



## Current course offerings in Genetics & Molecular Biotechnology

The GNBT B.S. degree will start  
in the 2026-27 academic year.

**GNBT 100 Biotechnology 4** Lecture, 3 hours; discussion, 1 hour. Prerequisite(s): BIOL102 with a grade of C- or better. Introduces fundamental techniques used in biotechnology and the molecular biological foundations of biotechnology. Topics include gene cloning, the science of genetically modified organisms (GMOs), microbial and synthetic biology, the design of new purpose-driven organisms and microbial cell factories, biosensing, gene editing, and other contemporary topics in biotechnology.

Fall

**GNBT 010 Genetics and Society 4** Lecture, 3 hours; discussion, 1 hour. Prerequisite(s): BIOL 005A is recommended. Explores how genetic discoveries and technology shape human society in healthcare, reproduction, food, and the environment. Presents science concepts at a level accessible to non-majors. Emphasizes bioethical analyses and considers the cost-benefit tradeoffs of genetic advances.

**GNBT 110 Advanced Genetics 4** Lecture, 3 hours; discussion, 1 hour. Prerequisite(s): BIOL 102 with a grade of C- or better; or consent of instructor. Teaches the process of associating genes with biological function. Topics include genetics screens, gene characterization, and discovery of genetic pathways. Examines the rationale and design of experiments to investigate hypothesis-driven questions using genetic approaches.

**GNBT 130 Genomes: Structure and Evolution 4** Lecture, 3 hours; discussion, 1 hour. Prerequisite(s): BIOL 102 with a grade of C- or better. Explores the content of genomes from microbes to plants to animals emphasizing how they are analyzed and how they diversify and evolve.

**GNBT 120 Analysis of Genomes Laboratory 4** Lecture, 1 hour; discussion, 1 hour; laboratory, 6 hours. Prerequisite(s): BIOL 005C with a grade of C- or better, BIOL 102 with a grade of C- or better; MATH 007B or MATH 009B or MATH 09HB with a grade of C- or better. Introduces computational approaches used in analysis of genomes and their functional outputs. Topics include genome assembly and annotation, identification and analysis of genomic sequence variation, modern molecular mutant identification, quantitative trait mapping, genome-wide association mapping, mRNA and small RNA profiling, network analysis, and comparative genomics. Computer programming experience not required.

Winter

### Notes

BIOL102 is a prerequisite for all upper division GNBT courses.

BIOL, CMDB, BCH\*, and PLBL programs accept all **upper division** GNBT courses as related courses, depth courses, or electives. Always check with your advisor. (*\*GNBT 114 is not accepted by BCH*)

MCBL, NEURO, and ENTM programs have not yet decided on using GNBT courses as electives.

**GNBT 110 Advanced Genetics 4** Lecture, 3 hours; discussion, 1 hour. Prerequisite(s): BIOL 102 with a grade of C- or better; or consent of instructor. Teaches the process of associating genes with biological function. Topics include genetics screens, gene characterization, and discovery of genetic pathways. Examines the rationale and design of experiments to investigate hypothesis-driven questions using genetic approaches.

**GNBT 114 Molecular Genetics Laboratory 4** Lecture, 2 hours; laboratory, 6 hours. Prerequisite(s): BIOL 102 with a grade of C- or better, BIOL 107A, may be taken concurrently. Reinforces important concepts in classical and molecular genetics through laboratory work in basic molecular biology and genetics. Includes DNA manipulation techniques and cloning, gene mapping, and isolation and characterization of mutants in eukaryotic model systems.

Spring