

# Bachelor of Science in Biology

## About This Program

The Bachelor of Science in Biology is intended for students studying basic aspects of the biological sciences and prepares students for careers in a variety of the Biological Sciences including Health Professions, Genomics, Forensics, Ecology/Environmental Studies, and other areas.

## Competencies

1. Upon completion, students will be able to explain the types of evidence that support the conclusion that evolution explains the diversity of life on Earth and reveal evolutionary relationships amongst groups of organisms.
2. Upon completion, students will be able to explain how the structure and function of cells affects their ability to survive, reproduce, and carry out specific functions in multicellular organisms including how genetic information is stored and passed from one generation to the next.
3. Upon completion, students will be able to describe and demonstrate the scientific methods of observation, experimentation, hypothesis formulation, and hypothesis testing.
4. Upon completion, students will be able to apply quantitative skills such as estimation, graphing data, statistical analyses, and analysis of large datasets.
5. Upon completion, students will be able to apply foundational concepts of general and organic chemistry and apply these concepts to biological systems.

## Curriculum

### Foundations

General Core Requirements (<https://catalog.uta.edu/academicregulations/degree requirements/generalcore requirements/>)

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Students must complete specific courses in certain core areas:

For Communication select:

|           |                             |
|-----------|-----------------------------|
| ENGL 1301 | RHETORIC AND COMPOSITION I  |
| ENGL 1302 | RHETORIC AND COMPOSITION II |

For Mathematics select:

|           |                          |
|-----------|--------------------------|
| MATH 1421 | PREPARATION FOR CALCULUS |
| MATH 1426 | CALCULUS I <sup>1</sup>  |

For Life and Physical Science select:

|           |                            |
|-----------|----------------------------|
| PHYS 1441 | GENERAL COLLEGE PHYSICS I  |
| PHYS 1442 | GENERAL COLLEGE PHYSICS II |

For US History select:

|           |                                               |
|-----------|-----------------------------------------------|
| HIST 1301 | HISTORY OF THE UNITED STATES TO 1865          |
| HIST 1302 | HISTORY OF THE UNITED STATES, 1865 TO PRESENT |

### Biology Foundations

Additional hours in required core courses.

4

|              |                                        |   |
|--------------|----------------------------------------|---|
| UNIV 1131    | STUDENT SUCCESS                        | 1 |
| or UNIV 1101 | CAREER PREPARATION AND STUDENT SUCCESS |   |
| 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                                      |

Select any course.

3

Select three courses at the 3000/4000 level.

9

### Biology Specialization

|           |                                                          |   |
|-----------|----------------------------------------------------------|---|
| 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          |
| BIOL 2444                                                      | General Microbiology                   | 4          |
| Select two of the following diversity courses:                 |                                        | 8          |
| 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                          |            |
| Select three 3000/4000 level BIOL courses approved by advisor. |                                        | 10         |
| <b>Total Hours</b>                                             |                                        | <b>120</b> |

- <sup>1</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<br>& CHEM 2181       |       | 4 CHEM 2322<br>& 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**

## Program Completion

## Advising Resources

Biology department advising is available for transfer students, prospective students, and first time in college students after meeting transition criteria.

### Location:

Life Science Building 3rd floor - 345, 347, 349, 351

### Email:

Find advisor emails at link below.

### Phone:

817-272-2408

### Web:

Contact your advisor - schedule an appointment (<https://www.uta.edu/academics/schools-colleges/science/departments/biology/advising/>)