

**Degree Type – Bachelor of Science (BS)**  
**Degree Title – Chemistry**

*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

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**

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

*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.