

DEPARTMENT OF BIOLOGICAL SCIENCES

Interim Head of the Department: Professor Crother

Professors: Childers, Crother, Nelson, Norton, Sever, Shaffer, White

Associate Professors: Bancroft, Bossart, Dardis, Howard, Miller, O'Reilly, Piller, Shockett, Stiller, Valverde

Assistant Professors: Guedry, Horzelski, Pendarvis

Instructors: Broussard, Campo, Fontenot, Hannible, Harper, Hendricks, Higginbotham, Palmer, Stoulig, Tinney

The Department of Biological Sciences offers a four-year curriculum in Biological Sciences with concentrations in Integrative Biology; Microbiology/Molecular Biology; Ecology, Environmental, and Evolutionary Biology; and Plant Science. Pre-professional programs in medicine, dentistry, physical therapy, veterinary medicines, 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 course work.

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 fulfilling the following requirements: (1) completion of 90 hours (the last 30 hours at Southeastern), (2) completion of adequate course work in the Curriculum in Biological Sciences as determined by the Department Head of Biological Sciences, (3) satisfactory completion all Board of Regents requirements for the degree, and (4) satisfactory completion of 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) obtain and submit an application for graduation from the academic dean's office, and (3) pay the diploma fee to the Controller's Office.

MAJOR IN BIOLOGICAL SCIENCES

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

SELECTION AND RETENTION POLICIES

Students who propose to major in the Biological Sciences must successfully complete GBIO 151 and 153, MATH 155 or 161 or 165 or 200, and CHEM 121, all with a grade of "C" or better. Exceptions can be made with the permission of the Department Head. In order to progress as a Major in the Department of Biological Sciences, students must receive a grade of "C" or better in all Biology courses and concentration electives. If the student receives a grade of less than "C" in any of these courses, the course may be repeated no more than twice. In addition, students majoring in the Biological Sciences must maintain an overall minimum grade point average (GPA) of 2.0 or better for all course work. Failure to meet these requirements will result in the student's no longer being eligible to register as a Major in Biological Sciences.

HONORS DIPLOMA IN BIOLOGICAL SCIENCES

For the Honors Diploma in Biological Sciences, majors must complete the following requirements:

English 210H or 291H or 292H ¹	3 hours
History 101H, 102H, 201H, or 202H	3 hours
Communications 211H	3 hours
Honors 191 ²	3 hours
Senior Thesis.....	0 hours
GBIO 151H, 153H, 200 ³ , 312 ⁴	9 hours
GBIO 450 ⁶	3 hours
Total	24 hours

¹ May be substituted for English 230, 231, or 232.

² Satisfies Art Elective or Art/Music/Theatre/Dance equipment.

³History 101H can be substituted for History 101 or 201.

⁴History 102H can be substituted for History 102 or 202.

⁵Any of English 291H, English 292H, History 201H, History 202H, Econ 201H, Math 161H, Honors 191, Honors 311, Honors 312, Honors 313, or Honors 314 can be substituted for similar major requirements with the approval of the Department Head.

⁶These hours must be completed as an H-Option.

⁷The domain in which the student will complete the thesis project or internship will be determined during the student's enrollment in GBIO 450⁶.

MINOR

Eighteen semester hours are required for a minor. These must include GBIO 151-BIOL 152, GBIO 153-BIOL 154, and MIC 205-207 or MIC 223-224 and six hours of 300/400 level biology courses. Students must receive a grade of "C" or better for all Biology courses to complete the Minor in Biology.

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 advisor 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 BIOLOGY EDUCATION CONCENTRATION

FIRST YEAR

FIRST SEMESTER	S.H.	SECOND SEMESTER	S.H.
English 101	3	†English 102.....	3
†Mathematics 161	3	† Mathematics 162 or 165.....	3
†General Biology 151	3	†General Biology 153	3
†Biology Laboratory 152.....	1	†Biology Laboratory 154.....	1
Social Science Elective ¹	3	†Chemistry 121	3
†LS 102	1	†Chemistry Lab 123.....	1
Southeastern 101	2	†GBIO 241	1
	16		15

SECOND YEAR

English 230, 231, or 232	3	†GBIO 312	3
†GBIO 200	3	†Chemistry 261	3
†Microbiology 205 or 223	3	†Chemistry Lab 263.....	1
†Microbiology Laboratory 207 or 224	1	†GBIO 395	3
†Chemistry 122.....	3	†GBIO 397	2
† Chemistry Laboratory 124.....	1	†EPSY 311	3
†† EDUC 203.....	2	†SPED 210	2
††EDUC 212 (take with EDUC 203).....	1		
	17		17

THIRD YEAR

History 417	3	†GBIO 405	4
†Concentration Elective ²	4	† Concentration Elective ²	4
†Chemistry 281	3	†EPSY 315	3
†Chemistry Laboratory 283.....	1	†GBIO 498.....	3
†Education 407	3	†GBIO 341	1
Communication 210.....	3		
	17		15

FOURTH YEAR

†GBIO 441	1	EDUC 486	9
Arts Elective.....	3		
†EDUC 472.....	3		
†EDUC 475.....	1		
†EDUC 490.....	6		
	14		9

Total Minimum Semester Hours Required 120

Southeastern 101 is not required of transfer or readmitted Southeastern students with 30 hours or more. Those students will replace Southeastern 101 with 2 hours of free electives.

† A grade of "C" or above must be earned in these courses.

†† A grade of “B” or above must be earned in this course.

¹One course (3 hrs) selected from ECON, GEOG, ANTH, POLI, PSYC, or SOC. The 200 level or above requirement for social sciences is fulfilled with EPSY 311.

²Concentration Electives for Biology Education Concentration – 8 hours from the following with approval of advisor – ZOO 302, ZOO 392, PHYS 191, PHYS 192, PLAB 193, PLAB 194.

**CURRICULUM IN BIOLOGICAL SCIENCES
LEADING TO THE DEGREE OF BACHELOR OF SCIENCE
ECOLOGY, ENVIRONMENTAL, AND EVOLUTIONARY CONCENTRATION**

FIRST YEAR

FIRST SEMESTER	S.H.	SECOND SEMESTER	S.H.
†General Biology 151	3	†General Biology 153	3
†Biology Lab 152	1	†Biology Lab 154.....	1
English 101or 121H	3	Chemistry 121	3
Library Science 102	1	Chemistry Lab 123	1
Mathematics 161 ¹	3	Math 162 ¹	3
Foreign Language 101	3	English 102 or 122H or 124H.....	3
Southeastern 101	2	Foreign Language 102	3
	16		17

SECOND YEAR

Chemistry 122	3	Communication 211	3
Chemistry Laboratory 124	1	Chemistry 265/267 ⁶ or 261/263	4
†Microbiology 205	3	†General Biology 200	3
†Microbiology Laboratory 207	1	†General Biology 241	1
English 230, 231, or 232	3	Foreign Language 202	3
Foreign Language 201	3	Arts Elective ³	3
Math 163 ¹	3		
	17		17

THIRD YEAR

†General Biology 377 ²	4	†General Biology 395 ²	3
English 322	3	†General Biology 397 ²	2
†General Biology 312	3	†General Biology 341	1
Chemistry 266/268 or 281/283	4	†General Biology 405 ²	4
		History Elective.....	3
	14		13

FOURTH YEAR

Social Science Elective ⁴	3	†Concentration Elective ²	3
†Concentration Elective ²	4	Elective	4
Physics 191	1	Social Science Elective ⁴	3
Physics Laboratory 193.....	3	Physics 192	3
†General Biology 441	1	Physics Laboratory194	1
	12		13

Total Minimum Semester Hours Required	120
Total Minimum Semester Hours Required in Major	41

Southeastern 101 is not required of transfer or readmitted Southeastern students with 30 hours or more. Those students will replace Southeastern 101 with 2 hours of free electives.

Computer literacy is required prior to graduation; students are to contact their advisor for requirements.

¹Mathematics 165 and 200 (8 credit hours) may be taken in place of Mathematics 161, 162, and 163 (9 credit hours). Students who take MATH 165 and 200 are required to take MATH 165 and 200 are required to take one additional elective hour.

²Courses for the Ecology, Environmental, and Evolutionary Concentration (20 credit hours) selected from the following in consultation with advisor:

Group A - Fundamental courses (13 credit hours) – students in the Ecology, Environmental, and Evolutionary Concentration must take the following four courses – GBIO 377, 395, 397, and 405

Group B – Concentration Electives (7 credit hours) – BOT 205, 347, 426, 427,429, 481, 482, GBIO 281, 404, 406, 418, 439, 442, 481, 485, ZOO 301, 302, 352, 392, 409, 456, 457, 458, 465, 470, 475, MIC 313, 423, 438. The following courses require PRIOR approval of the advisor and department head: GBIO 409 Internship 1-3 hours (3 hrs max); GBIO 450 Research Problems, 1-4 hours (4 hrs max); GBIO 493 Special Topics, 2-4 hours. A maximum of 4 credit hrs may be earned from the following courses: CMPS 450, GEOG 495, POLI 446, SOC 360.

³Courses can be taken in music, art, dance, or theatre.

⁴Courses can be selected in economics, geography, anthropology, political science, psychology, or sociology. One course must be at the 200-level or above.

⁵Extended Option: Secondary Education Certification. See College of Education section, this catalogue.

⁶Students planning on attending medical, dental, or graduate school must take Chemistry 265/267 and Chemistry 266/268.

[†]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.

CURRICULUM IN BIOLOGICAL SCIENCES LEADING TO THE DEGREE OF BACHELOR OF SCIENCE INTEGRATIVE BIOLOGY CONCENTRATION

FIRST YEAR

FIRST SEMESTER	S.H.	SECOND SEMESTER	S.H.
†General Biology 151	3	†General Biology 153	3
†Biology Lab 152	1	†Biology Lab 154	1
English 101 or 121H or 123H	3	Chemistry 121	3
Library Science 102	1	Chemistry Lab 123	1
Math 161 ¹	3	Math 162 ¹	3
Foreign Language 101	3	English 102 or 122H or 124H	3
Southeastern 101	2	Foreign Language 102	3
	16		17

SECOND YEAR

Chemistry 122	3	Communication 211	3
Chemistry Laboratory 124	1	Chemistry 265/267 ⁶ or 261/263	4
†Microbiology 205	3	†General Biology 200	3
†Microbiology Laboratory 207	1	†General Biology 241	1
English 230, 231, or 232	3	Foreign Language 202	3
Foreign Language 201	3	Arts Elective ³	3
Math 163 ¹	3		
	17		17

THIRD YEAR

†General Biology 395 or 405	4	†Concentration Elective ²	4
†General Biology 312	3	†General Biology 341	1
English 322	3	†Concentration Elective ²	4
Chemistry 266/268 ⁶ or 281/283	4	History Elective	3
	14		12

FOURTH YEAR

Social Science Elective ⁴	3	†Concentration Elective ²	4
†Concentration Elective ²	4	Elective	4
Physics 191	1	Social Science Elective ⁴	3
Physics Laboratory 193	3	Physics 192	3
†General Biology 441	1	Physics Laboratory 194	1
	12		15

Total Minimum Semester Hours Required	120
Total Minimum Semester Hours Required in Major	41

Southeastern 101 is not required of transfer or readmitted Southeastern students with 30 hours or more. Those students will replace Southeastern 101 with 2 hours of free electives.

Computer literacy is required prior to graduation; students are to contact their advisor for requirements.

¹Mathematics 165 and 200 (8 credit hours) may be taken in place of Mathematics 161, 162, and 163. Students who take MATH 165 and 200 are required to take one additional elective hour.

²Courses for the Integrative Biology Concentration (minimum 20 credit hours required) selected from the following groups in consultation with advisor.

Group A – (minimum one course required). Students in the Integrative Biology Concentration must take either GBIO 395 or GBIO 405. (Note: Biology majors taking GBIO 395 must additionally be concurrently registered in GBIO 397).

Group B – Concentration Electives (minimum 11 credit hours) – BOT 205, 347, 401, 426, 427, 429, 433, 458, 481, 482, GBIO 281, 314, 377, 395, 397, 404, 405, 406, 407, 418, 439, 442, 481, 485, 492, 495, HORT 301, 315, 320, 328, 412, 424, 426, 428, MIC 313, 325, 423, 436, 438, 457, 460, 461, 463, 465, ZOO 301, 302, 331, 332, 352, 392, 409, 428, 438, 453, 455, 456, 457, 458, 465, 470, 471, 475, 483, 488, 499. The following courses require PRIOR approval of the advisor and department head: GBIO 409, Internship 1-3 hrs (3 hrs max); GBIO 450 Research Problems, 1-4 hrs (4 hrs max); GBIO 493, Special Topics, 2-4 hrs. A Maximum of 4 credit hrs may be earned from the following courses: CHEM 281, 481, 482, CLAB 283, 485, 486. NOTE: If CHEM 281/283 is taken to fulfill Chemistry requirements, then it may not be used for elective requirements.

³Courses can be taken in music, art, dance, or theatre.

⁴Courses can be selected in economics, geography, anthropology, political science, psychology, or sociology. One course (3 hrs) must be at the 200 level or above.

⁵Students planning on attending medical, dental, veterinary, or graduate school must take Chemistry 265/267 and Chemistry 266/268.

†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.

CURRICULUM IN BIOLOGICAL SCIENCES LEADING TO THE DEGREE OF BACHELOR OF SCIENCE MICROBIOLOGY/MOLECULAR BIOLOGY CONCENTRATION

FIRST YEAR

FIRST SEMESTER	S.H.	SECOND SEMESTER	S.H.
†General Biology 151	3	†General Biology 153	3
†Biology Lab 152	1	†Biology Lab 154	1
English 101 or 121H or 123H	3	Chemistry 121	3
Library Science 102	1	Chemistry Lab 123	1
Mathematics 161 ¹	3	Math 162 ¹	3
Foreign Language 101	3	English 102 or 122H or 124H	3
Southeastern 101	2	Foreign Language 102	3
	16		17

SECOND YEAR

Chemistry 122	3	Communication 211	3
Chemistry Laboratory 124	1	Chemistry 265/267	4
†Microbiology 205	3	†General Biology 200	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 ¹	3		
	17		14

THIRD YEAR

†Microbiology 325 ²	4	†Concentration Elective ²	4
English 322	3	†General Biology 341	1
†General Biology 312	3	Chemistry 481/485	4
Chemistry 266/268	4	Arts Elective ³	3
		†Microbiology 461 ²	4
	14		16

FOURTH YEAR

Social Science Elective ⁴	3	†Concentration Elective ²	4
†Concentration Elective ²	4	Social Science Elective	3
Physics 191	3	Physics 192.....	3
Physics Laboratory 193.....	1	Physics Laboratory 194.....	1
†General Biology 441	1	History Elective ⁴	3
	12		14
Total Minimum Semester Hours Required		120	
Total Minimum Semester Hours Required in Major		41	

Southeastern 101 is not required of transfer or readmitted Southeastern students with 30 hours or more. Those students will replace Southeastern 101 with 2 hours of free electives.

Computer literacy is required prior to graduation; students are to contact their advisor for requirements.

¹Mathematics 165 and 200 (8 credit hours) may be taken in place of Mathematics 161, 162, and 163 (9 credit hours).

²Courses for the Microbiology/Molecular Biology Concentration (20 credit hours) selected from the following groups in consultation with advisor:

Group A -Fundamental courses (8 credit hours) Students in the Microbiology/Molecular Biology Concentration must take the following courses - MIC 325 and 461.

Group B - Concentration Electives (12 credit hours) - MIC 313, 336, 338, 423, 457, 460, 463, 465, CHEM 482, CLAB 486, BOT 401, 426, GBIO 314, 377, 495, ZOO 392, 455, 465, 471, 499. The following courses require PRIOR approval of the advisor and the department head: GBIO 409, Internship 1-3 hours (3 hrs max); GBIO 450, Research Problems, 1-4 hours (4 hrs max); GBIO 493, Special Topics, 2-4 hrs.

³Courses can be taken in music, art, dance, or theatre.

⁴Courses can be selected in economics, geography, anthropology, political science, psychology, or sociology. One course (3 hrs) must be at the 200 level or above.

†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.

CURRICULUM IN BIOLOGICAL SCIENCES LEADING TO THE DEGREE OF BACHELOR OF SCIENCE PLANT SCIENCE CONCENTRATION

FIRST YEAR

FIRST SEMESTER	S.H.	SECOND SEMESTER	S.H.
†General Biology 151	3	†General Biology 153	3
†Biology Lab 152	1	†Biology Lab 154.....	1
English 101 or 121H or 123H	3	Chemistry 121	3
Library Science 102	1	Chemistry Lab 123	1
Math 161 ¹	3	Math 162 ¹	3
Foreign Language 101	3	English 102 or 122H or 124H.....	3
Southeastern 101	2	Foreign Language 102	3
	16		17

SECOND YEAR

Chemistry 122	3	Communication 211	3
Chemistry Laboratory 124	1	Chemistry 265/267 ⁶ or 261/263	4
†Microbiology 205	3	†General Biology 200	3
†Microbiology Laboratory 207	1	†General Biology 241	1
English 230, 231, or 232	3	Foreign Language 202	3
Foreign Language 201	3	Arts Elective ³	3
Math 163 ¹	3		
	17		17

THIRD YEAR

†Concentration Elective ²	4	†Concentration Elective ²	4
†General Biology 312	3	†Concentration Elective ²	4
English 322	3	†General Biology 341	1
Chemistry 266/268 ⁶ or 281/283	4	History Elective	3
	14		12

FOURTH YEAR

Social Science Elective ⁴	3	†Concentration Elective ²	4
†Concentration Elective ²	4	Elective.....	4
Physics 191	3	Social Science Elective ⁴	3
Physics Laboratory 193.....	1	Physics 192	3
†General Biology 441	1	Physics Laboratory194	1
	12		15
Total Minimum Semester Hours Required		120	
Total Minimum Semester Hours Required in Major		41	

Southeastern 101 is not required of transfer or readmitted Southeastern students with 30 hours or more. Those students will replace Southeastern 101 with 2 hours of free electives.

Computer literacy is required prior to graduation; students are to contact their advisor for requirements.

¹Mathematics 165 and 200 (8 credit hours) may be taken in place of Mathematics 161, 162, and 163 (9 credit hours). Students with a Math ACT score of 20 or lower will take Math 155 in place of Math 161. Students who take MATH 165 and 200 are required to take one additional elective hour.

²Concentration Electives for the Plant Science Concentration (minimum 20 credit hours) selected from the following in consultation with advisor: BOT 205, 347, 401, 426, 427, 429, 481, 482. GBIO 377, 395, 397, 404, 405, 406, 418, 485. HORT 301, 315, 320, 328, 412, 424, 426, 428, 490. ZOO 409. The following courses require PRIOR approval of the advisor and department head: GBIO 409, Internship 1-3 hrs (3 hrs max); GBIO 450, Research Problems 1-4 hrs (4 hrs max); GBIO 493, Special Topics, 2-4 hrs; HORT 495, Seminar 1 hr.

³Courses may be taken in music, art, dance, or theatre.

⁴Courses can be selected in economics, geography, anthropology, political science, psychology, or sociology. One course must be at the 200 level or above.

⁵Students planning on attending medical, dental, veterinary, or graduate school must take Chemistry 265/267 and Chemistry 266/268.

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