

DEPARTMENT OF BIOLOGICAL SCIENCES

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BIOLOGY PROGRAM

The university awards the Bachelor of Science degree, with a major in biology, to a student who, in addition to satisfying the minimum requirements for graduation from the College of Arts and Sciences, meets the following requirements:

1. Complete a minimum of 49 semester hours of biological science to include 29 semester hours of the biology core curriculum courses BIOL 155, 156, 203-204, 320, 326, 370, 401, 440-441, and 499 and a minimum of 20 semester hours of selected biology concentration electives (see below).
2. Earn a grade of C or better in all science courses to be applied toward degree requirements.
3. Complete the Senior Exit exams the last semester before graduation.

Minor

A minor in biology requires the completion of 24 semester hours in the Biological Sciences with a minimum grade of C in all courses to include BIOL 155, 156, 203-204, 320, 370, 401, or 499, and 440-441 or 326. Students may alternately receive a Biology minor in one of the following concentrations: Environmental Biology, Marine Biology, or Microbiology. Students with a minor in one of these concentrations must complete BIOL 155, 156, 320 and 12 additional semester hours approved by the department head from courses listed in that concentration area with a minimum grade of C.

Biology Concentrations:

Students majoring in biology select from one of nine areas of concentration based on elective biology courses taken in addition to the core curriculum biology courses. The department will give students an exact course sequence for their concentration area.

The Department of Biological Sciences also offers a Master of Science Degree in Marine and Environmental Biology. Information can be found in the Graduate Programs section of this catalog.

Bachelor of Science Degree in Biology

- General Biology Concentration (BIOL)
- Environmental Biology Concentration (BIOE)
- Marine Biology Concentration (BIOM)
- Microbiology Concentration (BIOC)
- Pre-Medical Technology Concentration (BIOT)
- Pre-Medicine/Pre-Dentistry Concentration (BIOD)
- Pre-Occupational Therapy Concentration (BIOO)
- Pre-Physical Therapy Concentration (BIOP)
- Pre-Veterinary Medicine Concentration (BIOV)

CLR - Computer Literacy Requirement

GER - General Education Requirement

OCR - Oral Communication Requirement

UR - University Requirement

Suggested Course Sequence

FRESHMAN YEAR	Sem. Hrs.
BIOL 155, 156 (GER)	8
CHEM 105 (GER)	3
CHEM 106-110	5
CMPS 200 (CLR)	3
ENGL 101, 102 (GER)	6
Freshman Seminar Course (UR)	1
MATH 165* (GER)	5
	31
SOPHOMORE YEAR	Sem. Hrs.
BIOL 203-204	4
CHEM 221, 222-226	8
HIST 101-102 or 150-151	6
MATH 301	3
PHYS 101-103, 102-104	8
Concentration Elective (See below)	4
	33
JUNIOR YEAR	Sem. Hrs.
BIOL 320, 326, 370, 440-441	15
CHEM Elective (300 or above)**	4
ENGL Literature Elective (GER)	3
ENGL 368 or 468 (GER)	3
Concentration Elective (See below)	4
	29
SENIOR YEAR	Sem. Hrs.
Arts Elective (GER)	3
BIOL 401, 499	2
Humanities or Fine Arts Electives	6
Social Science Electives (GER)***	6
SPCH 101 (OCR)	3
Concentration Electives (See below)	12
	32

Total Hours Required for Degree	125
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* MATH 165 is the entry-level course for this major. All prerequisites for MATH 165 must be met.

** Chemistry elective must be a lecture/lab series. To earn a minor in Chemistry, a student must take CHEM 300-302 plus 3 hrs. of CHEM numbered 300 or above.

*** To be selected from two disciplines.

NOTES: BIOL 416, Research Problems, is strongly recommended for biology majors. BIOL 416 may be taken only twice for degree credit, and no more than 6 total hours of BIOL 416 and/or special topics (BIOL *471, *472, *473, and *474) may be taken for degree credit as concentration electives.

General Biology Concentration (BIOL) – 20 hours required (Choose one or more courses from each of the following groups):

Group I – Botany:

BIOL 361 (Required) (4)

Group II – Zoology:

BIOL 332 (4)

BIOL 348 (4)

BIOL 354 (4)

BIOL 404 (4)

Group III – Environmental:

BIOL 283 (3)

BIOL 284 (1)

BIOL 301 (3)

*BIOL 465 (4)

*BIOL 480 (4)

*BIOL 490 (4)

Group IV - Other:

BIOL courses 300 or above (with approval of department head)

CHEM 435 (3)

Environmental Biology Concentration (BIOE) – 20 hours required

BIOL 283 (3)

BIOL 301 (required) (3)

BIOL 354 (4)

BIOL 404 (required) (4)

BIOL 416 (2)

BIOL 425 (4)

*BIOL 465 (4)

*BIOL 480 (required) (4)

*BIOL 490 (4)

CHEM 435 (3)

Marine Biology Concentration (BIOM) – 20 hours required

BIOL 283 (required) (3)

BIOL 284 (required) (1)

BIOL 332 (4)

BIOL 348 (required) (4)

BIOL 354 (required) (4)

BIOL 361 (4)

BIOL 404 (4)

*BIOL 480 (4)

BIOL 416 (2)

Marine Biology students must take a course at LUMCON during intersession or summer session.

*BIOL 465 (4)

*BIOL 472 (2)

*BIOL 473 (3)

*BIOL 474 (4)

CHEM 435 (3)

GEOL 300 (3)

*LUMCON Marine Biology courses – require departmental approval

Microbiology Concentration (BIOC) – 20 hours required

BIOL 315 (required) (4)

BIOL 328 (required) (3)

BIOL 329 (required) (2)

BIOL 416 (recommended) (2)

BIOL 425 (4)

BIOL 460 (required) (3)

*BIOL 471 (1)

*BIOL 480 (4)

*BIOL 421 (3)

CHEM 435 (3)

Pre-Medical Technology Concentration (BIOT) – 20 hours required

BIOL 304 (5)

BIOL 315 (required) (4)

BIOL 328 (required) (3)

BIOL 329 (required) (2)

BIOL 371 (required) (4)

BIOL 408 (3)

BIOL 416 (2)

*BIOL 421 (3)

BIOL 460 (3)

CHEM 435 (3)

NOTES: A baccalaureate degree in medical technology is offered only by academic health centers, schools of allied health and some universities with pre-medical technology degrees. This biology concentration area provides a B.S. degree in Biology with a concentration in Pre-Medical Technology, and all prerequisites necessary to apply to those programs that offer a baccalaureate in Medical Technology. A student may alternately elect to pursue a two and one-half year non-degree track in Pre-Medical Technology that provides all prerequisites for Medical Technology baccalaureate programs. Students must consult with an advisor.

Pre-Medicine/Pre-Dentistry Concentration (BIOD) – 20 hours required

BIOL 304 (required) (5)

BIOL 315 (4)

BIOL 328 (3)

BIOL 329 (2)

BIOL 371 (required) (4)

BIOL 332 (4)

BIOL 408 (3)

BIOL 416 (2)

*BIOL 421 (3)

BIOL 460 (3)

CHEM 435 (3)

NOTES: Students majoring in the pre-medicine concentration in biology are eligible to apply to the Tulane University School of Medicine Early Acceptance Program at the end of the sophomore year. The information for the program and the required sequence of courses for the first two years of the curriculum is found in this Catalog in section titled Tulane University School of Medicine Early Acceptance Program.

The course sequence and application information are also found at the Nicholls State University website www.nicholls.edu/academic_affairs/tulane.html.

Pre-Occupational Therapy Concentration (BIOO) – 20 hours required

BIOL 304 (5)

BIOL 315 (4)

BIOL 328 (3)

BIOL 329 (2)

BIOL 371 (required) (4)

BIOL 332 (4)

BIOL 408 (3)

BIOL 416 (2)

BIOL 460 (3)

*BIOL 472 (required) (2)

CHEM 435 (3)

Pre-Physical Therapy Concentration (BIOP) – 20 hours required

BIOL 304 (5)

BIOL 315 (4)

BIOL 328 (3)

BIOL 329 (2)

BIOL 332 (4)

BIOL 371 (required) (4)

BIOL 408 (3)

BIOL 416 (2)

*BIOL 421 (3)

BIOL 460 (3)

*BIOL 472 (required) (2)

CHEM 435 (required) (3)

Pre-Veterinary Medicine Concentration (BIOV) – 20 hours required

AGSC 112 (required) (1)

AGSC 425 (required) (4)

BIOL 304 (required) (5)

BIOL 315 (4)

BIOL 371 (required) (4)

BIOL 408 (3)

BIOL 416 (2)

*BIOL 421 (3)

BIOL 328 (3) BIOL 460 (3)
 BIOL 329 (2) CHEM 435 (required) (3)
 BIOL 332 (4)

NOTES: Schools of Veterinary Medicine may require applicants to have an animal science course with laboratory and an animal feeds or nutrition course. Students applying to a School of Veterinary medicine should take AGSC 111-112 (Introduction to Animal Science and Laboratory).

NON-DEGREE PRE-PROFESSIONAL PROGRAMS

Pre-Dental Hygiene (PDHY)

Associate and baccalaureate degrees in dental hygiene are offered only by dental schools and some universities. These institutions accept students from colleges and universities with a pre-dental hygiene curriculum offering the prerequisites required before acceptance and entrance into their professional degree program.

The following curriculum was developed to provide the prerequisites required for the baccalaureate degree program at the Louisiana State University Dental School. Students applying to other degree granting institutions must obtain the current prerequisites from the school in which they intend to apply, and must consult with the pre-dental hygiene advisor in the Department of Biological Sciences. In the event of non-acceptance into a dental hygiene degree program, this curriculum is designed to offer the student a means to pursue a baccalaureate degree in biology at Nicholls State University.

CLR - Computer Literacy Requirement **GER** - General Education Requirement
OCR - Oral Communication Requirement **UR** - University Requirement

Suggested Course Sequence

FRESHMAN YEAR	Sem. Hrs.
BIOL 114, 115, 116, 117	8
CHEM 105, 106	6
ENGL 101, 102	6
Freshman Seminar Course (UR)	1
MATH 101, 102, or 214	6
PSYC 101	3
SPCH 101	3
	33
SOPHOMORE YEAR	Sem. Hrs.
Arts Elective	3
BIOL 155, 203-204	8
CMPS 200	3
ENGL Literature Elective	3
HUMA Electives*	9
SOCI 151	3
Elective**	3
	32

* At least 3 credits must be at or above sophomore level.

** Excludes courses in health and physical education. Recommended courses include BIOL 156, Nutrition, Speech, or Psychology.

Pre-Medical Technology (PMTCT)

A baccalaureate degree in medical technology (clinical laboratory science) is offered only by academic health centers, schools of allied health and some universities with Board of Regents-approved programs. These institutions accept students from colleges and universities with pre-medical technology programs that offer the prerequisite course work required before acceptance and entrance into the professional level part of the degree program.

The program below was developed to provide the prerequisites necessary to qualify an applicant for the degree program at either Louisiana Tech, The University of Louisiana at Monroe, or Louisiana State University. However, it does not exclude the prerequisites of other degree granting institutions.

Furthermore, a student may attend Nicholls State University and complete the degree requirements for the Bachelor of Science degree in biology and then apply to a hospital-based program in Medical Technology. For further information regarding these options the student should consult with the pre-medical technology advisor or the department head.

Student must consult with advisor regarding choice of electives.

CLR - Computer Literacy Requirement **GER** - General Education Requirement
OCR - Oral Communication Requirement **UR** - University Requirement

Suggested Course Sequence

FRESHMAN YEAR	Sem. Hrs.
BIOL 155, 156	8
CHEM 105, 106-110	8
CMPS 200	3
ENGL 101, 102	6
Freshman Seminar Course (UR)	1
MATH 101	3
	29
SOPHOMORE YEAR	Sem. Hrs.
BIOL 203-204, 315	8
CHEM 221, 222-226	8
English Literature Elective	3
HIST 101, 102 or 150, 151	6
MATH 214 or 301	3
Social Science Elective	3
Speech 101	3
	34
JUNIOR YEAR	Sem. Hrs.
Arts Elective	3
BIOL 326, 328-329, 371, 440-441	16
CHEM 300-302	5
ENGL 368 or 468	3
Social Science Elective	3
	30

Pre-Pharmacy (PPHA)

Pre-Pharmacy is a two-year non-degree program that prepares a student to enter a school of pharmacy. The program below follows that of The University of Louisiana at Monroe, which has the only public school of pharmacy in Louisiana. For other programs, the student must consult with the pre-pharmacy advisor in the Department of Biological Sciences.

For electives in this curriculum, a minimum of 8 semester hours must be selected from the areas of foreign languages, history, literature, philosophy, religion, and speech. A minimum of 3 semester hours must be selected from the areas of art, dance, music, or theater. The University of Louisiana at Monroe requires Social Work 406 (Seminar in Child Abuse and Neglect); this course may be taken after admission to the school of pharmacy. In the event of non-acceptance into a pharmacy degree program, this curriculum is designed to offer the student a means to pursue a baccalaureate degree in biology at Nicholls State University.

CLR - Computer Literacy Requirement **GER** - General Education Requirement
OCR - Oral Communication Requirement **UR** - University Requirement

Suggested Course Sequence

FRESHMAN YEAR	Sem. Hrs.
ART Elective	3
BIOL 155, 156	8
CHEM 105, 106-110	8
ENGL 101, 102	6
Freshman Seminar Course (UR)	1
HPED 270	2
HIST 101 or 150	3
MATH 165*	5
	36
SOPHOMORE YEAR	Sem. Hrs.
ACCT 205	3
BIOL 203-204	4
CHEM 221, 222-226	8
ECON 212 or 255	3
ENGL Literature Elective	3
HIST 102, or 151	3
SPCH 101	3
MATH 301	3
PHYS 101-103,102-104	8
	38

* MATH 165 is the entry-level course for this major. All prerequisites for MATH 165 must be met.

Pre-Physician Assistant (PPAP)

The LSU Medical Center at Shreveport's School of Allied Health Professions is the only university in the State of Louisiana to offer a Bachelor of Science Degree in Physician Assistant. To be eligible to apply for the program, a student must be a Louisiana resident and fulfill the following minimum requirements by the end of the fall semester in which the student applies:

1. Complete the minimum of 60 semester hours of prerequisite course requirements listed below at an accredited

- college/university with grades of C or better, and send two official transcripts from every undergraduate institution attended.
2. Maintain an overall grade point average of 2.75 in all college undergraduate coursework.
3. Obtain a minimum of 1000 hours of direct patient contact medical experience documented by an institutional representative or individual with whom the experience was obtained.

Additionally, preference is given to Louisiana residents; selected applicants are invited for an interview; applicants are advised to meet with Physician Assistants in order to better understand duties as related to clinical and hospital settings; and the Physician Assistant Department of the LSUMC Shreveport reserves the right to accept or deny transfer of academic credit from other accredited Physician Assistant or Allied Health programs on a case by case basis.

Students wishing to pursue graduate degrees (M.S. or PhD) in Physician Assistant Programs in other states should complete their B.S. degree in the Biology Pre-Medicine concentration. Students should consult with their advisor or the department head for application information.

CLR - Computer Literacy Requirement **GER** - General Education Requirement
OCR - Oral Communication Requirement **UR** - University Requirement

Suggested Course Sequence

FRESHMAN YEAR	Sem. Hrs.
BIOL 114-115, 116-117	8
CHEM 105, 106-110	8
CMPS 200	3
ENGL 101, 102	6
Freshman Seminar Course (UR)	1
MATH 101	3
PSYC 101	3
SPCH 101	3
Elective	3
	35
SOPHOMORE YEAR	Sem. Hrs.
Arts Elective	3
BIOL 155, 203-204	8
ENGL 368 or 468	3
ENGL Literature Elective	3
HUMA Elective	3
MATH 214	3
PHYS 101-103	4
PSYC Elective	3
Social Science	3
	32

AGRICULTURE PROGRAM

This curriculum leads to the Bachelor of Science degree with a major in Agricultural Business. The successful candidate must satisfy the minimum requirements for graduation from the College of Arts and Sciences, as well as the following:

4. Complete a minimum of 22 Agricultural Science core semester hours, plus 4-18 additional Agricultural Science elective semester hours.
5. Complete course requirements of one concentration from four areas.
6. Earn a C or better in all College of Business courses, natural science courses and Agricultural Science courses.

Minor

The Agricultural Program offers two minors. Eighteen hours of course work with a minimum grade of C in each course is required for a minor. Minors available and course requirements are as follows:

Animal Science: AGSC 111 (3), 112 (1), 305 (4), 315 (3), 384 (4), 425 (4).

Plant Science: AGSC 131 (3), 132 (1), 352 (4) plus 10 additional hours selected from: AGSC 305 (4), 306 (3), 307 (3), 308 (4), 309 (3), 386 (3) and 452 (4).

Bachelor of Science Degree in Agricultural Business

- General Agricultural Business Concentration (AGBU)
- Agricultural Production Concentration (AGPD)
- Agricultural Science Concentration (AGSC)
- Environmental Agricultural Concentration (AGNV)

CLR - Computer Literacy Requirement **GER** - General Education Requirement
OCR - Oral Communication Requirement **UR** - University Requirement

Suggested Course Sequence

FRESHMAN YEAR	Sem. Hrs.
AGSC 111, 112, 131, 132	8
BIOL 155, 156 (GER)	8
CHEM 105 (GER)	3
ENGL 101, 102 (GER)	6
Freshman Seminar Course (UR)	1
MATH 101, MATH Elective (GER)	6
	32
SOPHOMORE YEAR	Sem. Hrs.
ACCT 205	3
AGSC 105	3
CHEM 106, 110	5
CMPS 101 or 200 or OIS 200 (CLR)	3
ENGL Literature Elective (GER)	3
ECON 255 (GER)	3
HIST 101-102 or 150-151 (GER)	6
Concentration Electives (See below)	3
	29

JUNIOR YEAR	Sem. Hrs.
Arts Electives (GER)	3
BIOL 301	3
ENGL 368 (GER)	3
GEOG 375 (GER)	3
MKTG 300	3
SPCH 101 (OCR)	3
Concentration Electives (See below)	15
	33
SENIOR YEAR	Sem. Hrs.
AGSC 352	4
AGSC 411	3
AGSC 425	4
Concentration Electives (See below)	20
	31
Total Hours Required for Degree	125

General Agricultural Business Concentration (AGBU) - 38 hours required

- ACCT 206 (3) MNGT 301 (3)
 BIOL 203 (3) AGSC 250 (3)
 BIOL 204 (1) AGSC 410 (4)
 BSAD 221 (3) AGSC Electives – 18 hours from: 305 (4), 306 (3),
 307 (3), 308 (4), 309 (3), 315 (3),
 384 (4), 386 (3), 452 (3).

NOTES: A baccalaureate degree in this concentration provides a minor in Business Administration (ACCT 205, 206, BSAD 221, ECON 255, MNGT 301, and MKTG 300). Minors in Animal Science (AGSC 111, 112, 305, 315, 384, and 425) and Plant Science (AGSC 131, 132, 352 plus 10 additional hours selected from: AGSC 305, 306, 307, 308, 309, 386, and 452) are also available in this concentration.

Agricultural Production Concentration (AGPD) – 38 hours required

- BIOL 203 (3) AGSC 250 (3)
 BIOL 204 (1) AGSC 410 (4)
 BIOL 361 (4) AGSC 452 (4)
 BIOL 404 (4) AGSC Electives – 15 hours from:
 305 (4), 306 (3), 307 (3), 308 (4),
 309 (3), 315 (3), 384 (4), 386 (3).

NOTES: Minors in Animal Science (AGSC 111, 112, 305, 315, 384, and 425) and/or Plant Science (AGSC 131, 132, 352 plus 10 additional hours selected from: AGSC 305, 306, 307, 308, 309, 386, and 452) are available in this concentration.

Agricultural Science Concentration (AGSC) – 38 hours required

- BIOL 203 (3) MATH 301 (3)
 BIOL 204 (1) AGSC 420 (3)
 BIOL 320 (4) AGSC Electives – 16 hours from:
 CHEM 221 (3) 305 (4), 306 (3), 307 (3), 308 (4),
 CHEM 222 (3) 309 (3), 315 (3), 384 (4), 386 (3), 452 (3).
 CHEM 226 (2)

NOTES: Minors in Animal Science (AGSC 111, 112, 305, 315, 384, and 425) and/or Plant Science (AGSC 131, 132, 352 plus 10 additional hours selected from: AGSC 305, 306, 307, 308, 309, 386, and 452) are available in this concentration.

Environmental Agriculture Concentration (AGNV) – 38 hours required

BIOL 320 (4) CHEM 300 (3)

BIOL 404 (4) CHEM 302 (2)

*BIOL 480 (4) *CHEM 435 (3)

CHEM 221 (3) MATH 301 (3)

CHEM 222 (3) AGSC 420 (3)

CHEM 226 (2) AGSC Electives – 4 hours from:

305, 306, 307, 308, 309, 315, 384, 386, 452.

* For undergraduate and graduate credits.

NOTES: A baccalaureate degree in this concentration provides a minor in Chemistry (CHEM 105, 106, 110, 221, 222, 226, 300, 302, and 435) and in Environmental Biology (BIOL 155, 156, 301, 320, 404, 480, and CHEM 435).