Ph.D. in Biosciences

The educational objective of the doctoral program in Bioscience is to prepare students for research in the field of Biological Sciences. Students in the Biosciences PhD program work under the mentorship of faculty conducting research in the following areas:

- mechanisms and interventions of addiction and neurological and mental disorders
- mechanisms and interventions of cancer
- mechanisms and interventions of neurological disorders
- mechanisms and interventions of metabolic disorders
- toxicology of environmental and synthetic pollutants
- carcinogenic effects of pollutants and manufactured chemicals
- brain development and function
- genetics and developmental biology
- immunology
- microbiology and biochemistry

Admission Requirements

1. Bachelor’s degree from an accredited institution in the United States or proof of equivalent education in a foreign institution with:

   a. Two semesters of Organic Chemistry with lab.
   b. One semester of Calculus.
   c. Coursework in Physiology, Microbiology, Cell Biology, Biochemistry, and Genetics.
2. Personal statement of research and professional interests.
3. Three letters of recommendation indicating endorsement of the applicant for doctoral study.
4. Applicants from countries where English is not the first language are required to demonstrate English proficiency. Please consult the graduate school (http://catalog.utep.edu/admissions/graduate/graduate-student/) website for required scores.

The GRE (Graduate Record Examination) is optional.

Degree Requirements

With departmental approval, students entering the program with a master’s degree can count up to 24 semester hours of graduate coursework towards advanced standing in the PhD degree. Students with deficiencies in Biochemistry, Cell Biology, Microbiology, Physiology, Genetics, Ecology, or Molecular Biology will be required to take additional course work to remove the deficiencies.

Admission to Candidacy

The student must pass qualifying written and oral examinations to advance to candidacy for the doctorate. This exam is designed to assess the candidate's knowledge and understanding of the materials covered in the core courses as well as the candidate's ability to rationally discuss the design, implementation, and analysis of a research problem of the student's and the committee's choice. The students Preliminary Examination Committee, which later becomes the student's Dissertation Committee will determine whether the student displays sufficient breadth of knowledge and understanding of basic principles to undertake original research.

Dissertation

A dissertation demonstrating both the ability to do original independent research and competence in scholarly exposition will be required for all students. The dissertation must present original research and should provide the basis for one or more publishable contributions to the research literature. The dissertation will be supervised by the Dissertation Advisor, in consultation with a Dissertation Committee consisting of at least three additional members, at least one of whom must be a graduate faculty member from outside the Department of Biological Sciences, and an advocate, a faculty member. The candidate will present a dissertation proposal for approval by the Dissertation Committee.

Final Oral Examination

Upon completion of the dissertation, the student must defend, in public, his or her work. The Dissertation Committee will be responsible for administering the final public oral defense and will have the responsibility of determining whether the written dissertation and its oral presentation and defense are acceptable.

Degree Plan

Required Credits: 63

Code	Title	Hours
PhD in Biosciences (All courses require a grade of C or better)		
Required Courses:		
BIOL 6130	Seminar (taken three times)	3
BIOL 6131	Ethical, Soc/Pol Dimensions	1
BIOL 6309	Advanced Scientific Writing	3
BIOL 6310	Adv Research Techniques	3
BIOL 6328	Biostatistics	3
Menu Electives:		
Select two courses from the following:		6
BIOL 6301	Basic Principles of Toxicology	
BIOL 6303	Gene Regulation	
BIOL 6304	Physiological Regulatory Mech	
BIOL 6321	Select Adv Topics Biol Science	
BIOL 6326	Advances Immunological Concept	
BIOL 6340	Structure/Funct Macromolecules	
Free Electives:		
Select nine hours from the following:		9
BIOL 6301	Basic Principles of Toxicology	
BIOL 6302	Developmental Neurobiology	
BIOL 6303	Gene Regulation	
BIOL 6304	Physiological Regulatory Mech	
BIOL 6305	Cell Physiology	
BIOL 6308	Rsrch Funding & Prof Developmt	
BIOL 6311	Neurobiology of Brain Diseases	
BIOL 6326	Advances Immunological Concept	
BIOL 6329	Physiology of Bacterial Cell	
BIOL 6330	Cancer Biology	
BIOL 6340	Structure/Funct Macromolecules	
BIOL 6344	Molecular Pathogenesis	
BIOL 6345	Molecular Parasitology	
BIOL 6351	Intro Bio I:Basic Seq. Comp.	
BIOL 6352	Intro Bio II: Gene Find/Compar	
Other courses per the Dissertation Committee approval		
(e.g. EEB courses and courses offered by other departments or colleges)		
Doctoral Research:		
Dissertation Research		29
BIOL 6190	Independent Research	
BIOL 6290	Independent Research	
BIOL 6390	Independent Research	
BIOL 6490	Independent Research	
BIOL 6590	Independent Research	
BIOL 6690	Independent Research	
Dissertation:		
BIOL 6398 & BIOL 6399	Dissertation and Dissertation	6
Total Hours		**63**