College of Arts & Sciences

DEPARTMENT OF BIOLOGICAL SCIENCES

- Biological Sciences

  Microbiology/Molecular Biology
  Ecology/Environmental/Evolutionary Biology
  Organismal/Integrated Biology

- Horticulture Science

The Department of Biological Sciences offers a four-year curriculum in Biological Sciences with concentrations in Microbiology/Molecular Biology, Ecology/Environmental/Evolutionary Biology, and Organismal/Integrated Biology. A major in Horticulture Science is also offered. Pre-professional programs in medicine, dentistry, physical therapy, optometry, and pharmacy are also offered.

Students in Medicine and Dentistry are urged to complete the requirements for the degree before entering a medical or dentistry school. Those who do not plan to obtain a degree before seeking admission to a School of Medicine, Dentistry, or Pharmacy should confer with the Department Head or their advisors before scheduling their coursework.

In the event that a student is accepted to professional school prior to receiving the baccalaureate degree, the student may still become a candidate for the Bachelor of Science degree at Southeastern Louisiana University by completing the following requirements. The student must:

1. complete 90 hours (the last 30 hours in residence),
2. follow in general the curriculum outlined for a concentration in Organismal/ Integrated Biology as determined by the Department Head of Biological Sciences,
3. satisfactorily complete all Board of Regents requirements for the degree, and
4. satisfactorily complete a course of study at a professional school.

At the beginning of the final year of professional school the student must:

1. request that the Medical Evaluation Committee recommend her/him for graduation to the department head of Biological Sciences,
2. secure application for graduation instructions from the academic dean’s office,

and
3. pay the diploma fee to the Controller's Office.

Majors

Students wishing to major in Biological Sciences must complete 41 semester hours of biology. The required courses are listed within the various concentration options.

Minors

Eighteen semester hours are required for a minor. These must include GBIO 151-BIOL 152, GBIO 153-BIOL 154, and MIC 205-207 or 223-224.

Electives

The curricula leading to the bachelor's degree provide a sufficient number of electives to permit a student to elect a minor in any one of several fields. He should confer with his faculty adviser so that together they may consider courses that will benefit the student most in his specialized field.

Curriculum in Biological Sciences

Leading to the Degree of Bachelor of Science

FIRST YEAR

First Semester	S.H.	Second Semester	S.H.
†General Biology I	3	Chemistry 121	3
†Biology Lab I	1	Chemistry Laboratory 123	1
English 101	3	English 102 or 122	3
Library Science 102	1	Mathematics 162	3
Mathematics 161	3	†General Biology II	3
Orientation 101	0-1	†Biology Lab II	1
Arts Elective **4**	3	Foreign Language 102	3
Foreign Language 101	3		

	17-18		17

SECOND YEAR

First Semester	S.H.	Second Semester	S.H.
Chemistry 122	3	Communication 211	3
Chemistry Laboratory 124	1	Chemistry 265/267**7** or 261/263	4
†Microbiology 205	3	Elective **3**	1-3
†Microbiology Laboratory 207	1	†General Biology 241	1
English 230, 231, or 232	3	Foreign Language 202	3
Foreign Language 201	3		
Math 163	3		
	17		15-17

THIRD YEAR

First Semester	S.H.	Second Semester	S.H.
†Concentration Elective **2**	4	†Concentration Elective **2**	8
English 322	3	Electives **3**	0-2
†General Biology 312	3	†General Biology 341	1
Chemistry 266/268 **7** or 268/283	4	Chemistry 481/483 **8**	0-5
History	3		
	17		11-14

FOURTH YEAR

First Semester	S.H.	Second Semester	S.H.
Social Science Elective **5**	3	†Concentration Elective	4
†Concentration Elective **2**	4	Chemistry 253 **8**	0-2
Elective **3**	0-3	Social Science Elective **5**	3
Physics 191	3	Physics 192	3
Physics Laboratory 193	1	Physics Laboratory 194	1
		†General Biology 441	1
	11-14		12-14

Total Minimum Semester Hours Required= 122-123 **6**

Total Minimum Semester Hours Required in Major= 41

Orientation 101 is not required of transfer or readmitted Southeastern students with 30 hours or more. Computer literacy required prior to graduation; students are to contact their advisor for requirements.

[1] Mathematics 200 may be substituted for Mathematics 161 and 163.
[2] Elective or concentration elective depends on area of concentration chosen.
[3] At least six hours of electives must be in non-Biology courses.
[4] Courses can be taken in music, art, dance, or theatre.
[5] Courses can be selected in economics, geography, anthropology, political science, psychology, or sociology.
[6] Extended Option: Secondary Education Certification. See College of Education section, this catalogue.

†Indicates courses required in major. These courses must be taken until a grade of "C" or better is obtained if they are courses in Biological Sciences.

Concentration Electives

Concentration in Microbiology/Molecular Biology

I. Core Courses: 21 credits
II. Concentration Emphasis in Microbiology and Molecular Biology (20 credits) from the following groups as determined in consultation with advisor.

A. Growth Kinetics and Metabolism

MIC 225 Advanced General Microbiology	4 hours
MIC 461 Bacterial Metabolism	4 hours

B. Molecular/Cellular Biology 4-8 hours

Choose one course from:
MIC 303 Immunology
MIC 465 Recombinant DNA Techniques
MIC 463 Virology

C. Applied, Environmental or Ecology 4-8 hours

Choose one or two courses from:
MIC 313 Microbial Ecology
MIC 336 Pathogenic Microbiology
MIC 338 Soil Microbiology
MIC 457 Dairy and Food Microbiology
MIC 423 Environmental Microbiology

D. Special Topics and Research Problems

GBIO 493, Special Topics and GBIO 450, Research Problems may be counted toward any of the above categories, but the student's advisor must approve the category for credit.

E. Concentration Electives

Any of the courses listed above may be taken as a concentration elective to fulfill the 20 hr requirement.

Concentration in Ecology, Environmental, and Evolutionary Biology

I. Core Courses: 21 credits
II. Concentration Emphasis in Ecology, Environmental, and Evolutionary Biology (20 credits)

A. Fundamental courses in ecology, environmental, and evolutionary biology

(select two courses)
BOT 481, Plant Ecology
GBIO 281, Environmental Awareness
GBIO 377, Biostatistics
GBIO 395, General Ecology
GBIO 402, Evolutionary Biology
GBIO 485, Conservation Biology

B. Form and Function

(select one or two courses)
BOT 426, Plant Physiology
ZOO 302, Comparative Anatomy of the Vertebrates
ZOO 392, General Physiology

C. Advanced Courses in Ecology, Environmental, and Evolutionary Biology

(select one or two courses)
BOT 347, Vascular Plant Systematics
BOT 427, Plant Stress Ecophysiology
GBIO 406, Wetland Ecology
GBIO 442, Marine Biology
GBIO 481, Biogeography
ZOO 301, Invertebrate Zoology
ZOO 352, Field Zoology
ZOO 454, Ecological Parasitology
ZOO 456, Icthyology
ZOO 457, Invertebrate Ecology
ZOO 470, Ornithology
Concentration in Ecology, Environmental, and Evolutionary Biology

D. Special Topics and Research Problems

GBIO 493, Special Topics and GBIO 450, Research Problems may be counted toward any of the above categories, but the student's advisor must approve the category for credit.

E. Concentration Electives

Any of the courses listed above may be taken as a concentration elective to fulfill the 20 hr requirement.

Concentration in Organismal and Integrated Biology

I. Core Courses: 21 credits
II. Concentration Emphasis in Organismal Biology (20 credits**)**

A. Form and Function Choose 12 hours from this group.

ZOO 302 Comparative Anatomy	(4)
ZOO 392 Animal Physiology	(4)
ZOO 331 Elementary Embryology	(4)
ZOO 332 Animal Histology	(4)
ZOO 464 Animal Development	(4)
ZOO 488 Cytology	(3)
BOT 401 Plant Pathology	(4)
BOT 427 Plant Stress Ecophysiology	(4)
BOT 482 Plant Anatomy	(4)
MIC 303 Immunology	(3)
GBIO 314 Genetics Laboratory	(2)
GBIO 495 Biological Electron Microscopy	(4)
GBIO 377 Applied Biostatistics	(4)

B. Biodiversity Choose 3-4 hours from this group.

ZOO 301 Invertebrate Zoology	(4)
ZOO 309 General Entomology	(4)
ZOO 455 Medical Parasitology	(4)
ZOO 456 Ichtyology	(4)
ZOO 470 Ornithology	(4)
GBIO 442 Marine Biology	(4)
BOT 305 Advanced General Botany*	(4)
BOT 347 Vascular Plant Systematics	(4)
BOT 433 Phycology	(4)
BOT 458 General Mycology	(3)

C. Ecology and Evolutionary Biology Choose 3-4 hours from this group.

GBIO 281 Environmental Awareness	(3)
GBIO 395 General Ecology	(3)
GBIO 402 Evolutionary Biology	(3)
GBIO 404 Ecological Methods	(3)
GBIO 406 Wetland Ecology	(4)
GBIO 439 Introduction to Fresh Water & Estuarine	(4)
Biology	(3)
GBIO 481 Biogeography	(4)
GBIO 485 Conservative Biology	(4)
ZOO 352 Field Zoology	(4)
ZOO 457 Invertebrate Ecology	(4)
ZOO 454 Ecological Parasitology	(3)
BOT 481 Plant Ecology	

D. Special Topics and Research Problems

GBIO 493 Special Topics and GBIO 450 Research Problems may be counted toward any of the four categories, but the category for credit must be approved by the student's advisor.

E. Concentration Electives

Any of the courses listed above may be taken as a concentration elective to fulfill the 20 hr requirement.

Majors

Students wishing to major in Horticulture Sciences must complete 32 semester hours of Horticulture.

Curriculum in Horticulture

Leading to the Degree of Bachelor of Science

FIRST YEAR

First Semester	S.H.	Second Semester	S.H.
General Biology I, GBIO 151	3	History 201 or 202	3
Biology Laboratory I, BIOL 152	1	General Biology II, GBIO 153	3
English 101	3	Biology Laboratory II, BIOL 154	1
Mathematics 161	3	English 102	3
Social Science Elective	3	Mathematics 162	3
Orientation 101	0-1	Arts Elective (Art, Music, Dance)	1
	13-14		14

SECOND YEAR

First Semester	S.H.	Second Semester	S.H.
†Horticulture 232	3	†Horticulture 328	3

Chemistry 101/121	3	Accounting 211	3
Chemistry Lab 103/123	1	Communication 211	3
Microbiology 205	3	Chemistry 102/122	3
Microbiology Lab 207	1	Chemistry Lab 104/124	1
Math 241 or Management 261	3	English 230 or 231 or 232	3
	14		16

THIRD YEAR

First Semester	**S.H.**	**Second Semester**	**S.H.**
†Horticulture 301	4	†Horticulture 300/400 level	6
Management 351	3	Botany 426	4
Chemistry 261/265	3	Botany 401	4
Chemistry Lab 263/267	1	Elective **1**	3
Social Science Elective	3		
Zoology 309	4		
	18		17

FOURTH YEAR

First Semester	**S.H.**	**Second Semester**	**S.H.**
†Horticulture 300/400 level	9	†Horticulture 363	4
Marketing 303	3	†Horticulture 300/400 level	3
Elective **1**	3	Elective	6
	15		13

Total Minimum Semester Hours Required= 122-123
Total Minimum Semester Hours Required in Major= 30

Orientation 101 is not required of transfer or readmitted Southeastern students with 30 hours or more. Computer literacy required prior to graduation; students are to contact their advisor for requirements.

1 Non-Horticulture elective may not be taken in the College of Business and Technology.

†Major course; grade of "C" or better required.