

Department of Biology

The Department of Biology offers courses of study leading to the Bachelor of Science degree with majors in biology, and biology-secondary education. In addition to courses, the department offers advisement for application to a variety of graduate and professional programs, e.g., in biology, medicine, dentistry, veterinary medicine, pharmacy, physical therapy, occupational therapy, physician assistant, and respiratory therapy. Students should consult their academic advisor for assistance in choosing courses that both comply with degree requirements for a major in Biology and meet the admission requirements for the graduate career or professional program in which they have interest.

MAJOR IN BIOLOGY

Curriculum Requirement

Principles of Biology I & II are required for a student to progress to any 3300-4000 level biology course.

Core Curriculum Requirements

60 Hours

All baccalaureate degree programs at NGCSU require the satisfactory completion of at least 60 semester credit hours comprising the six areas of the core curriculum. A complete description of Areas A-E of the core curriculum can be found on page 105. Individual degree programs may specify exceptions and/or particular courses that must be taken within each Area A-E of the core curriculum. Those exceptions and/or course requirements and Area F of the core curriculum, are shown below.

- Area A no exceptions
- Area B no exceptions
- Area C no exceptions
- Area D no exceptions
- Area E no exceptions

Students may **not** take the following courses in area D:

BIOL 1107K	Principles of Biology I	4 hours
BIOL 1108K	Principles of Biology II	4 hours
CHEM 1211	Principles of Chemistry I	3 hours
CHEM 1211L	Principles of Chemistry Laboratory I	1 hour
CHEM 1212	Principles of Chemistry II	3 hours
CHEM 1212L	Principles of Chemistry Laboratory II	1 hour

Area F. Biology Major

18 hours

BIOL 1107K	Principles of Biology I (with lab)	4 hours
BIOL 1108K	Principles of Biology II (with lab)	4 hours
CHEM 1211	Principles of Chemistry I	3 hours
CHEM 1211L	Principles of Chemistry Laboratory I	1 hour
CHEM 1212	Principles of Chemistry II	3 hours

Three hours of lower division courses from biology, physics, geology, mathematics not taken as part of Area A or D, foreign language not taken as part of Area B, and computer science.

ADVANCED PLACEMENT

Students completing Advanced Placement Biology and scoring four or higher on the examination may enroll in courses for which Principles of Biology I and Principles of Biology II are prerequisites.

COURSES IN THE BIOLOGY MAJOR:

40 hours

Take one course from each of the following categories:

Botany:

BIOL 3321	General Botany	4 hours
BIOL 3322	Plant Diversity	4 hours

Zoology:

BIOL 3325	Invertebrate Zoology	4 hours
BIOL 3326	Vertebrate Zoology	4 hours

Microbiology:

BIOL 2280	Medical Microbiology	4 hours
BIOL 3390	General Microbiology	4 hours

Take these courses:

BIOL 3220	Genetics	4 hours
BIOL 3230	Ecology	4 hours
BIOL 3240	Cell Biology	4 hours
BIOL 3350	Physiology	4 hours
BIOL 4450	Evolutionary Biology	3 hours

Take 9 semester hours from the following elective courses:

BIOL 3331	Ecology Field Study	1 hour
BIOL 4310	Plant Taxonomy	4 hours
BIOL 4311	Botany Field Study	1 hour
BIOL 4327	Wildlife Ecology	4 hours
BIOL 4380	Environmental Microbiology	4 hours
BIOL 4435	Immunology	3 hours
BIOL 4440	Limnology	4 hours
BIOL 4460	Marine Biology	3 hours
BIOL 4461	Marine Field Study	1 hour
BIOL 4470	Human Histology	4 hours
BIOL 4471	Histology Laboratory Techniques	1 hour
BIOL 4480	Developmental Biology	4 hours
BIOL 4510	Animal Behavior	3 hours
BIOL 4520	Herpetology	4 hours
BIOL 4540	Biotechnology	4 hours
BIOL 4550	Experimental Biology	4 hours
BIOL 4700	Biology Seminar	1 hour
BIOL 4710	Biogeography	3 hours
BIOL 4760	Bioinformatics	4 hours

*BIOL 4800-4807 Independent Study 1 hour each

* When based upon student research, a maximum of 4 independent study hours may be included in the 9 biology elective hours required in the major. With permission of the biology department head, up to 4 additional hours of independent study may be included in the 9 biology elective hours required in the major if these additional hours are substituted for a 4000 level course.

OTHER REQUIREMENTS

PHYS 1111 and 1112 Introductory Physics I and II with labs 8 hours

CHEM 1212L Principles of Chemistry Laboratory II 1 hour

CHEM 3441K Organic Chemistry I 4 hours

CHEM 3442K Organic Chemistry II 4 hours

or CHEM 4841K Biochemistry 4 hours

Basic Physical Education requirements 3 hours

Military Science requirements (for military students only) 12 hours

U.S. and Georgia Constitution and History requirement

Regents' Skills Test or exemption (must be taken during first semester)

ELECTIVES: To bring the total number of credit hours to at least 120 semester hours exclusive of the Basic Physical Education requirement.

EXIT REQUIREMENTS: To assist the department in assessing the biology program, graduating seniors will be required to take an undergraduate assessment test in biology and complete exit questionnaires.

BIOLOGY MINOR

Principles of Biology I and II, Genetics, Ecology, and a minimum of 3 hours of 3000-4000 level biology courses.

BACHELOR OF SCIENCE IN BIOLOGY - SECONDARY EDUCATION CERTIFICATION (a 137-hour program)

Core Curriculum Requirements

60 hours

All baccalaureate degree programs at NGCSU require the satisfactory completion of at least 60 semester credit hours comprising the six areas of the core curriculum. A complete description of Areas A-E of the core curriculum can be found on page 105. Course requirements for Area A-E of the core curriculum and biology component (Area F) of the biology-secondary education degree are shown on next page.

**COURSES FOR THE BIOLOGY MAJOR - SECONDARY
EDUCATION CERTIFICATION
(76 hours)**

Courses for the biology-secondary education certification degree include those for biology majors (**40 hours**) and those for professional education certification (**36 hours**). Courses for the biology major are listed on pages 108. Candidates for the Biology-Secondary Education Certification Degree are required to take CHEM 1211 / 1211L and CHEM 1212 / 1212L, but are not required to take Organic or Biochemistry. Courses for the secondary education concentration required for certification are listed below.

Professional Education (courses required for certification)		36 hours
EDUC 2110	Investigating Critical & Contemporary Issues in Education	3 hours
EDUC 2120	Exploring Socio Cultural Perspectives on Diversity	3 hours
EDUC 2130	Exploring Teaching and Learning	3 hours
EDUC 3002	Educational Assessment	2 hours
EDUC 3003/L	Classroom Management	3 hours
LART 3106	Teaching Reading in the Content Areas	3 hours
EDUC 3540	Applied Classroom Data Analysis	3 hours
EDUC 4000	Curriculum	4 hours
EDUC 4101	Methods and Materials	3 hours
EDUC 4103	Internship, Planning	3 hours
EDUC 4104	Internship, Classroom Performance	3 hours
EDUC 4105	Internship, Professionalism	3 hours

EXIT REQUIREMENTS: To qualify for institutional recommendation for a Georgia teaching license in the desired field, students must successfully complete the appropriate GACE II tests. Graduating seniors will be required to complete ETS exit exams and exit questionnaires to assist the department in assessing the biology program.

OTHER REQUIREMENTS & ELECTIVES: Same as for the major in biology, (i.e., 1 hour CHEM 1212L).

**FOR COURSES OFFERED IN THE
DEPARTMENT OF BIOLOGY
SEE COURSE DESCRIPTIONS
Pages 249-394**

Number series indicate hours of lecture per week, hours of laboratory per week, and course credit hours; e.g. 3-2-4 means 3 hours of lecture per week, 2 hours of lab per week (1 two-hour lab), and 4 semester hours course credit.