomics (4 U)

BIOL115 Human Genetics (4 U)

BIOL119 Introduction to Genomics and Bioinformatics (4 U)

BIOL/BPSC148 Quantitative Genetics (4 U)

BPSC/CBNS109 Epigenetics (4 U)

BPSC150 Genes, Selection, and Populations (4 U)

BPSC/ENTM184 Planning Postgrad Career in Life Sci (2 U)

CBNS108 Introduction to Developmental Biology (4 U)

CBNS/ENTX150 Cancer Biology (4 U)

CBNS165 Stem Cell Biology (4 U)

ENTM101 Evolution of Insect Genomes

ENTM111 Mol Biol & Genomics of Human Disease Vectors (3 U)

ENTM/BIOL/BPSC112 Systematics (4 U)

ENTM/MCBL139 The Evolution of Conflict and Cooperation (4 U)

MCBL/BIOL121 Introductory Microbiology (4 U)

Pre-Genetic Counseling

a) *One of*

GNBT120 Analysis of Genomes (4 U)

GNBT130 Genomes: Structure and Evolution (4 U)

BIOL107B Advanced Molecular Biology (4 U)

BIOL119 Introduction to Genomics and Bioinformatics (4 U)

b) PSYC178 Health Psychology (4 U)

c) *Two or more electives* (8-12 units)

BCH185 Epigenetics in Development and Disease (4 U)

BCH188 Fundamentals of Genomics Technologies (3 U)

BIOL107B Advanced Molecular Biology (4 U)

BIOL108 Population Genetics and Genomics (4 U)

BIOL115 Human Genetics (4 U)

BIOL118 Methods in Molecular Ecology and Evolution (4 U)

BPSC/CBNS109 Epigenetics (4)

BPSC/BIOL148 Quantitative Genetics (4 U)

CBNS108 Introduction to Developmental Biology (4)

CBNS/PSYC121 Developmental Neuroscience (4)

CBNS/ENTX150 Cancer Biology (4)

CBNS165 Stem Cell Biology (4)

CBNS169 Human Embryology (4)

ENTM111 Mol Biol & Genomics of Human Disease Vectors (3 U)

ENTM/MCBL139 The Evolution of Conflict and Cooperation (4 U)

GNBT120 Analysis of Genomes (4 U)

GNBT130 Genomes: Structure and Evolution (4 U)

GNBT197/199 Research for Undergraduates (4 U total)

MCBL/BIOL121 Introductory Microbiology (4 U)

MCBL/BIOL/PLPA123 Introduction to Comparative Virology (4 U)

MCBL/BIOL124 Medical Microbiology (4 U)

MCBL129 Host Responses to Viral Pathogens (4 U)

CBNS/ENTX150 Cancer Biology (4 U)

CBNS165 Stem Cell Biology (4 U)

ENSC/NEM120 Soil Ecology (4 U)

ENSC133 Environmental Microbiology (4 U)

ENSC/BPSC134 Soil Conditions and Plant Growth (4 U)

ENTM101 Evolution of Insect Genomes (4 U)

ENTM111 Mol Biol & Genomics of Human Disease Vectors (3 U)

ENTM/ENTX/PLPA125 Pesticides, Biol Organisms, & the Environment (3 U)

ENTM126 Medical and Veterinary Entomology (4 U)

ENTM/MCBL139 The Evolution of Conflict and Cooperation (4 U)

ENTM/BIOL173 Insect Physiology (4 U)

GNBT130 Genomes: Structure and Evolution (4 U)

MCBL/BIOL121 Introductory Microbiology (4 U)

MCBL/BIOL/PLPA123 Introduction to Comparative Virology (4 U)

MCBL126 Microbiomes (3 U)

MCBL127 Microbial Evolution (4 U)

MCBL129 Host Responses to Viral Pathogens (4 U)

MCBL/ENSC133 Environmental Microbiology (4 U)

NEM/BIOL159 Biology of Nematodes (3 U)

Molecular Biotechnology

i) *One or two laboratory courses* (4-8 units)

BPSC/BIOL104 Foundations of Plant Biology (4 U)

BPSC/BIOL143 Plant Physiology (4 U)

GNBT120 Analysis of Genomes (4 U)

MCBL/BIOL121L Microbiology Laboratory (4 U)

GNBT197/199 Research for Undergraduates (4 U total)

PLPA/BIOL/MCBL120+120L Introduction to Plant Pathology with Lab (4 U)

ii) *Two or more electives* (8-16 units)

BCH188 Fundamentals of Genomics Technologies (3 U)

BIOL107B Advanced Molecular Biology (4 U)

BIOL119 Introduction to Genomics and Bioinformatics (4 U)

BPSC/CBNS109 Epigenetics (4 U)

BPSC135 Plant Cell Biology (4 U)

BPSC/BIOL148 Quantitative Genetics (4 U)

BPSC149 Nanobiotechnology (2 U)

BPSC150 Genes, Selection, and Populations (4 U)

BPSC183 Plant Biochem. & Pharm. of Plant Metabolites (4 U)

BPSC/ENTM184 Planning Postgrad Career in Life Sci (2 U)

CBNS108 Introduction to Developmental Biology (4 U)