Biology Major: Biotechnology Concentration
(BIOL)—B.S.
Degree: Bachelor of Arts
Required: 122 semester hours, to include at least 36 hours at or above the 300 course level
AOS Code: U214
The concentration in biotechnology is designed for students with a strong interest in molecular biology and genetics. Courses will prepare students in both conceptual aspects of molecular biology and their practical application in biotechnology and genetic engineering.

I General Education Core Requirements (GEC)
See complete GEC requirements under General Education Program in the University Requirements section. See the GEC Course Summary Table for approved courses.

GLT—Literature (6 s.h.)
Student selects 6 s.h. from GLT list.
GFA—Fine Arts (3 s.h.)
Student selects 3 s.h. from GFA list.
GPR—Philosophical, Religious, Ethical Principles (3 s.h.)
Student selects 3 s.h. from GPR list.
GHP—Historial Perspectives on Western Culture (3 s.h.)
Student selects 3 s.h. from GHP list.
GNS—Natural Sciences (7 s.h.)
BIO 111 Principles of Biology I
CHE 111 General Chemistry I
GMT—Mathematics (3 s.h.)
MAT 191 Calculus I
GRD—Reasoning and Discourse (6 s.h.)
ENG 101 College Writing I
or
FMS 115 Freshman Seminar in Reasoning and Discourse I
or
RCO 101 College Writing I
Student selects additional 3 s.h. from the GRD list.
GSB—Social and Behavioral Sciences (6 s.h.)
Student selects 6 s.h. from GSB list.
II General Education Marker Requirements
See complete GEC requirements under General Education Program in the University Requirements section. See the GEC Course Summary Table for approved courses.

GL/GN — Global/Global Non-Western Perspectives
Four courses carrying GL/GN markers, at least one of which must carry the GN marker.

One SI (Speaking Intensive) Course
In addition to this SI Marker requirement, students must also complete a second SI course within the major. All programs have identified at least one course among their major requirements that is taught as Speaking Intensive.

One WI (Writing Intensive) Course
In addition to this WI Marker requirement, students must also complete a second WI course within the major. All programs have identified at least one course among their major requirements that is taught as Writing Intensive.

III College of Arts and Sciences Additional Requirements (CAR)
See CAR requirements in the Academic Units section. See the GEC Course Summary Table for approved CAR courses.

GMO/GPM — Historical Perspectives (3 s.h.)
Student selects 3 s.h. from GMO or GPM list, depending on category used to satisfy GHP requirement.

GLS/GPS — Natural Sciences (3–4 s.h.)
Required:
BIO 112 Principles of Biology II
GSB — Social and Behavioral Sciences (3 s.h.)
Student selects 3 s.h. from GSB list.

GFL — Foreign Language (0–12 s.h.)
Intermediate-level proficiency in one language, demonstrated by placement test, or completion of course work through course number 204.

WI — Writing Intensive Courses
A total of four WI courses.

IV Major Requirements
Program Qualifications
BIO 111 Principles of Biology I
BIO 112 Principles of Biology II

Additional Qualifications
- A minimum of 30 semester hours of Biology courses above the 100 level.
- A maximum of 4 s.h. at the 200 level may be counted toward the major.
- Students must have a grade point average of at least 2.0 in Biology courses completed at UNCG.

B.S. in Biology Core Courses
In meeting the requirement for hours above the 100 level, all B.A. in Biology majors must complete the following core courses; completion of at least four of these requirements is strongly recommended prior to enrollment in courses numbered 400 and higher.

1. Ecology
   BIO 301 Principles of Ecology
2. Cell Biology
   BIO 355 Cell Biology
3. Genetics
   BIO 392 Genetics
4. Evolution
   BIO 330 Evolution
5. Two laboratory courses
   BIO 315 Ecology and Evolution Laboratory
   BIO 375 Cell Biology and Genetics Laboratory
6. One additional course at the 500 level

Strongly Recommended
- BIO 499 Undergraduate Research
- BIO 493 Honors Work

Biotechnology Concentration
1. Required
   BIO 481 General Microbiology
   BIO 494 Introduction to Biotechnology
   BIO 535 Biochemistry: Metabolic Regulation in Health and Disease
   The course listed below for at least 1 s.h.
   BIO 596 Molecular Biological Approaches in Research
2. At least one course chosen from the courses listed below.
   BIO 479 Neurobiology
   BIO 497 Internship in Biology
   BIO 499 Undergraduate Research
   BIO 528 Microbial Ecology
   BIO 538 Human Evolutionary Genetics
BIO 540 Genes and Signals
BIO 573 Drugs and the Brain
BIO 578 Hormones in Action
BIO 583 Virology
BIO 584 Immunology
BIO 586 Cell Cycle and Cancer
BIO 587 Epigenetics
BIO 590/MAT 590 Introduction to Mathematical Models in Biology
BIO 595 Advanced Genetics

**V Related Area Requirements**

1. Required
   - CHE 111 General Chemistry I
   - CHE 112 General Chemistry I Laboratory
   - CHE 114 General Chemistry II
   - CHE 115 General Chemistry II Laboratory
   - CHE 351 Organic Chemistry I
   - CHE 352 Organic Chemistry II
   - CHE 354 Organic Chemistry Laboratory

2. Required
   - MAT 191 Calculus I
   - MAT 292 Calculus II
   - or
   - STA 271 Fundamental Concepts of Statistics

3. Required
   - PHY 211 General Physics I
   and
   - PHY 212 General Physics II
   - or
   - PHY 291 General Physics I with Calculus
   and
   - PHY 292 General Physics II with Calculus

**VI Electives**

Electives sufficient to complete the 122 semester hours required for the degree