

**Degree Type – Bachelor of Science (BS)**  
**Degree Title – Biology with UTeach Certification (7-12)**

**Focus: Life Sciences**

*The Department of Biology is committed to excellence in instruction, scholarly accomplishment, research, professional service and student success. The Department provides a broad-based undergraduate education in Biology so as to give students the opportunity to pursue a career best-suited to their interests and abilities. Graduates are prepared to enter the workforce or continue their education in graduate or professional school. The Department provides rigorous pre-professional preparation for students seeking careers in biological sciences and health professions.*

*The Department also provides a service function to the University by providing a means for students to fulfill their science requirement. Non-majors receive instruction in scientific methods, a general overview of biology, new discoveries, and the importance of biology in society. An M.S. degree program provides the opportunity for advanced study, specialization, and research. The program prepares students for further graduate study at the doctorate level and for careers in the biological sciences and related disciplines.*

*The Department of Biology is committed to the discovery of new knowledge through research that is conveyed to professional and lay constituencies through publication and presentation and participation in policy decision-making. The Department of Biology also engages the community through outreach programs, continuing education, educational leadership, and collaborations with local school districts and governmental agencies. Faculty members are also encouraged to take leadership roles in societies of their research specialties.*

**STUDENT LEARNING OUTCOMES:**

1. **Role of the Cell:** The Biology graduate knows the role of the cell in life and living systems, and understands the interrelationships among subcellular structures that contribute to its functioning as a unit
2. **Role of Genetics:** The Biology graduate understands the role of genetics in inheritance and can explain how environmental conditions influence natural selection processes and contribute to adaptation.
3. **Diversity of Life:** The Biology graduate is aware of the diversity of life and interrelationships between an organism and its environment.
4. **Structure and Function:** The biology graduate understands how the organization of a specific structure within an organism is related to a specific function, understands interrelationships among organs and organ systems within an organism, and how interaction between structure and function contribute to the survival of the organism.
5. **Scientific Method:** The biology graduate understands the Scientific Method, is able to analyze and interpret data, and communicate research findings in both oral and written form.

**A – GENERAL EDUCATION CORE – 42 HOURS**

*Students must fulfill the General Education Core requirements. The courses listed below satisfy both degree requirements and General Education Core requirements.*

**Required**

**Mathematics – 3 hours**

MATH 2413 Calculus I (or MATH 2487 Honors) three-hour lecture

**Life and Physical Science – 6 hours**

CHEM 1311 General Chemistry I

CHEM 1312 General Chemistry II

**Social and Behavioral Sciences – 3 hours**

PSYC 2301 General Psychology

**Integrative and Experiential Learning – 3 hours**

CHEM 1111 General Chemistry I Lab

CHEM 1112 General Chemistry II Lab  
 BIOL 1406 General Biology I (or BIOL 1487 Honors) one-hour lab

## **B – MAJOR REQUIREMENTS – 61 HOURS (37 advanced minimum)**

### **1 – Life Sciences Foundation – 49 hours (28 advanced)**

BIOL 1406 General Biology I (or BIOL 1487 Honors) three-hour lecture  
 BIOL 1407 General Biology II (or BIOL 1488 Honors)  
 BIOL 3301 Biological Evolution  
 BIOL 3330 Functions and Modeling  
 BIOL 3409 Ecology  
 BIOL 3412 Cell Biology  
 BIOL 3413 Genetics  
 BIOL 4392 Research Methods in the Science and Mathematics Classroom (UTeach)  
 BIOL 4400 Biological Communication (Capstone)  
 CHEM 2123 Organic Chemistry Lab  
 CHEM 2323 Organic Chemistry  
 MATH 2413 Calculus I (or MATH 2487 Honors) one-hour lecture  
 PHIL 3301 Perspectives on Mathematics and Science  
 PHYS 1401 General Physics I  
 PHYS 1402 General Physics II

### **2 – Diversity of Life – 12 hours (9 advanced minimum)**

*Complete 12 advanced hours from the following sections:*

#### **a – Plants – 3 hours minimum (3 advanced minimum)**

*Choose at least one:*

BIOL 3408 Plant Morphology  
 BIOL 4318 Ethnobotany  
 BIOL 4405 Plant Physiology  
 BIOL 4406 Mycology  
 BIOL 4408 Plant Pathology  
 BIOL 4410 Marine Botany  
 BIOL 4414 Plant Taxonomy  
 BIOL 4420 Plant Anatomy

#### **b – Animals – 3 hours minimum**

*Choose at least one:*

BIOL 2428 Comparative Vertebrate Anatomy  
 BIOL 3345 Animal Nutrition  
 BIOL 3405 Histology  
 BIOL 3407 Comparative Embryology  
 BIOL 3411 Mammalian Physiology  
 BIOL 3414 Invertebrate Zoology  
 BIOL 4319 Medical Entomology  
 BIOL 4402 Marine Zoology  
 BIOL 4404 Ichthyology  
 BIOL 4407 Animal Parasitology  
 BIOL 4409 Herpetology  
 BIOL 4411 Ecological Physiology of Animals  
 BIOL 4412 Ornithology  
 BIOL 4415 Entomology  
 BIOL 4416 Mammalogy

BIOL 4419 Aquatic Entomology  
BIOL 4427 Marine Animal Field Studies  
BIOL 4432 Animal Behavior

**c – Microbiology – 4 hours minimum (4 advanced minimum)**

*Choose at least one:*

BIOL 3401 General Microbiology  
BIOL 3403 Medical Microbiology and Immunology  
BIOL 4413 General Virology  
BIOL 4417 Bacterial Genetics  
BIOL 4424 Microbial Ecology

**C – UTEACH CERTIFICATION – 21 HOURS (19 advanced)**

*Area of Certification: Life Science (7-12)*

UTCH 1101 Inquiry Approaches to Teaching  
UTCH 1102 Inquiry-Based Lesson Design  
UTCH 3301 Knowing and Learning in Mathematics and Science  
UTCH 3302 Classroom Interactions  
UTCH 3303 Project-Based Instruction  
UTCH 4101 Apprentice Teaching Seminar  
UTCH 4601 Apprentice Teaching  
READ 4305 Content Area Literacy

**TOTAL CREDIT HOURS FOR GRADUATION – 124 HOURS**

**TOTAL ADVANCED HOURS – 56 HOURS**

**ADMISSION, PROGRESSION, AND GRADUATION REQUIREMENTS, if applicable:**

**Progression requirements**

Admission to the College of Education is required for participation in Apprentice Teaching and Seminar (UTCH 4101, 4601). Students unable to be admitted to UTCH 4601 and UTCH 4101 will be required to substitute 3 advanced hours, as recommended by advisor.

**Graduation requirements**

1. Minimum GPA of 2.75 is required for graduation. BIOL 1406 (or BIOL 1487 Honors), BIOL 1407 (or BIOL 1488 Honors), CHEM 1311/CHEM 1111, CHEM 1312/1112, UTCH 1101, UTCH 1102, UTCH 3301, UTCH 3302, UTCH 3303, UTCH 4101, UTCH 4601 with a grade of 'C' or better grade in all of these courses; and approval of UTeach portfolio are required for graduation.
2. In addition to the graduation requirements listed in the UTRGV 2015-2017 Undergraduate Catalog, demonstration of proficiency in a language other than English is required at the undergraduate level equivalent to a minimum of six credit hours. Proficiency can be demonstrated by a college credit exam, a placement test approved through the UTRGV Department of Writing and Language Studies, and/or up to six credit hours of college-level language coursework.