

# Genetics (Minor)

To see more about what you will learn in this program, visit the Learning Outcomes website (<https://apps.oirp.ncsu.edu/pgas/>)!

The Department of Genetics offers an undergraduate Minor in Genetics to provide students with strong preparation in the principles of Genetics and Molecular Biology, as well as preparation in ancillary fields such as Statistics and Biochemistry. This Minor is appropriate for (but not limited to) students with majors in Plant and Soil Sciences, Animal Science, Biochemistry, Biological Sciences, Computer Science, Crop Science, Environmental Technology, Mathematics, Microbiology, Natural Resources, Nutrition Science, Plant Biology, Poultry Science, and Zoology.

## Admissions

Students may declare their intention to complete the Genetics minor by consulting with Dr. Gardner as listed below. Students are strongly encouraged to declare the minor early in their programs so they receive information on Genetics courses and activities from the Undergraduate Coordinator.

## Certification

The advisor will certify the minor prior to graduation. The minor must be completed no later than the semester in which the student expects to graduate from his or her degree program.

## Contact Person

**Dr. Betty Gardner**  
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**SIS Code: 17GNM**

## Plan Requirements

- Completion of 17 credit hours -- 8 credit hours of required core courses and 9 credit hours of electives.
- A grade of 'C' or better is required for all Genetics Minor courses.
- No course used in the minor can be taken for credit only (S/U) with the exception of the Research/Teaching Experience courses.
- Courses taken for the minor can also be used toward major requirements, GEP electives, or free electives.
- At least 9 credit hours used toward the minor must be completed at NC State University.
- The Genetics Minor is available to all students except those majoring in Genetics.

Code	Title	Hours	Counts towards
<b>Required Core Courses</b>			
GN 311	Principles of Genetics	4	
GN 312	Elementary Genetics Laboratory	1	
GN 421	Molecular Genetics (OR)	3	

or BCH 453 Biochemistry of Gene Expression

### Elective Courses Category A

Select three credit hours from the following courses: 3

GN 423	Population, Quantitative and Evolutionary Genetics
GN 427	Introductory Bioinformatics
GN 428	Introduction to Machine Learning in Biology
GN 434	Genes and Development
GN 441	Human and Biomedical Genetics
GN 450	Conservation Genetics
GN 451	Genome Science
GN 456	Epigenetics, Development, and Disease
Genetics Research/Teaching Experience (3 cr) <sup>1</sup>	

### Elective Courses Category B

Select 6 credit hours from the following courses with at least 3 credit hours at the 300 level or higher. 6

ANS 215	Agricultural Genetics <sup>2</sup>
ANS 440	Animal Genetic Improvement
BIO 270	Introduction to Evolution
BIO 310	Quantitative Approaches to Biological Problems
BIO 330	Evolutionary Biology
BIO 361	Developmental Biology
BIO 432	Evolutionary Medicine
BIT 471	RNA Interference and Model Organisms
BIT 474	Plant Genetic Engineering
BIT 477	Metagenomics
BIT 479	High-Throughput Discovery

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BIT 480	Yeast Metabolic Engineering
CS 211	Plant Genetics <sup>2</sup>
CS 413	Plant Breeding
FOR 411	Forest Tree Genetics and Biology
GN 301	Genetics in Human Affairs
HS 215	Agricultural Genetics <sup>2</sup>
MB 455	Microbial Biotechnology
PB 480	Introduction to Plant Biotechnology
<b>Total Hours</b>	<b>17</b>

<sup>1</sup> Course options include GN 496 Genetics Research Experience, GN 497 Genetics Teaching Experience, BSC 498 Biological Sciences Honors Project Part 2, and ALS 499 Honors Research or Teaching II. To use any of these toward the Genetics Minor, the experience must involve a genetics topic and must be approved in writing by the Director of the Undergraduate Genetics Program prior to beginning the project.

<sup>2</sup> Course must be taken prior to GN 311 in order to count for the Genetics minor.