

PROFESSIONAL SCIENCE MASTER'S IN BIOTECHNOLOGY

Web Site: <https://twu.edu/biotechnology/>

The Professional Science Master's in Biotechnology program is a 30 semester credit hour interdisciplinary program that integrates scientific and business aspects of biotechnology. The program is designed for students who enjoy science, have an interest in business, and want to apply that knowledge working in industry. Our streamlined curriculum is designed with a strong foundation in molecular biology, technology, and business to create a comprehensive program that provides graduates with marketable skills and industry experience, and prepares them for careers in industry.

Marketable Skills

Defined by the Texas Higher Education Coordinating Board's 60x30 Strategic Plan (<https://reportcenter.highered.texas.gov/agency-publication/miscellaneous/the60x30-strategic-plan/>) as, "Those skills valued by employers that can be applied in a variety of work settings, including interpersonal, cognitive, and applied skills areas. These skills can be either primary or complementary to a major and are acquired by students through education, including curricular, co-curricular, and extracurricular activities."

1. Effectively articulate ideas on biological concepts via written communications and oral presentations.
2. Demonstrate critical thinking by using logic and reasoning to interpret scientific results.
3. Ability to design and conduct properly controlled experiments using modern scientific instruments and methods.
4. Effectively propose potential technical solutions to modern biological problems or human health challenges.
5. Integrate scientific knowledge and professional business concepts, principles, and ethics in the biotechnology sector.
6. Work collaboratively as part of a team to perform, analyze, and present scientific results and/or research outcomes.
7. Ability to understand research regulations and comply with all laboratory safety guidelines.

Admissions

All students must meet the University requirements as outlined in the Admission to the TWU Graduate School (<https://catalog.twu.edu/graduate/graduate-school/admission-graduate-school/>) section of the catalog.

The academic program may have additional admission criteria that must also be completed as outlined on the program's website.

Degree Requirements

Total Semester Credit Hours Required

30 Semester Credit Hours (SCH).

Code	Title	SCHs
Biology Coursework		
BIOL 6513	Molecular Biology	3
BIOL 5503	Research Methods (Advanced Methods in Biology)	3
BIOL 5681	Seminar	1
BIOL 5711	Biotechnology Internship Seminar (taken twice)	2
BIOL 5953	Internship	3
Business Coursework		
BUS 5013	Foundations in Business	3
BUS 5933	Business Ethics and Legal Environment	3
BUS 5923	Global Business	3
or MKT 5133	Marketing Management	
Electives		
Biology or other approved coursework		9
BACT 6534	Plasmids as Vectors for Recombinant DNA	
BACT 6544	Viruses as Vectors for Recombinant DNA	
BIOL 5293	Advanced Scientific Communication	
BIOL 5333	Advanced Pathophysiology	
BIOL 5543	Advanced Genome Editing and Medical Ethics	
BIOL 5643	Neuroscience	
BIOL 5663	Biology of Cancer	
BIOL 5903	Special Topics	
BIOL 6334	Advanced Cell Biology	
BIOL 6734	Advanced Genetics	
BIOL 6843	Health Care Genetics	
CHEM 5613	Advanced Biochemistry I	
CHEM 5623	Advanced Biochemistry II	
Total SCHs		30