

Genetics — Pre-Med (MGEN), Pre-Den (DGEN), Pre-Opt (OGEN)

The genetics major provides a broad foundation in the biological, physical, and mathematical sciences fundamental to the study of heredity and evolution. The major is flexible in order to serve students interested in genetics, either as a basic discipline or in its application in biotechnology, agriculture, environment/conservation, and medicine.

Freshman

Fall	Hours	Spring	Hours
ENGL 1100 English Composition I		3 ENGL 1120 English Composition II	3
MATH 1610 Calculus I		4 CORE HISTORY I	3
CHEM 1030 Fundamentals Chemistry I ¹		3 CHEM 1040 Fundamental Chemistry II ¹	3
CHEM 1031 Fundamental Chemistry I Laboratory		1 CHEM 1041 Fundamental Chemistry II Laboratory	1
BIOL 1020 Principles of Biology		3 BIOL 1030 Organismal Biology	3
BIOL 1021 Principles of Biology Laboratory		1 BIOL 1031 Organismal Biology Laboratory	1
SCMH 1890 Pre-Health Professions Orientation		1	
	16		14

Sophomore

Fall	Hours	Spring	Hours
CHEM 2070 Organic Chemistry I		3 CHEM 2080 Organic Chemistry II	3
CHEM 2071 Organic Chemistry I Laboratory		1 CHEM 2081 Organic Chemistry II Laboratory	1
CORE HISTORY II		3 BIOL 3000 Genetics & BIOL 3001 General Genetics Laboratory	4
PHYS 1500 General Physics I		4 PHYS 1510 General Physics II	4
CORE LITERATURE		3 STAT 2510 Statistics for Biological and Health Sciences	3
	14		15

Junior

Fall	Hours	Spring	Hours
BIOL 3200 General Microbiology & BIOL 3201 General Microbiology Laboratory		4 BIOL 4100 Cell Biology	3
COMM 1000 Public Speaking		3 BIOL 4101 Cell Biology Laboratory	2
PSYC 2010 Introduction to Psychology		3 BIOL 5220 Introductory Molecular Genetics	3
BIOL 5800 Introduction to Computational Biology		3 CORE SOCIAL SCIENCE	3
BCHE 5180 Biochemistry I		3 BCHE 5190 Biochemistry II	3
	16		14

Senior

Fall	Hours	Spring	Hours
GENE CORE Elective		4 BIOL 5330 Developmental Genetics	3
BIOL 3030 Evolution and Systematics		3 GENE CORE Elective	4
PHIL 1030 Ethics and the Health Sciences		3 GENE SUPP Elective	4
CORE FINE ART		3 FREE ELECTIVE	4

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	16	15

Total Hours: 120

Long range schedules for COSAM courses are online at <http://aub.ie/cosamlrs>

Courses in **BOLD** will be used to calculate GPA in major.

Options for courses labeled CORE are in the Auburn University Bulletin (www.auburn.edu/bulletin) under Core Curriculum.

Students should declare a major by the time they earn 60 hours.

Students must complete all requirements for that major prior to graduation.

- ¹ The Chemistry 1110/1111-1120/1121 sequence can automatically substitute for CHEM 1030/CHEM 1031-CHEM 1040/CHEM 1041.

Genetics Electives**GENE CORE Electives:**

- BIOL 3020 Genomic Biology (4 hrs)
- BIOL 4150 Human Genetics (3 hrs)
- BIOL 5260 Prokaryotic Molecular Genetics (3 hrs)
- BIOL 5320 Plant Gene Expression (3 hrs)
- BIOL 5521 Gene Exp & Recom DNA (2 hrs)
- BIOL 5850 Functional Genomics (3 hrs)
- BIOL 5860 Bioinformatics and Genome Analysis (3 hrs)

GENE SUPP Electives:

- Any additional GENE CORE Elective
- BIOL 4410 Vertebrate Development (5 hrs)
- BIOL 4920 Internship (up to 4 hrs)
- BIOL 4970 Special Topics (as appropriate: i.e. Genetics of Mammalian Disease)
- BIOL 4980 UG Research (up to 4 hrs)
- BIOL 5050 Fundamentals of Biophysics (3 hrs)
- BIOL 5230 Virology (3 hrs)
- BIOL 5500 Immunology (3 hrs)
- BIOL 5550 Nanomedicine (2 hrs)
- BIOL 5600 Mammalian Physiology (5 hrs)
- AGRI 3000 Agricultural Genetics (4 hrs)
- ANSC 3500 Animal Breeding (3 hrs)
- APBT 1000 Intro to Applied Biotechnology (1 hr)
- APBT 3100 Applied Biotechnology I (4 hrs)
- APBT 4100 Applied Biotechnology II (4 hrs)
- CSES 5100 Plant Genetics and Crop Improvement (3 hrs)
- FORY 3200 Forest Tree Physiology (3 hrs)