

# Biology - Undergraduate Programs

Academic Advising: 345, 346, 347 and 349 Life Science Bldg. - 817-272-2408

## Overview

The Department of Biology curriculum familiarizes students with basic concepts inherent to biological science and allows them to master new, cutting edge areas of biological research. Its degree programs prepare students to enter exciting and challenging careers in the many diverse and rapidly expanding areas of biological employment, including environmental biology, conservation, microbiology, the health sciences, science teaching, pharmacology, biotechnology, molecular biology, neurobiology, and forensics as well as in basic biological research. Superior teaching and faculty involvement with students is a high priority in the department. Many of its faculty have received university-wide awards for teaching excellence. Biology faculty have internationally recognized research programs in which students are actively encouraged to participate through credit for supervised research. Thus, students can prepare for careers in specific areas of biology by being actively engaged in research related to that career area under faculty supervision.

The Department of Biology offers four programs of study leading to an undergraduate degree. These are the Bachelor of Arts (B.A.) degree in Biology and the Bachelor of Science (B.S.) degrees in Biology, Microbiology or Medical Technology. The Microbiology B.S. degree prepares students to enter careers in the highly diverse field of microbiology, ranging from control of infectious diseases, through public health and environmental microbiology to genetic engineering and molecular biology or to pursue graduate study. The B.S. in Medical Technology combines course work with 16 months of clinical laboratory training in an accredited hospital school of medical technology. This degree prepares students for careers as technicians in medical laboratories, clinics, hospitals and industry. The Biology B.S. program provides students with a strong background in the fundamental tenets of the biological sciences while allowing them to customize their degree plans to meet specific career goals. The Biology B.A. program is suitable for career preparation in a number of biological fields and for teaching certification in Composite Science.

There are two degree plan options through which students can complete their Biology B.S. degree. Option one in General Biology allows students to choose elective courses beyond the biology core that prepare them to enter a specific professional field, such as medical, dental, veterinary, or graduate school for further study and research. Students pursuing health professions careers should contact the Health Professions Advisor for assistance in selecting course electives pertinent to their specific career path. Students interested in genomics, environmental biology, or other areas of specialization should contact their Biology advisor for assistance with recommended courses. Option two in Forensics provides students with the training necessary to pursue exciting careers in biological forensics, DNA testing or police department laboratories.

All Biology degrees and degree plan options are supported by providing students with ready access to both academic and career advice provided by full-time undergraduate advisors and faculty members knowledgeable with a student's particular areas of academic and/or career interests. Students are strongly encouraged to interact with departmental and faculty advisors throughout their academic careers, particularly through independent research under faculty supervision, to develop the skills and course work background that will allow them to achieve their future academic/career goals. Detailed information on Biology and degree plan options is provided later in this section.

Beyond the undergraduate B.A. and B.S. degrees, the Department of Biology offers programs leading to graduate degrees, including the Master of Science in Biology (M.S.) which allows students to pursue biological careers requiring a greater knowledge base than provided by an undergraduate B.A. or B.S. degree and a Doctor of Philosophy Degree in Quantitative Biology (Ph.D.) which allows students to carry out independent dissertation research within a chosen area of biological research leading to a career in research and/or university teaching. The Ph.D. degree in Biology provides students with a strong background in modern mathematical approaches to biological research, including biostatistics, experimental design and mathematical modeling of biological systems. The Graduate Catalog provides details of the Biology M.S. and Ph.D. degree programs.

The Department of Biology takes pride in offering students outstanding degree programs supported by excellent teaching, undergraduate research opportunities and superior academic advising. These programs make graduates highly competitive in the job market or when applying to graduate or professional degree programs. Please visit the Biology Department and speak with one of our advisors. Phone 817-272-2408 to make an appointment.

## Applying for Major Status in Biology

Freshmen who have no previous college work must complete the following courses before applying to the Biology Department to become a major:

**19 hours from the University core (consisting of courses in English, history, political science, et al. See list of general core curriculum requirements set by the University elsewhere in this catalog) and a minimum of 20 hours from the courses below:**

### BIOLOGY

BIOL 1441	BIOLOGY I FOR SCIENCE MAJORS: CELL AND MOLECULAR BIOLOGY	4
BIOL 1442	BIOLOGY II FOR SCIENCE MAJORS: ECOLOGY AND EVOLUTION	4
BIOL 2300	BIOSTATISTICS <small>BIOL 2300 not required for BIOL B.A.</small>	3
BIOL 3315	GENETICS	3

**MEDTECH**

BIOL 1441	BIOLOGY I FOR SCIENCE MAJORS: CELL AND MOLECULAR BIOLOGY	4
BIOL 1442	BIOLOGY II FOR SCIENCE MAJORS: ECOLOGY AND EVOLUTION	4
BIOL 2444	GENERAL MICROBIOLOGY	4

**MICROBIOLOGY**

BIOL 1441	BIOLOGY I FOR SCIENCE MAJORS: CELL AND MOLECULAR BIOLOGY	4
BIOL 2444	GENERAL MICROBIOLOGY	4
BIOL 3304	MICROBIAL GENETICS	3
BIOL 4441	ADVANCED MICROBIOLOGY LAB	4

**CHEMISTRY**

CHEM 1441	GENERAL CHEMISTRY I	4
CHEM 1442	GENERAL CHEMISTRY II	4

The applicant for status as a biology major MUST have a GPA of 2.25 or better in all courses taken, and 2.25 or better in biology courses. An application form is available from the undergraduate advisor (Room 345 or 346 LS).

A suggested course sequence for entering freshmen students for the first two years is:

**First Year**

First Semester	Hours	Second Semester	Hours
ENGL 1301		3 ENGL 1302	3
MATH 1421		4 MATH 1426	4
CHEM 1441		4 CHEM 1442	4
BIOL 1441		4 BIOL 1442	4
		<b>15</b>	<b>15</b>

**Second Year**

First Semester	Hours	Second Semester	Hours
CHEM 2321 & CHEM 2181		4 CHEM 2322 & CHEM 2182	4
Lang/Phil/Cult		3 BIOL 3315	3
POLS 2311		3 BIOL 3427 or 3454	4
BIOL 2300		3 POLS 2312	3
BIOL 2444		4	
		<b>17</b>	<b>14</b>

**Total Hours: 61**

<sup>1</sup> Micro majors will substitute BIOL 2444 in the second semester of their freshman year, and another micro class in the first semester of their sophomore year. Med Tech majors will substitute BIOL 2444 during the first semester of their sophomore year.

Transfer students interested in one of the degree programs in biology will, after admission to UT Arlington, be placed into pre-major status: BIOL intended, MEDT intended, or MICR intended major. To apply for status as a major in biology, microbiology, or medical technology, these students must have a minimum of 39 hours which include:

- At least 28 hours in the University core curriculum including eight hours of freshman chemistry, with lab (credit by transfer or earned at UT Arlington).
- At least 11 hours in biology courses taken at UT Arlington that apply to one of the three programs awarded by the department.

At the time of application for major status in biology, the student must have a GPA of 2.25 or better in courses taken at UT Arlington (both overall and in biology courses). An application form for requesting major status is available from the Department Advisor (Room 346 LS). Transfer students will be evaluated for major status only after completing 11 hours in biology in residence at UT Arlington.

**Maintaining Major Status**

- Students who are accepted as majors in biology, microbiology, or medical technology must thereafter maintain a GPA of 2.25 or better in all courses and in biology courses. Any student whose GPA falls below 2.25 in either of these categories will be returned to undeclared status at the end of the semester in which the deficiency occurs.
- Students who fall into academic difficulty will be required to meet with their Advisor and/or Academic Dean in order to discuss academic consequences and their future status in the College of Science. Please refer to the College of Science section of the catalog, "Academic Policies for College of Science Majors".

- Students who have lost status as a major must have departmental permission to enroll in any junior or senior course in biology at UT Arlington.
- Students in the medical technology program should have a 2.8 GPA or higher after completing three years of course work to be competitive when applying for the final year of training in medical technology.

## General Information

- In order to receive a B.A. degree in Biology or a B.S. degree in Biology or Microbiology from UT Arlington, transfer students must complete a minimum of 18 hours of junior or senior level courses (12 of the 18 hours in Biology) at UT Arlington. Transfer students who are approved for admission to the medical technology program must complete at least 13 hours of junior or senior level courses in biology at UT Arlington to qualify for a B.S. Degree in Medical Technology from UT Arlington.
- No student working toward a B.A. degree in Biology or a B.S. degree in Biology, Medical Technology or Microbiology may take any biology course on a Pass/Fail basis.
- Students are not allowed to receive credit for biology courses at the sophomore level or above by special examination.
- Exceptions to the core course prerequisites for advanced courses will be made only for specialized degree programs such as Medical Technology, Nursing, and Physical Education, and for selected non-majors with special needs.

## UNIV 1101 Career Preparation and Student Success

All transfer students are required to enroll in a 1 hour career preparation course, UNIV 1101.

## UNIV 1131 Issues in College Adjustment

All entering freshmen are required to enroll in a 1 hour college adjustment course, UNIV 1131.

## Computer and Oral Communication Competency Requirement

Students majoring in Biology, Microbiology, or Medical Technology are required to demonstrate computer use and oral communication competencies.

The University requirement of competency in computer proficiency is satisfied by completion of the BIOL 1441 or 1442 labs.

Oral communication competency can be demonstrated by completion of COMS 1301, COMS 2302, or an approved substitute.

## Teacher Certification

A student interested in earning a degree with a major in biology with secondary teacher certification, should refer to the “Bachelor of Science Degree in Biology – Life Science Certification” and the “Bachelor of Arts Degree in Biology – Composite Science Certification” degree plans for teacher certification requirements and for biology courses recommended for each teaching field option.

## Requirements for a Bachelor of Arts Degree in Biology

The Bachelor of Arts Degree in Biology is suitable for career preparation in a number of biological career fields and for students who desire teaching certification with a teaching field in biology or composite science. Students choosing this program are required to consult with the Department of Biology's undergraduate advisor to develop an acceptable degree plan. Students seeking teaching certification with a teaching field in biology or composite science are required to consult with the Department of Biology certification advisor in order to develop an acceptable teaching certification degree program.

### Pre-Professional Courses

General Core Requirements (<http://catalog.uta.edu/academicregulations/degreerequirements/generalcorerequirements/>) 42

### CORE REQUIREMENTS FOR BIOLOGY

ENGL 1301	RHETORIC AND COMPOSITION I	3
ENGL 1302	RHETORIC AND COMPOSITION II	3
Language, Philosophy & Culture <sup>1</sup>		3
POLS 2311	GOVERNMENT OF THE UNITED STATES	3
POLS 2312	STATE AND LOCAL GOVERNMENT	3
HIST 1301	HISTORY OF THE UNITED STATES TO 1865	3
HIST 1302	HISTORY OF THE UNITED STATES, 1865 TO PRESENT	3
Creative Arts <sup>1</sup>		3
Social & Behavioral Sciences <sup>1</sup>		3
Foundational Component Elective <sup>1</sup>		3
MATH 1302	COLLEGE ALGEBRA <sup>2</sup>	3
MATH 1303	TRIGONOMETRY <sup>2</sup>	3
PHYS 1441	GENERAL COLLEGE PHYSICS I	4

PHYS 1442	GENERAL COLLEGE PHYSICS II	4
<b>Program Requirements</b>		
CHEM 1441	GENERAL CHEMISTRY I	4
CHEM 1442	GENERAL CHEMISTRY II	4
CHEM 2321	ORGANIC CHEMISTRY I	3
Select one of the following for oral communication competency:		3
COMS 2302	PROFESSIONAL AND TECHNICAL COMMUNICATION FOR SCIENCE AND ENGINEERING	
COMS 1301	FUNDAMENTALS OF PUBLIC SPEAKING	
Or other approved communication course		
Advanced elective courses (3000/4000 level courses)		12
Any level electives		16
<b>Professional Courses</b>		
UNIV 1131	STUDENT SUCCESS	1
or UNIV 1101	CAREER PREPARATION AND STUDENT SUCCESS	
<b>Major</b>		
<b>Core Curriculum</b>		
BIOL 1441	BIOLOGY I FOR SCIENCE MAJORS: CELL AND MOLECULAR BIOLOGY	4
BIOL 1442	BIOLOGY II FOR SCIENCE MAJORS: ECOLOGY AND EVOLUTION	4
BIOL 3315	GENETICS	3
<b>Diversity Courses</b>		
BIOL 3427	PLANT SCIENCE	4
BIOL 3454	GENERAL ZOOLOGY	4
BIOL 2444	GENERAL MICROBIOLOGY	4
Select 7 hours of advanced core courses from the following:		7
BIOL 3301	CELL PHYSIOLOGY	
BIOL 3310	SELECTED TOPICS IN BIOLOGY	
BIOL 3339	INTRODUCTION TO EVOLUTION	
BIOL 3442	HUMAN PHYSIOLOGY	
BIOL 3446	HUMAN ANATOMY	
BIOL 3457	GENERAL ECOLOGY	
Advanced BIOL elective course - approved by advisor		6
Total: 120 Hours (must have minimum of 36 hours 3000/4000 level)		

<sup>1</sup> See general core requirements (<http://catalog.uta.edu/archives/2022-2023/academicregulations/degreerequirements/generalcorerequirements/>).

<sup>2</sup> Transfer students must present a minimum of six semester credit hours of equivalent or higher level mathematics courses.

## SUGGESTED COURSE SEQUENCE

### First Year

First Semester	Hours	Second Semester	Hours
ENGL 1301		3 ENGL 1302	3
MATH 1302		3 MATH 1303	3
BIOL 1441		4 BIOL 1442	4
Social/Behavioral Science		3 CHEM 1441	4
UNIV 1131 or 1101		1	
		<b>14</b>	<b>14</b>

### Second Year

First Semester	Hours	Second Semester	Hours
POLS 2311		3 POLS 2312	3
BIOL 3315		3 BIOL 2444	4
CHEM 1442		4 CHEM 2321	3
Language, Philosophy and Culture		3 Advanced Biology Elective	3
		Any Level Elective	3
		<b>13</b>	<b>16</b>

**Third Year**

First Semester	Hours	Second Semester	Hours
PHYS 1441		4 PHYS 1442	4
BIOL 3427		4 BIOL 3454	4
Foundational Component Area Elective		3 BIOL 3301 or 3339	3
HIST 1301		3 COMS 2302	3
		Creative Arts	3
		<b>14</b>	<b>17</b>

**Fourth Year**

First Semester	Hours	Second Semester	Hours
Advanced Elective		6 Advanced Biology Elective	3
BIOL 3442 or 3446		4 Advanced General Elective	6
Any Level Elective		7 HIST 1302	3
		Any level elective	3
		<b>17</b>	<b>15</b>

Total Hours: 120

## Requirements for a Bachelor of Science Degree in Biology -- Life Science Teacher Certification

This program is suitable preparation for students who desire secondary teacher certification in biology. Interested students should meet with the UTeach advisor.

**Pre-Professional Courses**General Core Requirements (<http://catalog.uta.edu/academicregulations/degreerequirements/generalcorerequirements/>) 42**CORE REQUIREMENTS FOR BIOLOGY**

ENGL 1301	RHETORIC AND COMPOSITION I	3
ENGL 1302	RHETORIC AND COMPOSITION II	3
POLS 2311	GOVERNMENT OF THE UNITED STATES	3
POLS 2312	STATE AND LOCAL GOVERNMENT	3
HIST 1301	HISTORY OF THE UNITED STATES TO 1865	3
HIST 1302	HISTORY OF THE UNITED STATES, 1865 TO PRESENT	3
UNIV 1131	STUDENT SUCCESS	1
or UNIV 1101	CAREER PREPARATION AND STUDENT SUCCESS	
PHYS 1441	GENERAL COLLEGE PHYSICS I	4
PHYS 1442	GENERAL COLLEGE PHYSICS II	4
MATH 1421	PREPARATION FOR CALCULUS	4
MATH 1426	CALCULUS I	4
Language, Philosophy & Culture		3
Social & Behavioral Science		3
Creative Arts		3
Foundational Component Elective		3
<b>Program Requirements</b>		
CHEM 1441	GENERAL CHEMISTRY I	4
CHEM 1442	GENERAL CHEMISTRY II	4
CHEM 2321	ORGANIC CHEMISTRY I	3
CHEM 2181	ORGANIC CHEMISTRY I LABORATORY	1
CHEM 2322	ORGANIC CHEMISTRY II	3
CHEM 2182	ORGANIC CHEMISTRY II LABORATORY	1
<b>Education - Teacher Preparation Courses</b>		
SCIE 1201	STEP 1: INQUIRY APPROACHES TO TEACHING	2
SCIE 1202	STEP 2: INQUIRY-BASED LESSON DESIGN	2
PHIL 2314	PERSPECTIVES ON SCIENCE AND MATHEMATICS	3
SCIE 4107	CLINICAL TEACHING SEMINAR	1
SCIE 4607	CLINICAL TEACHING FOR SECONDARY GRADES	6
EDUC 4331	KNOWING AND LEARNING IN MATH AND SCIENCE (satisfies computer literacy requirement)	3

EDUC 4332	CLASSROOM INTERACTIONS	3
EDUC 4333	MULTIPLE TEACHING PRACTICES IN MATH AND SCIENCE	3
<b>Professional Courses</b>		
<b>Major</b>		
BIOL 1441	BIOLOGY I FOR SCIENCE MAJORS: CELL AND MOLECULAR BIOLOGY	4
BIOL 1442	BIOLOGY II FOR SCIENCE MAJORS: ECOLOGY AND EVOLUTION	4
BIOL 2300	BIOSTATISTICS	3
BIOL 3315	GENETICS	3
BIOL 4343	RESEARCH METHODS - UTEACH	3
BIOL 3427	PLANT SCIENCE	4
BIOL 3454	GENERAL ZOOLOGY	4
BIOL 2444	GENERAL MICROBIOLOGY	4
Select 7 hours from the following:		7
BIOL 3312	IMMUNOLOGY	3
BIOL 3301	CELL PHYSIOLOGY	3
BIOL 3339	INTRODUCTION TO EVOLUTION	3
BIOL 3442	HUMAN PHYSIOLOGY	4
BIOL 3446	HUMAN ANATOMY	4
BIOL 3457	GENERAL ECOLOGY	4
Advanced BIOL elective courses approved by the UTeach biology advisor		6
Total: 125 Hours		

## SUGGESTED COURSE SEQUENCE

### First Year

First Semester	Hours	Second Semester	Hours
ENGL 1301		3 ENGL 1302	3
BIOL 1441		4 BIOL 1442	4
CHEM 1441		4 CHEM 1442	4
MATH 1421		4 SCIE 1202	2
SCIE 1201		2 MATH 1426	4
UNIV 1131 or 1101		1	
		<b>18</b>	<b>17</b>

### Second Year

First Semester	Hours	Second Semester	Hours
CHEM 2321		3 BIOL 3427	4
BIOL 2444		4 BIOL 3315	3
CHEM 2181		1 EDUC 4332	3
POLS 2311		3 CHEM 2322	3
EDUC 4331		3 CHEM 2182	1
Language, Philosophy and Culture		3 POLS 2312	3
		<b>17</b>	<b>17</b>

### Third Year

First Semester	Hours	Second Semester	Hours
BIOL 2300		3 BIOL 3301	3
BIOL 3454		4 BIOL 4343	3
PHYS 1441		4 PHYS 1442	4
PHIL 2314		3 Social / Behavioral Science	3
HIST 1301		3 HIST 1302	3
		<b>17</b>	<b>16</b>

### Fourth Year

First Semester	Hours	Second Semester	Hours
EDUC 4333		3 SCIE 4607	6
BIOL 3442		4 SCIE 4107	1
Biology Advanced Electives		6	
Creative Arts		3	
		<b>16</b>	<b>7</b>

**Total Hours: 125**

## Requirements for a Bachelor of Arts Degree in Biology - Composite Science Teacher Certification

This program is suitable preparation for students who desire secondary teacher certification in composite science. Interested students should meet with the UTeach advisor.

### Pre-Professional Courses

General Core Requirements (<http://catalog.uta.edu/academicregulations/degreerequirements/generalcorerequirements/>) 42

#### CORE REQUIREMENTS FOR BIOLOGY

ENGL 1301	RHETORIC AND COMPOSITION I	3
ENGL 1302	RHETORIC AND COMPOSITION II	3
POLS 2311	GOVERNMENT OF THE UNITED STATES	3
POLS 2312	STATE AND LOCAL GOVERNMENT	3
HIST 1301	HISTORY OF THE UNITED STATES TO 1865	3
HIST 1302	HISTORY OF THE UNITED STATES, 1865 TO PRESENT	3
MATH 1302	COLLEGE ALGEBRA	3
MATH 1303	TRIGONOMETRY	3
ASTR 1345	INTRODUCTORY ASTRONOMY I	3
GEOL 1301	EARTH SYSTEMS	3
Language, Philosophy & Culture		3
UNIV 1131	STUDENT SUCCESS	1
or UNIV 1101	CAREER PREPARATION AND STUDENT SUCCESS	
Creative Arts		3
Social & Behavioral Science		3
Foundational Component Elective		3
Any level elective		2

### Program Requirements

CHEM 1441	GENERAL CHEMISTRY I	4
CHEM 1442	GENERAL CHEMISTRY II	4
CHEM 2321	ORGANIC CHEMISTRY I	3
PHYS 1441	GENERAL COLLEGE PHYSICS I	4
PHYS 1442	GENERAL COLLEGE PHYSICS II	4
Education - Teacher Preparation Courses		
SCIE 1201	STEP 1: INQUIRY APPROACHES TO TEACHING	2
SCIE 1202	STEP 2: INQUIRY-BASED LESSON DESIGN	2
PHIL 2314	PERSPECTIVES ON SCIENCE AND MATHEMATICS	3
SCIE 4107	CLINICAL TEACHING SEMINAR	1
SCIE 4607	CLINICAL TEACHING FOR SECONDARY GRADES	6
EDUC 4331	KNOWING AND LEARNING IN MATH AND SCIENCE (satisfies computer literacy requirement)	3
EDUC 4332	CLASSROOM INTERACTIONS	3
EDUC 4333	MULTIPLE TEACHING PRACTICES IN MATH AND SCIENCE	3

### Professional Courses

Major		
BIOL 1441	BIOLOGY I FOR SCIENCE MAJORS: CELL AND MOLECULAR BIOLOGY	4
BIOL 1442	BIOLOGY II FOR SCIENCE MAJORS: ECOLOGY AND EVOLUTION	4
BIOL 3315	GENETICS	3
BIOL 3427	PLANT SCIENCE	4
BIOL 3454	GENERAL ZOOLOGY	4
BIOL 2444	GENERAL MICROBIOLOGY	4
BIOL 4343	RESEARCH METHODS - UTEACH	3
Select 7 hours from the following:		7
BIOL 3301	CELL PHYSIOLOGY	3
BIOL 3310	SELECTED TOPICS IN BIOLOGY	3

BIOL 3312	IMMUNOLOGY	3
BIOL 3339	INTRODUCTION TO EVOLUTION	3
BIOL 3442	HUMAN PHYSIOLOGY	4
BIOL 3446	HUMAN ANATOMY	4
BIOL 3457	GENERAL ECOLOGY	4
Advanced BIOL elective chosen with advisor		3
Total: 120 Hours		

## SUGGESTED COURSE SEQUENCE

### First Year

First Semester	Hours	Second Semester	Hours
BIOL 1441		4 BIOL 1442	4
CHEM 1441		4 CHEM 1442	4
MATH 1302		3 MATH 1303	3
ENGL 1301		3 ENGL 1302	3
SCIE 1201		2 SCIE 1202	2
UNIV 1131 or 1101		1	
		<b>17</b>	<b>16</b>

### Second Year

First Semester	Hours	Second Semester	Hours
BIOL 3315		3 BIOL 2444	4
CHEM 2321		3 BIOL 3301	3
PHYS 1441		4 PHYS 1442	4
HIST 1301		3 EDUC 4332	3
EDUC 4331		3 Any level elective	2
		<b>16</b>	<b>16</b>

### Third Year

First Semester	Hours	Second Semester	Hours
BIOL 3427		4 BIOL 3454	4
Advanced Biology Elective		3 GEOL 1301	3
HIST 1302		3 POLS 2311	3
Language, Philosophy and Culture		3 Social and Behavioral Science	3
PHIL 2314		3 BIOL 4343	3
		<b>16</b>	<b>16</b>

### Fourth Year

First Semester	Hours	Second Semester	Hours
BIOL 3442		4 SCIE 4607	6
ASTR 1345		3 SCIE 4107	1
POLS 2312		3	
EDUC 4333		3	
Creative Arts		3	
		<b>16</b>	<b>7</b>

Total Hours: 120

## Requirements for a Bachelor of Science Degree in Biology

The requirements to receive a Bachelor of Science Degree in Biology can be achieved through degree plans under either of two options (i.e., General Biology, and Forensics Biology) detailed in this section. Before choosing a B.S. degree program under one of these options, please consult with a biology undergraduate advisor and biology faculty associated with the chosen option.

### OPTION 1: GENERAL BIOLOGY

The General Biology Option is intended for students studying basic aspects of the biological sciences. Students developing degree plans under the General Biology Option choose elective courses in Biology, other sciences, and nonscience areas to develop either a broad knowledge-base in Biology or to focus their studies in a particular area of Biology (a list of potential areas of study in Biology and the faculty who can assist students in developing degree plan programs in these areas is available from the undergraduate biology advisors). The General Biology Option will prepare students for careers in a variety of the Biological Sciences (including Health Professions, Genomics, Ecology/Environmental Studies, etc.) or for graduate study in Biology at the Master's or Ph.D. levels.



**Pre-Professional Courses**General Core Requirements (<http://catalog.uta.edu/academicregulations/degree requirements/generalcore requirements/>) 42**CORE REQUIREMENTS FOR BIOLOGY**

ENGL 1301	RHETORIC AND COMPOSITION I	3
ENGL 1302	RHETORIC AND COMPOSITION II	3
Language, Philosophy & Culture <sup>1</sup>		3
POLS 2311	GOVERNMENT OF THE UNITED STATES	3
POLS 2312	STATE AND LOCAL GOVERNMENT	3
HIST 1301	HISTORY OF THE UNITED STATES TO 1865	3
HIST 1302	HISTORY OF THE UNITED STATES, 1865 TO PRESENT	3
Creative Arts <sup>1</sup>		3
UNIV 1131	STUDENT SUCCESS	1
or UNIV 1101	CAREER PREPARATION AND STUDENT SUCCESS	
Social & Behavioral Sciences <sup>1</sup>		3
Foundational Component Area Elective <sup>1</sup>		3
MATH 1421	PREPARATION FOR CALCULUS	4
MATH 1426	CALCULUS I <sup>2</sup>	4
PHYS 1441	GENERAL COLLEGE PHYSICS I	4
PHYS 1442	GENERAL COLLEGE PHYSICS II	4

**Program Requirements**

CHEM 1441	GENERAL CHEMISTRY I	4
CHEM 1442	GENERAL CHEMISTRY II	4
CHEM 2321	ORGANIC CHEMISTRY I	3
CHEM 2322	ORGANIC CHEMISTRY II	3
CHEM 2181	ORGANIC CHEMISTRY I LABORATORY	1
CHEM 2182	ORGANIC CHEMISTRY II LABORATORY	1

Select one of the following in oral communication: 3

COMS 2302 PROFESSIONAL AND TECHNICAL COMMUNICATION FOR SCIENCE AND ENGINEERING

COMS 1301 FUNDAMENTALS OF PUBLIC SPEAKING

Or other approved communication course

Any level electives 6

Advanced elective courses (3000/4000 level) 9

**Professional Courses**

## Major

## Core Curriculum

BIOL 1441	BIOLOGY I FOR SCIENCE MAJORS: CELL AND MOLECULAR BIOLOGY	4
BIOL 1442	BIOLOGY II FOR SCIENCE MAJORS: ECOLOGY AND EVOLUTION	4
BIOL 2300	BIOSTATISTICS (or approved substitute)	3
BIOL 3315	GENETICS	3

Select two of the following diversity courses: 8

BIOL 2444	GENERAL MICROBIOLOGY	4
BIOL 3427	PLANT SCIENCE	
BIOL 3454	GENERAL ZOOLOGY	
BIOL 3457	GENERAL ECOLOGY	

Select two of the following advanced core courses: 6

BIOL 3301	CELL PHYSIOLOGY	
BIOL 3312	IMMUNOLOGY	
BIOL 3339	INTRODUCTION TO EVOLUTION	
BIOL 3442	HUMAN PHYSIOLOGY	
BIOL 3446	HUMAN ANATOMY	

Advanced BIOL elective courses - approved by advisor 10

Total: 120 Hours (must have minimum of 36 hours 3000/4000 level)

- <sup>1</sup> See general core requirements (<http://catalog.uta.edu/archives/2022-2023/academicregulations/degreerequirements/generalcorerequirements/>).
- <sup>2</sup> Transfer students must present a minimum of six semester credit hours of equivalent or higher level mathematics courses through transfer or placement examination.

## SUGGESTED COURSE SEQUENCE

### First Year

First Semester	Hours	Second Semester	Hours
ENGL 1301		3 ENGL 1302	3
MATH 1421		4 MATH 1426	4
BIOL 1441		4 BIOL 1442	4
CHEM 1441		4 CHEM 1442	4
UNIV 1131 or 1101		1	
		<b>16</b>	<b>15</b>

### Second Year

First Semester	Hours	Second Semester	Hours
CHEM 2321 & CHEM 2181		4 CHEM 2322 & CHEM 2182	4
BIOL 2300		3 BIOL 3315	3
Language, Philosophy & Culture		3 BIOL 3454	4
BIOL 2444		4 POLS 2312	3
POLS 2311		3	
		<b>17</b>	<b>14</b>

### Third Year

First Semester	Hours	Second Semester	Hours
BIOL 3427 or 3457		4 BIOL 3301 or 3339	3
PHYS 1441		4 BIOL 3442 or 3446	4
Foundational Core Area Elective		3 PHYS 1442	4
HIST 1301		3 COMS 2302	3
		Creative Art	3
		<b>14</b>	<b>17</b>

### Fourth Year

First Semester	Hours	Second Semester	Hours
BIOL Advanced Electives		3 BIOL Advanced Electives	6
Social and Behavioral Science		3 Advanced General Electives	9
HIST 1302		3	
Any Level Electives		3	
		<b>12</b>	<b>15</b>

**Total Hours: 120**

- <sup>1</sup> See general core requirements (<http://catalog.uta.edu/archives/2022-2023/academicregulations/degreerequirements/generalcorerequirements/>).
- <sup>2</sup> Transfer students must present a minimum of six semester credit hours of equivalent or higher level mathematics courses through transfer or placement examination.

## OPTION 2: FORENSICS

The option in forensics is intended to prepare students for a career in biological forensics by emphasizing relevant courses in biology and related disciplines. This option is designed for students who wish to seek employment in a forensics, DNA testing, or a police department laboratory upon graduation, and, as such, an internship (BIOL 3349) is recommended when possible. Students pursuing this option are encouraged to seek advice from the faculty forensics advisor.

### Pre-Professional Courses

General Core Requirements (<http://catalog.uta.edu/academicregulations/degreerequirements/generalcorerequirements/>) 42

### CORE REQUIREMENTS FOR BIOLOGY

ENGL 1301	RHETORIC AND COMPOSITION I	3
ENGL 1302	RHETORIC AND COMPOSITION II	3
Language, Philosophy & Culture <sup>1</sup>		3
POLS 2311	GOVERNMENT OF THE UNITED STATES	3
POLS 2312	STATE AND LOCAL GOVERNMENT	3
HIST 1301	HISTORY OF THE UNITED STATES TO 1865	3
HIST 1302	HISTORY OF THE UNITED STATES, 1865 TO PRESENT	3

Creative Arts <sup>1</sup>		3
UNIV 1131	STUDENT SUCCESS	1
or UNIV 1101	CAREER PREPARATION AND STUDENT SUCCESS	
Social & Behavioral Science <sup>1</sup>		3
Foundational Component Core Elective <sup>1</sup>		3
MATH 1421	PREPARATION FOR CALCULUS	4
MATH 1426	CALCULUS I <sup>2</sup>	4
PHYS 1441	GENERAL COLLEGE PHYSICS I	4
PHYS 1442	GENERAL COLLEGE PHYSICS II	4
<b>Program Requirements</b>		
CHEM 1441	GENERAL CHEMISTRY I	4
CHEM 1442	GENERAL CHEMISTRY II	4
CHEM 2321	ORGANIC CHEMISTRY I	3
CHEM 2322	ORGANIC CHEMISTRY II	3
CHEM 2181	ORGANIC CHEMISTRY I LABORATORY	1
CHEM 2182	ORGANIC CHEMISTRY II LABORATORY	1
CHEM 4311	BIOCHEMISTRY I	3
Select one of the following in oral communication:		3
COMS 2302	PROFESSIONAL AND TECHNICAL COMMUNICATION FOR SCIENCE AND ENGINEERING	
COMS 1301	FUNDAMENTALS OF PUBLIC SPEAKING	
Or other approved communication course		
Select a minimum of 9 hours in forensic electives:		9
ANTH 4406	HUMAN OSTEOLOGY	
ANTH 4322	PROBLEMS IN ANTHROPOLOGY	
BIOL 3303	DRUGS AND BEHAVIOR	
CRCJ 3370	INTRODUCTION TO FORENSICS	
CRCJ 4340	FORENSIC DEATH INVESTIGATION	
CRCJ 4341	FORENSIC EXAMINATION OF IMPRESSION EVIDENCE	
CRCJ 4342	FORENSIC HAIR AND FIBER IDENTIFICATION	
<b>Professional Courses</b>		
Major		
Core Curriculum		
BIOL 1441	BIOLOGY I FOR SCIENCE MAJORS: CELL AND MOLECULAR BIOLOGY	4
BIOL 1442	BIOLOGY II FOR SCIENCE MAJORS: ECOLOGY AND EVOLUTION	4
BIOL 2300	BIOSTATISTICS (or approved substitute)	3
BIOL 3315	GENETICS	3
Advanced Forensic courses		
BIOL 3352	INTRODUCTION TO FORENSIC LAB SCIENCE <sup>3</sup>	3
BIOL 4352	FORENSIC BIOLOGY	3
BIOL 4355	METHODS IN FORENSIC BIOLOGY <sup>3</sup>	3
Select 19 hours of advanced biology electives from the following:		19
BIOL 3149	COOPERATIVE PROGRAM IN BIOLOGY	
BIOL 3249	COOPERATIVE PROGRAM IN BIOLOGY	
BIOL 3349	COOPERATIVE PROGRAM IN BIOLOGY	
BIOL 3317	GENOMICS	
BIOL 3339	INTRODUCTION TO EVOLUTION	
BIOL 3355	TOXICOLOGY	
BIOL 3427	PLANT SCIENCE <sup>3</sup>	
BIOL 4312	INTRODUCTION TO VIROLOGY	
BIOL 2444	GENERAL MICROBIOLOGY	
BIOL 4317	BACTERIAL PATHOGENESIS	
BIOL 3319	HUMAN GENETICS	

BIOL 3420 GENETICS METHODS LAB

Total: 120 Hours (must have minimum of 36 hours 3000/4000 level)

- 1 See general core requirements (<http://catalog.uta.edu/archives/2022-2023/academicregulations/degreerequirements/generalcorerequirements/>).
- 2 Transfer students must present a minimum of six semester credit hours of equivalent or higher level mathematics courses through transfer or placement examination.
- 3 Laboratory courses.

## SUGGESTED COURSE SEQUENCE

### First Year

First Semester	Hours	Second Semester	Hours
ENGL 1301		3 ENGL 1302	3
MATH 1421		4 MATH 1426	4
CHEM 1441		4 CHEM 1442	4
BIOL 1441		4 BIOL 1442	4
UNIV 1131 or 1101		1	
		<b>16</b>	<b>15</b>

### Second Year

First Semester	Hours	Second Semester	Hours
CHEM 2321 & CHEM 2181		4 CHEM 2322 & CHEM 2182	4
BIOL 2300		3 BIOL 3315	3
BIOL 2444		4 BIOL 3352	3
POLS 2311		3 Social and Behavioral Science	3
		POLS 2312	3
		<b>14</b>	<b>16</b>

### Third Year

First Semester	Hours	Second Semester	Hours
BIOL 4352		3 BIOL Advanced Electives from Approved List	7
BIOL 4355		3 Creative Arts	3
CHEM 4311		3 PHYS 1441	4
Foundational Core Area Elective		3	
HIST 1301		3	
		<b>15</b>	<b>14</b>

### Fourth Year

First Semester	Hours	Second Semester	Hours
BIOL Advanced Electives from approved List		5 BIOL Advanced Electives from approved list	3
PHYS 1442		4 Advanced General Forensics Elective	6
COMS 2302		3 Language/Philosophy/Culture	3
General Advanced Forensic Elective		3 HIST 1302	3
		<b>15</b>	<b>15</b>

Total Hours: 120

## Bachelor of Science Degree in Medical Technology

A student who completes the special degree plan given below plus 16 months of clinical laboratory training in an accredited hospital school of medical technology may receive the degree of Bachelor of Science in Medical Technology, which will be conferred by The University of Texas at Arlington. Graduates may become certified in medical technology by passing the examination of the Board of Registry of the American Society of Clinical Pathologists (ASCP).

### Pre-Professional Courses

General Core Requirements ( <a href="http://catalog.uta.edu/academicregulations/degreerequirements/generalcorerequirements/">http://catalog.uta.edu/academicregulations/degreerequirements/generalcorerequirements/</a> )		42
CORE REQUIREMENTS FOR BS IN MEDICAL TECHNOLOGY		
ENGL 1301	RHETORIC AND COMPOSITION I	3
ENGL 1302	RHETORIC AND COMPOSITION II	3
Language, Philosophy & Culture <sup>1</sup>		3
POLS 2311	GOVERNMENT OF THE UNITED STATES	3

POLS 2312	STATE AND LOCAL GOVERNMENT	3
HIST 1301	HISTORY OF THE UNITED STATES TO 1865	3
HIST 1302	HISTORY OF THE UNITED STATES, 1865 TO PRESENT	3
Creative Arts <sup>1</sup>		3
Social & Behavioral Science <sup>1</sup>		3
Foundational Component Core Elective <sup>1</sup>		3
MATH 1302	COLLEGE ALGEBRA	3
MATH 1303	TRIGONOMETRY	3
or MATH 1308	ELEMENTARY STATISTICAL ANALYSIS	
PHYS 1441	GENERAL COLLEGE PHYSICS I	4
PHYS 1442	GENERAL COLLEGE PHYSICS II	4
<b>Program Requirements</b>		
CHEM 1441	GENERAL CHEMISTRY I	4
CHEM 1442	GENERAL CHEMISTRY II	4
CHEM 2181	ORGANIC CHEMISTRY I LABORATORY	1
CHEM 2321	ORGANIC CHEMISTRY I	3
CHEM 2182	ORGANIC CHEMISTRY II LABORATORY	1
CHEM 2322	ORGANIC CHEMISTRY II	3
CHEM 4311	BIOCHEMISTRY I	3
Select one of the following in oral communication:		3
COMS 2302	PROFESSIONAL AND TECHNICAL COMMUNICATION FOR SCIENCE AND ENGINEERING	
COMS 1301	FUNDAMENTALS OF PUBLIC SPEAKING	
Or other approved communication course		
Elective credit from any discipline		1
<b>Professional Courses</b>		
Major		
BIOL 1441	BIOLOGY I FOR SCIENCE MAJORS: CELL AND MOLECULAR BIOLOGY	4
BIOL 1442	BIOLOGY II FOR SCIENCE MAJORS: ECOLOGY AND EVOLUTION	4
BIOL 2457	HUMAN ANATOMY AND PHYSIOLOGY I	4
BIOL 2458	HUMAN ANATOMY AND PHYSIOLOGY II	4
BIOL 2444	GENERAL MICROBIOLOGY	4
BIOL 3312	IMMUNOLOGY	3
BIOL 3315	GENETICS	3
BIOL 4317	BACTERIAL PATHOGENESIS	3
BIOL 4312	INTRODUCTION TO VIROLOGY	3
3000/4000-level of biology electives selected with the advice of the undergraduate advisor		4
Total: 103 Hours		

Note: This option is a total of 103 hours, of which 16 must be 3000/4000 level, in addition to 16 months training in a school of medical technology approved by the Committee on Allied Health Education and Accreditation (CAHEA) in conjunction with the National Accrediting Agency for Clinical Laboratory Science (NAACLS).

<sup>1</sup> See general core requirements (<http://catalog.uta.edu/archives/2022-2023/academicregulations/degreerequirements/generalcorerequirements/>).

## SENIOR YEAR

Sixteen-month program in a school of medical technology which has been certified by the Committee of Allied Health Education and Accreditation (CAHEA) in conjunction with the National Accrediting Agency for Clinical Laboratory Sciences (NAACLS).

## Requirements for a Bachelor of Science Degree in Microbiology

<b>Pre-Professional Courses</b>		
General Core Requirements ( <a href="http://catalog.uta.edu/academicregulations/degreerequirements/generalcorerequirements/">http://catalog.uta.edu/academicregulations/degreerequirements/generalcorerequirements/</a> )		42
CORE REQUIREMENTS FOR BS IN MICROBIOLOGY		
ENGL 1301	RHETORIC AND COMPOSITION I	3
ENGL 1302	RHETORIC AND COMPOSITION II	3

Language, Philosophy & Culture <sup>1</sup>		3
POLS 2311	GOVERNMENT OF THE UNITED STATES	3
POLS 2312	STATE AND LOCAL GOVERNMENT	3
HIST 1301	HISTORY OF THE UNITED STATES TO 1865	3
HIST 1302	HISTORY OF THE UNITED STATES, 1865 TO PRESENT	3
Creative Arts <sup>1</sup>		3
UNIV 1131	STUDENT SUCCESS	1
or UNIV 1101	CAREER PREPARATION AND STUDENT SUCCESS	
Social & Behavioral Science <sup>1</sup>		3
Foundational Component Core Elective <sup>1</sup>		3
MATH 1421	PREPARATION FOR CALCULUS	4
MATH 1426	CALCULUS I <sup>2</sup>	4
PHYS 1441	GENERAL COLLEGE PHYSICS I	4
PHYS 1442	GENERAL COLLEGE PHYSICS II	4
<b>Program Requirements</b>		
CHEM 1441	GENERAL CHEMISTRY I	4
CHEM 1442	GENERAL CHEMISTRY II	4
CHEM 2181	ORGANIC CHEMISTRY I LABORATORY	1
CHEM 2321	ORGANIC CHEMISTRY I	3
CHEM 2182	ORGANIC CHEMISTRY II LABORATORY	1
CHEM 2322	ORGANIC CHEMISTRY II	3
CHEM 4311	BIOCHEMISTRY I	3
Select one of the following in oral communication:		3
COMS 2302	PROFESSIONAL AND TECHNICAL COMMUNICATION FOR SCIENCE AND ENGINEERING	
COMS 1301	FUNDAMENTALS OF PUBLIC SPEAKING	
Or other approved communication course		
Electives at any level		10
<b>Professional Courses</b>		
Major		
BIOL 1441	BIOLOGY I FOR SCIENCE MAJORS: CELL AND MOLECULAR BIOLOGY	4
BIOL 2444	GENERAL MICROBIOLOGY	4
BIOL 3304	MICROBIAL GENETICS	3
BIOL 3306	BACTERIAL PHYSIOLOGY AND ANTIBIOTICS	3
BIOL 4441	ADVANCED MICROBIOLOGY LAB	4
Select 24 additional hours from the following:		24
BIOL 3301	CELL PHYSIOLOGY	
BIOL 3311	SELECTED TOPICS IN MICROBIOLOGY	
BIOL 3312	IMMUNOLOGY	
BIOL 3318	LIMNOLOGY	
BIOL 3308	MICROBIAL ECOLOGY AND EVOLUTION	
BIOL 4312	INTRODUCTION TO VIROLOGY	
BIOL 4317	BACTERIAL PATHOGENESIS	
BIOL 4390	INSTRUCTIONAL TECHNIQUES IN MICROBIOLOGY	
BIOL 4392	INSTRUCTIONAL TECHNIQUES IN MICROBIOLOGY LEADER	
or BIOL 4389	RESEARCH IN BIOLOGY	
Total: 120 Hours (must have minimum of 36 hours 3000/4000 level)		

<sup>1</sup> See general core requirements (<http://catalog.uta.edu/archives/2022-2023/academicregulations/degreerequirements/generalcorerequirements/>).

<sup>2</sup> Transfer students must present a minimum of six semester credit hours of equivalent or higher level mathematics courses through transfer or placement examination.

<sup>3</sup> Must be taken under the supervision of approved faculty members.

## SUGGESTED COURSE SEQUENCE

First Year			
First Semester	Hours	Second Semester	Hours
ENGL 1301		3 ENGL 1302	3
MATH 1421		4 MATH 1426	4
CHEM 1441		4 CHEM 1442	4
BIOL 1441		4 BIOL 2444	4
UNIV 1131 or 1101		1	
		<b>16</b>	<b>15</b>
Second Year			
First Semester	Hours	Second Semester	Hours
BIOL 3312		3 BIOL 3304	3
POLS 2311		3 BIOL 4312	3
CHEM 2321 & CHEM 2181		4 CHEM 2322 & CHEM 2182	4
Any Level Elective		3 Social & Behavioral Science	3
		<b>13</b>	<b>13</b>
Third Year			
First Semester	Hours	Second Semester	Hours
BIOL 3306		3 BIOL 4317	3
CHEM 4311		3 BIOL 3301	3
Foundational Component Area Elective		3 BIOL 4390	3
HIST 1301		3 PHYS 1441	4
POLS 2312		3 Creative Art	3
		<b>15</b>	<b>16</b>
Fourth Year			
First Semester	Hours	Second Semester	Hours
BIOL 4441		4 BIOL 3311	3
BIOL 3308		3 BIOL 4392	3
PHYS 1442		4 COMS 2302	3
Any Level Elective		6 Language/Philosophy/Culture	3
		HIST 1302	3
		<b>17</b>	<b>15</b>

Total Hours: 120

## Dual Degree Plan: Bachelor of Science in Biology and Master of Science in Biomedical Engineering

This curriculum prepares students for careers in the fast growing biotechnology and biomedical engineering industries. The curriculum also prepares students for medical school and advanced study. Students are required to take courses from engineering, life sciences and liberal arts, culminating in a five-year Master of Science Degree in Biomedical Engineering, and a Bachelor of Science Degree in Biology. The curriculum is offered jointly by the College of Engineering and the College of Science. In this program, two areas of emphasis are offered:

1. Bioimaging and
2. Biomaterials and Tissue Engineering.

### DESCRIPTION

Biomedical engineers use quantitative methods and innovation to analyze and solve problems in biology and medicine. Students choose the biomedical engineering field to be of service to people, to partake in the excitement of working with living systems, and to apply advanced technology to the complex problems of medical care.

Through this program, students learn the essentials of life science, engineering theory, and the analytical and practical tools that enable them to be successful in the biotechnology and biomedical engineering industries. The program includes course work in the basic sciences, core engineering, biomedical engineering, and advanced biotechnology disciplines. Both didactic classroom lectures and hands-on laboratory experience are emphasized. Additionally, students are required to take general educational courses in literature, fine arts, history, political science, and social science.

### CAREER OPPORTUNITIES

The program prepares students as biomedical engineers for careers in industry, in hospitals, in research facilities of educational and medical institutions, and in government regulatory agencies. It also provides a solid foundation for those wishing to continue for advanced degrees. For those planning to

pursue a medical degree, this cross-disciplinary curriculum offers a solid foundation in engineering, which is an advantage in preparing for a medical career.

## REQUIREMENTS

Regardless whether a student chooses Bioimaging or Biomaterials and Tissue Engineering emphasis, after completion of 120 semester credit hours of the undergraduate courses from the list for the emphasis (below) and prior to taking any graduate course, the student must apply to the UT Arlington Graduate School for admission to the Bioengineering Department. A minimum grade point average of 3.0 in the 120 semester credit hours as well as a minimum average of 3.0 in the required English courses (ENGL 1301 and ENGL 1302) and a minimum average of 3.0 in the required Mathematics courses (MATH 1426, MATH 2425, MATH 2326 and MATH 3319) is required for admission to the Biomedical Engineering Graduate Program. The student should also submit two letters of recommendation, one from a faculty member and one from the Biology undergraduate advisor.

For course listings and suggested course sequences, please see Biomedical Engineering in the Engineering section of this catalog.

## Fast Track Degree Plan: Bachelor of Science in Biology and Master of Science in Biology

The Fast Track program will enable outstanding senior undergraduate Biology students to satisfy degree requirements leading to a master's degree in Biology while completing their undergraduate studies.

### DESCRIPTION

Undergraduate Biology students will apply when they are within 30 hours of completing their bachelor's degrees. They must have completed at least 30 hours at UTA, achieving a GPA of at least 3.3 in those courses, have an overall GPA of 3.3 or better in all department courses, and have a GPA of at least 3.3 in all biology courses taken at UTA. Additionally, they must have completed 13 hours of specified undergraduate Fast Track foundation courses at UTA that are listed below with a minimum GPA of 3.5 in these courses. If one of these courses is transferred from another school it will not be included, and an equivalent course determined by the undergraduate advisor will be used as a Fast Track foundation course.

Foundation Courses Required for Admission into the Fast Track program:

1. **BIOL 2300** Biostatistics (3-0)
2. **BIOL 3315** Genetics (3-0)
3. **BIOL 3301** Cell Physiology (3-0)
4. **BIOL 2444** General Microbiology (4-0)

BIOL students pursuing the Fast Track master's degree will be allowed to take **BIOL 5309, 5314** and **5304** in place of advanced undergraduate biology electives.

### COURSE REQUIREMENTS

#### Pre-Professional Courses

General Core Requirements (<http://catalog.uta.edu/academicregulations/degreerequirements/generalcorerequirements/>) 42

#### CORE REQUIREMENTS FOR BIOLOGY

ENGL 1301	RHETORIC AND COMPOSITION I	3
ENGL 1302	RHETORIC AND COMPOSITION II	3
Language, Philosophy & Culture <sup>1</sup>		3
POLS 2311	GOVERNMENT OF THE UNITED STATES	3
POLS 2312	STATE AND LOCAL GOVERNMENT	3
HIST 1301	HISTORY OF THE UNITED STATES TO 1865	3
HIST 1302	HISTORY OF THE UNITED STATES, 1865 TO PRESENT	3
Creative Arts <sup>1</sup>		3
Social & Behavioral Science		3
Foundational Component Core Elective (Satisfied by COMS 2302 below) <sup>1</sup>		
Any level elective		3
Advanced Electives		9
UNIV 1101 or UNIV 1131	CAREER PREPARATION AND STUDENT SUCCESS STUDENT SUCCESS	1
MATH 1421	PREPARATION FOR CALCULUS	4
MATH 1426	CALCULUS I	4



PHYS 1441	GENERAL COLLEGE PHYSICS I	4
PHYS 1442	GENERAL COLLEGE PHYSICS II	4
<b>Program Requirements</b>		
CHEM 1441	GENERAL CHEMISTRY I	4
CHEM 1442	GENERAL CHEMISTRY II	4
CHEM 2321	ORGANIC CHEMISTRY I	3
CHEM 2322	ORGANIC CHEMISTRY II	3
CHEM 2181	ORGANIC CHEMISTRY I LABORATORY	1
CHEM 2182	ORGANIC CHEMISTRY II LABORATORY	1
Oral Communication Competency (Also counts as Foundational Component Area)		3
COMS 2302	PROFESSIONAL AND TECHNICAL COMMUNICATION FOR SCIENCE AND ENGINEERING	
<b>Professional Courses</b>		
Major		
BIOL 1441	BIOLOGY I FOR SCIENCE MAJORS: CELL AND MOLECULAR BIOLOGY	4
BIOL 1442	BIOLOGY II FOR SCIENCE MAJORS: ECOLOGY AND EVOLUTION	4
BIOL 2300	BIOSTATISTICS	3
BIOL 2444	GENERAL MICROBIOLOGY	4
BIOL 3315	GENETICS	3
BIOL 3301	CELL PHYSIOLOGY	3
BIOL 3454	GENERAL ZOOLOGY	4
or BIOL 3427	PLANT SCIENCE	
BIOL 3442	HUMAN PHYSIOLOGY	4
or BIOL 3446	HUMAN ANATOMY	
BIOL 3310	SELECTED TOPICS IN BIOLOGY	3
BIOL 3101	CURRENT TOPICS IN BIOLOGY	1
<b>Graduate Program</b>		
Graduate Courses		30
BIOL 5304	VIROLOGY	3
BIOL 5309	IMMUNOLOGY	3
BIOL 5311	EVOLUTION	3
BIOL 5314	BIOMETRY	3
BIOL 5317	BACTERIAL PATHOGENESIS	3
BIOL 5319	HUMAN GENETICS	3
BIOL 5335	ESSENTIALS OF GENOMICS	3
BIOL 5340	BIOINFORMATICS	3
BIOL 5354	LIMNOLOGY	3
BIOL 5310	SELECTED TOPICS IN BIOLOGY	3

<sup>1</sup> See general core requirements (<http://catalog.uta.edu/archives/2022-2023/academicregulations/degreerequirements/generalcorerequirements/>).

**Note:** This program consists of 111 undergraduate credit hours, plus 30 graduate credit hours. A grand total of 141 credit hours.

## SUGGESTED COURSE SEQUENCE

### First Year

First Semester	Hours	Second Semester	Hours
BIOL 1441		4 BIOL 1442	4
CHEM 1441		4 CHEM 1442	4
UNIV 1131 or 1101		1 ENGL 1302	3
ENGL 1301		3 POLS 2312	3
POLS 2311		3	
		<b>15</b>	<b>14</b>

### Second Year

First Semester	Hours	Second Semester	Hours
BIOL 2300		3 BIOL 2444	4

CHEM 2321 & CHEM 2181		4 CHEM 2322 & CHEM 2182	4
HIST 1301		3 MATH 1426	4
MATH 1421		4 HIST 1302	3
COMS 2302		3	
		<b>17</b>	<b>15</b>

**Third Year**

First Semester	Hours	Second Semester	Hours
BIOL 3315		3 BIOL 3301	3
BIOL 3454 or 3427		4 BIOL 3442 or 3446	4
BIOL 3101		1 PHYS 1442	4
PHYS 1441		4 Social Science	3
Language, Phil and Culture		3	
		<b>15</b>	<b>14</b>

**Fourth Year**

First Semester	Hours	Second Semester	Hours
BIOL 5309		3 BIOL 5304	3
BIOL 5314		3 BIOL 3310	3
Creative Arts		3 Any level Elective	3
Foundational Component Core Elective		3 Advanced Electives	6
Advanced Elective		3	
		<b>15</b>	<b>15</b>

**Fifth Year**

First Semester	Hours	Second Semester	Hours
BIOL 5340		3 BIOL 5311	3
BIOL 5310		3 BIOL 5317	3
BIOL 5354		3 BIOL 5319	3
		BIOL 5335	3
		<b>9</b>	<b>12</b>

**Total Hours: 141**

## Requirements for a Minor in Biology

A minor in biology will consist of a minimum of 18 credit hours of approved biology classes that would be applicable toward a major in Biology. Non-majors' courses will not apply toward a minor in biology, such as:

BIOL 1301	NUTRITION	3
BIOL 1333	BIOLOGY FOR NON-SCIENCE MAJORS: CELLS AND DISEASE	3
BIOL 1334	BIOLOGY FOR NON-SCIENCE MAJORS: LIFE ON EARTH	3
BIOL 1345	BIOLOGY I FOR NURSING STUDENTS	3
BIOL 2317	BASIC CONCEPTS IN HUMAN SEXUALITY	3
BIOL 2457	HUMAN ANATOMY AND PHYSIOLOGY I	4
BIOL 2458	HUMAN ANATOMY AND PHYSIOLOGY II	4
BIOL 2460	NURSING MICROBIOLOGY	4
BIOL 3303	DRUGS AND BEHAVIOR	3
NURS 3309	MEDICAL TERMINOLOGY FOR HEALTHCARE PROVIDERS	3

Non-lecture courses such as research, directed study, co-op, or lab TA credit may not be used toward a minor in Biology. A minimum of six of the 18 credit hours required for the minor must be at the 3000 or 4000 level. BIOL 1441 and BIOL 1442, or equivalent, are required for the minor. The remaining 10 hours must be chosen with and approved by a Biology Advisor.

A 2.0 Biology Grade Point Average must be maintained to earn the minor. Transfer students must complete at least nine hours toward the minor at UT Arlington, and six of the nine hours must be 3000 or 4000 level.