

## DEPARTMENT OF BIOLOGICAL SCIENCES

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, 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 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.

### 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.

### HONORS DIPLOMA IN BIOLOGICAL SCIENCES

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

English 121H <sup>1</sup>	3 hours
English 122H <sup>2</sup>	3 hours
History 101H <sup>3</sup>	3 hours
History 102H <sup>4</sup>	3 hours
English 291H, English 292H, History 201H, History 202H, Economics 201H, Mathematics 161H, Honors 191, Honors 311, Honors 312, Honors 313, or Honors 314 <sup>5</sup>	3 hours
GBIO 151H, 153H, 200 <sup>6</sup> , 312 <sup>6</sup>	9 hours
GBIO 450 <sup>6</sup>	3 hours
Honors 300 Senior Thesis <sup>7</sup>	1 hour

<sup>1</sup>English 121H can be substituted for English 101.

<sup>2</sup>English 122H can be substituted for English 102.

<sup>3</sup>History 101H can be substituted for History 101 or 201.

<sup>4</sup>History 102H can be substituted for History 102 or 202.

<sup>5</sup>Any 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.

<sup>6</sup>These hours must be completed as an H-Option.

<sup>7</sup>The domain in which the student will complete the thesis project or internship will be determined during the student's enrollment in GBIO 450<sup>6</sup>.

### 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.

### 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**  
**ECOLOGY, ENVIRONMENTAL, AND EVOLUTIONARY CONCENTRATION**

FIRST SEMESTER	S.H.	FIRST YEAR 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 <sup>1</sup>	3	Math 162	3
Orientation 101	0-1	English 102 or 122H	3
Arts Elective <sup>4</sup>	3	Foreign Language 102	3
Foreign Language 101	3		
	17-18		17
<b>SECOND YEAR</b>			
Chemistry 122	3	Communication 211	3
Chemistry Laboratory 124	1	Chemistry 265/267 <sup>7</sup> 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	Math 163 <sup>1</sup>	3
	17		14
<b>THIRD YEAR</b>			
†Concentration Elective <sup>2</sup>	4	†Concentration Elective <sup>2</sup>	4
English 322	3	Electives <sup>3</sup>	3
†General Biology 312	3	†General Biology 341	1
Chemistry 266/268 <sup>7</sup> or 281/283	4	†Concentration Elective <sup>2</sup>	4
History	3		
	17		12
<b>FOURTH YEAR</b>			
Social Science Elective <sup>5</sup>	3	†Concentration Elective <sup>2</sup>	4
†Concentration Elective <sup>2</sup>	4	Elective <sup>3</sup>	2
Elective <sup>3</sup>	3	Social Science Elective <sup>5</sup>	3
Physics 191	3	Physics 192	3
Physics Laboratory 193	1	Physics Laboratory194	1
	14	†General Biology 441	1
			14
<b>Total Minimum Semester Hours Required</b>			<b>122-123<sup>6</sup></b>
<b>Total Minimum Semester Hours Required in Major</b>			<b>41</b>

Orientation 101 is not required of transfer or readmitted Southeastern students with 30 hours or more.

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

<sup>1</sup>Mathematics 200 may be substituted for Mathematics 161 and 163.

<sup>2</sup>Concentration electives in Ecology, Environmental, and Evolutionary Biology (20 credit hours) selected from the following groups in consultation with advisor – Group A (2 courses) Fundamental courses in Ecology, Environmental and Evolutionary Biology – GBIO 281, 395, 405, BOT 481, GBIO 485, 377, MIC 313, - Group B (1-2 courses) – Forms and Function – BOT 426, ZOO 302, 392, 471, 475, 499, MIC 460, Group C (1-2 courses) – Advanced Courses in Ecology, Environmental and Evolutionary Biology – GBIO 406, 439, 442, 481, ZOO 301, 352, 453, 456, 457, 458, 470, BOT 347, 427, MIC 423. Group D – Special Topics and Research Problems – These courses may be counted toward the above categories after the required courses have been met. The Dept. Head must approve the category for credit before signing up – GBIO 493, Variable credits, 2-4 hours (Max 4 hrs), GBIO 450- Variable credits, 1-4 hours (Max 4 hrs). Group E – Concentration Electives – After taking all REQUIRED courses, you may take any of the courses listed above as a concentration elective to fulfill the 20 hour requirement.

<sup>3</sup>At least six hours of electives must be in non-Biology courses.

<sup>4</sup>Courses can be taken in music, art, dance, or theatre.

<sup>5</sup>Courses can be selected in economics, geography, anthropology, political science, psychology, or sociology.

<sup>6</sup>Extended Option: Secondary Education Certification. See College of Education section, this catalogue.

<sup>7</sup>Students following the microbiology/molecular concentration and students planning on attending medical, dental, veterinary, or graduate school must take Chemistry 265/267 and Chemistry 266/268.

<sup>8</sup>Students following the microbiology/molecular concentration and students planning on attending graduate school must take Chemistry 481/485.

†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 SEMESTER	S.H.	FIRST YEAR SECOND SEMESTER	S.H.
†General Biology 151	3	†General Biology 153	3
†Biology Lab 152	1	†Biology Lab 154	1
English 101 or 121H	3	Chemistry 121	3
Library Science 102	1	Chemistry Lab 123	1
Mathematics 161 <sup>1</sup>	3	Math 162	3
Orientation 101	0-1	English 102 or 122H	3
Arts Elective <sup>4</sup>	3	Foreign Language 102	3
Foreign Language 101	3		
	17-18		17
SECOND YEAR			
Chemistry 122	3	Communication 211	3
Chemistry Laboratory 124	1	Chemistry 265/267 <sup>7</sup>	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	Elective <sup>3</sup>	3
Math 163 <sup>1</sup>	3		
	17		17
THIRD YEAR			
†Concentration Elective <sup>2</sup>	4	†Concentration Elective <sup>2</sup>	8
English 322	3	Electives <sup>3</sup>	1
†General Biology 312	3	†General Biology 341	1
Chemistry 266/268 <sup>7</sup>	4	†Chemistry 481/485	4
History	3		
	17		14
FOURTH YEAR			
Social Science Elective <sup>5</sup>	3	†Concentration Elective <sup>2</sup>	4
†Concentration Elective <sup>2</sup>	4	Social Science Elective <sup>5</sup>	3
Physics 191	3	Physics 192	3
Physics Laboratory 193	1	Physics Laboratory 194	1
		†General Biology 441	1
	11		12
Total Minimum Semester Hours Required			122-123 <sup>6</sup>
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 is required prior to graduation; students are to contact their advisor for requirements.

<sup>1</sup>Mathematics 200 may be substituted for Mathematics 161 and 163.

<sup>2</sup>Concentration elective in Microbiology/Molecular Biology (20 credit hours) selected from the following groups in consultation with advisor – Group A (8 credit hours, both courses are required) Growth Kinetics and Metabolism - MIC 325 and 461. Group B (4-8 credit hours, 1-2 courses) Molecular/Cellular Biology - MIC 460, 465, 463. Group C (4-8 credit hours, 1-2 courses) Applied, Environmental, Ecology - MIC 313, 336, 338, 423, and 457. Group D –Special Topics and Research Problems - these courses may be counted toward the above categories after the required courses have been met. The department head must approved the category for credit before signing up – GBIO 493, variable credits, 2-4 hours (max 4 hours), GBIO 450 – variable credits, 1-4 hours (max 4 hours). Group E – Concentration Electives - after taking all REQUIRED courses, you may take any of the courses listed above as a concentration elective to fulfill the 20 hours requirement.

<sup>3</sup>At least six hours of electives must be in non-Biology courses.

<sup>4</sup>Courses can be taken in music, art, dance, or theatre.

<sup>5</sup>Courses can be selected in economics, geography, anthropology, political science, psychology, or sociology.

<sup>6</sup>Extended Option: Secondary Education Certification. See College of Education section, this catalogue.

<sup>7</sup>Students following the microbiology/molecular concentration and students planning on attending medical, dental, veterinary, or graduate school must take Chemistry 265/267 and Chemistry 266/268.

<sup>8</sup>Students following the microbiology/molecular concentration and students planning on attending graduate school must take Chemistry 481/485.

†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**  
**ORGANISMAL AND INTEGRATIVE BIOLOGY CONCENTRATION**

FIRST SEMESTER	S.H.	FIRST YEAR SECOND SEMESTER	S.H.
†General Biology 151	3	†General 153	3
†Biology Lab 152	1	†Biology Lab 154	1
English 101 or 121H	3	Chemistry 121	3
Library Science 102	1	Chemistry Lab 123	1
Mathematics 161 <sup>1</sup>	3	Math 162	3
Orientation 101	0-1	English 102 or 122H	3
Arts Elective <sup>4</sup>	3	Foreign Language 102	3
Foreign Language 101	3		
	17-18		17
SECOND YEAR			
Chemistry 122	3	Communication 211	3
Chemistry Laboratory 124	1	Chemistry 265/267 <sup>7</sup> 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		
Math 163 <sup>1</sup>	3		
	17		14
THIRD YEAR			
†Concentration Elective <sup>2</sup>	4	†Concentration Elective <sup>2</sup>	4
English 322	3	Electives <sup>3</sup>	3
†General Biology 312	3	†General Biology 341	1
Chemistry 266/268 <sup>7</sup> or 281/283	4	†Concentration Elective <sup>2</sup>	4
History	3		
	17		12
FOURTH YEAR			
Social Science Elective <sup>5</sup>	3	†Concentration Elective <sup>2</sup>	4
†Concentration Elective <sup>2</sup>	4	Elective <sup>3</sup>	2
Elective <sup>3</sup>	3	Social Science Elective <sup>5</sup>	3
Physics 191	3	Physics 192	3
Physics Laboratory 193	1	Physics Laboratory 194	1
		†General Biology 441	1
	14		14
Total Minimum Semester Hours Required			122-123 <sup>6</sup>
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 is required prior to graduation; students are to contact their advisor for requirements.

<sup>1</sup>Mathematics 200 may be substituted for Mathematics 161 and 163.

<sup>2</sup>Concentration elective in Organismal and Integrative Biology (20 credit hours) selected from the following groups in consultation with advisor. Group A (12 credit hours, 3-4 courses) Form and Function – ZOO 302, 331, 332, 392, 465, 471, 475, 488, 499, BOT 401, 426, 427, 482, MIC 460, GBIO 314, 377, 495, Group B (3-4 credit hours, 1-2 courses) Biodiversity – ZOO 301, 309, 455, 456, 470, GBIO 442, BOT 205, 347, 433, 458, MIC 463. Group C (3-4 credit hours, 1-2 courses) Ecology & Evolutionary Biology - GBIO 281, 395, 404, 405, 406, 439, 481, 485, ZOO 352, 453, 457, BOT 481, MIC 313. Group D – Special Topics and Research Problems – These courses may be counted toward the above categories after the required courses have been met. The Dept. Head must approve the category for credit before signing up – GBIO 493, Variable credits, 2-4 hours (Max 4 hrs), GBIO 450 – Variable credits, 1-4 hours (Max 4 hrs). Group E – Concentration Electives – After taking all REQUIRED courses, you may take any of the courses listed above as a concentration elective to fulfill the 20 hour requirement.

<sup>3</sup>At least six hours of electives must be in non-Biology courses.

<sup>4</sup>Courses can be taken in music, art, dance, or theatre.

<sup>5</sup>Courses can be selected in economics, geography, anthropology, political science, psychology, or sociology.

<sup>6</sup>Extended Option: Secondary Education Certification. See College of Education section, this catalogue.

<sup>7</sup>Students following the microbiology/molecular concentration and students planning on attending medical, dental, veterinary, or graduate school must take Chemistry 265/267 and Chemistry 266/268.

<sup>8</sup>Students following the microbiology/molecular concentration and students planning on attending graduate school must take Chemistry 481/485.

†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.

## MAJOR IN HORTICULTURE

Students wishing to major in Horticulture Sciences must complete 33 semester hours of Horticulture. Students must attain a C or better in each Horticulture and Biology course.

## MINOR

Eighteen semester hours are required for a minor in Horticulture Science. These must include HORT 232, HORT 328, HORT 315, and HORT 320.

### CURRICULUM IN HORTICULTURE LEADING TO THE DEGREE OF BACHELOR OF SCIENCE

FIRST SEMESTER		FIRST YEAR	
	S.H.	SECOND SEMESTER	S.H.
GBIO 151	3	History 201 or 202	3
BIOL 152	1	GBIO 153	3
English 101 or ENGL 121H	3	BIOL 154	1
Math 161	3	English 102 or 122H	3
Social Science Elective	3	Math 162	3
Orientation 101	0-1	Arts Elective (Art, Music, Dance, Theatre)	3
	13-14		16
SECOND YEAR			
†Horticulture 232	3	†Horticulture 328	3
Chemistry 101/121	3	Accounting 200	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, 231, or 232	3
	14		16
THIRD YEAR			
†Horticulture 301	4	†Horticulture 320	4
Management 351	3	Botany 426	4
Chemistry 261/265	3	Botany 401	4
Chemistry Lab 263/267	1	Elective*	3
Horticulture 315	3	Social Science Elective	3
Zoology 309	4		
	18		18
FOURTH YEAR			
FIRST SEMESTER	S.H.	SECOND SEMESTER	S.H.
†Horticulture 300/400 level	9	†Horticulture 495	1
Marketing 303	3	†Horticulture 300/400 level	6
Elective	3	Elective	6
	15		13
Total semester hours required		123-124	
Total semester hours required in major		33	

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.

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

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