Students receiving the BS Degree in Chemistry (Broadfield Major) can continue their academic studies into masters or doctoral programs in Chemistry or can use the degree to find employment as a chemist. This degree can also be combined with teacher certification work to enter a career as a secondary school teacher of chemistry. The Chemistry (Broadfield Major) degree is certified by the American Chemical Society.

STUDENT LEARNING OUTCOMES:
1. Graduates will demonstrate knowledge of current chemical and scientific theories and applications and the ability to communicate chemical knowledge in a variety of ways.
2. Graduates will have both broad knowledge and skills of critical thinking, high level problem solving, and analytical reasoning in the chemical sciences.
3. Graduates will be prepared to conduct or participate in advanced research and the ability to use computers and scientific instrumentation to solve chemical problems.
4. Graduates will be prepared to search for employment or continue on to medical, dental, or graduate school.

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 Sciences – 6 hours
CHEM 1311 General Chemistry I
CHEM 1312 General Chemistry II

Integrative and Experiential Learning – 2 hours
CHEM 1111 General Chemistry I Lab
CHEM 1112 General Chemistry II Lab

B – MAJOR REQUIREMENTS – 37 HOURS (25 advanced)
CHEM 2301 Analytical Chemistry
CHEM 2101 Analytical Chemistry Lab
CHEM 2323 Organic Chemistry I
CHEM 2123 Organic Chemistry I Lab
CHEM 2325 Organic Chemistry II
CHEM 2125 Organic Chemistry II Lab
CHEM 3301 Inorganic Chemistry
CHEM 3202 Inorganic Chemistry Lab
CHEM 3303 Biochemistry I
CHEM 3103 Biochemistry I Lab
CHEM 3304 Physical Chemistry I
CHEM 3104 Physical Chemistry I Lab
CHEM 3305 Physical Chemistry II
CHEM 3105 Physical Chemistry II Lab
CHEM 4101 Chemistry Seminar
CHEM 4201 Chemistry Problems I
THE UNIVERSITY OF TEXAS - RIO GRANDE VALLEY

CHEM 4304 Instrumental Analysis
CHEM 4104 Instrumental Analysis Lab
CHEM 4105 Chemistry Capstone

C – SUPPORT COURSES – 16 HOURS (3 advanced)
   MATH 2413 Calculus I (or MATH 2487 Honors) one-hour lecture
   MATH 2414 Calculus II (or MATH 2488 Honors)
   MATH 3341 Differential Equations
   PHYS 1401 General Physics I
   PHYS 1402 General Physics II

D – TECHNICAL ELECTIVES – 20 HOURS (20 advanced)
   Complete 6 advanced hours in CHEM, and complete 14 advanced hours in one of the following areas: CHEM, BIOL, PHYS, MATH, or ENGR.

E – FREE ELECTIVES – 5 HOURS

TOTAL CREDIT HOURS FOR GRADUATION – 120 HOURS

TOTAL ADVANCED HOURS – 48 HOURS
Students receiving the BS Degree in Chemistry with Teacher Certification can continue their academic studies into masters or doctoral programs in Chemistry, can use the degree to find employment as a chemist, or can enter a career as a secondary school teacher of chemistry. The Chemistry degree is certified by the American Chemical Society.

STUDENT LEARNING OUTCOMES:
1. Graduates will demonstrate knowledge of current chemical and scientific theories and applications and the ability to communicate chemical knowledge in a variety of ways.
2. Graduates will have both broad knowledge and skills of critical thinking, high level problem solving and analytical reasoning in the chemical sciences.
3. Graduates will be prepared to conduct or participate in advanced research and the ability to use computers and scientific instrumentation to solve chemical problems.
4. Graduates will be prepared to search for employment or continue on to medical, dental or graduate school.
5. Graduates will demonstrate pedagogical content knowledge by successfully completing all state teacher certification requirements.

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 three-hour lecture
CHEM 1312 General Chemistry II three-hour lecture

Integrative and Experiential Learning – 2 hours
CHEM 1111 General Chemistry I Lab one-hour lab
CHEM 1112 General Chemistry II Lab one-hour lab

B – MAJOR REQUIREMENTS – 43 HOURS (31 advanced)

CHEM 2301 Analytical Chemistry
CHEM 2101 Analytical Chemistry Lab
CHEM 2323 Organic Chemistry I
CHEM 2123 Organic Chemistry I Lab
CHEM 2325 Organic Chemistry II
CHEM 2125 Organic Chemistry II Lab
CHEM 3301 Inorganic Chemistry
CHEM 3202 Inorganic Chemistry Lab
CHEM 3303 Biochemistry I
CHEM 3103 Biochemistry I Lab
CHEM 3304 Physical Chemistry I
CHEM 3104 Physical Chemistry I Lab
CHEM 3305 Physical Chemistry II
CHEM 3105 Physical Chemistry II Lab
CHEM 4101 Chemistry Seminar
CHEM 4201 Chemistry Problems I
CHEM 4304 Instrumental Analysis
CHEM 4104 Instrumental Analysis Lab
CHEM 4105 Chemistry Capstone
PHYS 3330 Functions and Modeling
PHYS 4392 Research Methods

C – SUPPORT COURSES – 16 HOURS (3 advanced)
   MATH 2413 Calculus I (or MATH 2487 Honors) one-hour lecture
   MATH 2414 Calculus II (or MATH 2488 Honors)
   PHIL 3317 Perspectives on Mathematics and Science
   PHYS 1401 General Physics I
   PHYS 1402 General Physics II

D – UTEACH CERTIFICATION – 21 HOURS (19 advanced)
   Area of Certification: Chemistry (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 4601 Apprentice Teaching
   UTCH 4101 Apprentice Teaching Seminar
   READ 4305 Content Area Literacy

TOTAL CREDIT HOURS FOR GRADUATION – 122 HOURS

TOTAL ADVANCED HOURS – 53 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 5 advanced hours, as recommended by advisor.