Chemistry and Biochemistry - Undergraduate Programs

Academic Advising: 817-272-9687

Overview

The Department of Chemistry and Biochemistry offers four programs of study leading to a bachelor's degree and two leading to both a bachelor's and master's degree. They are the Bachelor of Arts in Chemistry, the Bachelor of Science in Chemistry - American Chemical Society certified, the Bachelor of Science in Biochemistry - American Chemical Society certified, the Bachelor of Science in Biological Chemistry a combined Bachelor of Science-Master of Science in Chemistry, and a Bachelor of Science in Biochemistry with a Master of Science in Biomedical Engineering.

- Professional Chemist: Students who wish to become professional chemists or whose goals include graduate education in chemistry should pursue the Bachelor of Science in Chemistry - American Chemical Society certified. Alternatively, students may choose the Bachelor of Science-Master of Science combined program. Prospective students should contact the departmental undergraduate advisor.
- Professional Biochemist: Students who wish to become professional biochemists or whose goals include graduate education in biochemistry, should pursue the Bachelor of Science in Biochemistry - American Chemical Society certified. Prospective students should contact the departmental undergraduate advisor.
- Premedical and Predental Programs: Students who wish to prepare for entry into medical or dental school may choose to major in chemistry or biochemistry. While any of the four bachelor's programs will meet the minimum requirements, the department recommends either the Bachelor of Arts in Chemistry or the Bachelor of Science in Biological Chemistry. Prospective students should contact both the departmental undergraduate advisor and the premedical advisor in the College of Science.
- Preallied Health Programs: Students who wish to prepare for entry into pharmacy or veterinary school, physical therapy, or occupational therapy may choose to major in chemistry. Prospective students should contact the departmental undergraduate advisor.
- Chemistry as a Teaching Field: Although students who intend to teach chemistry at the secondary school level may pursue any of the degrees, the Bachelor of Arts Degree offers the greatest flexibility.

Declaring a Major in Chemistry or Biochemistry

Beginning freshmen who intend to declare chemistry or biochemistry as a major must complete the following courses with a minimum GPA of 2.25 in chemistry and an overall GPA of 2.25.

- CHEM 1441 and CHEM 1442.
- Six hours of mathematics approved by the department.
- Three hours of biology or geology.
- 12 hours from courses in the University core curriculum other than science or mathematics (English, history, political science, social and cultural studies, and fine arts).

Transfer students who transfer part or all of the above requirements must complete a minimum of 11 hours of approved science and mathematics courses in residence with a minimum GPA of 2.25 to be eligible to major in chemistry or biochemistry.

All new students who intend to major in chemistry or biochemistry should schedule an appointment for advising with the departmental undergraduate advisor.

Declaring a Second Major in Chemistry

A person who satisfies the requirements for any other baccalaureate degree qualifies for having chemistry named as a second major upon completion of the following courses:

CHEM 1441	GENERAL CHEMISTRY I	4
CHEM 1442	GENERAL CHEMISTRY II	4
CHEM 2321	ORGANIC CHEMISTRY I	3
CHEM 2181	ORGANIC CHEMISTRY I LABORATORY	1
CHEM 2322	ORGANIC CHEMISTRY II	3
CHEM 2182	ORGANIC CHEMISTRY II LABORATORY	1
CHEM 2335	QUANTITATIVE CHEMISTRY	3
CHEM 2285	QUANTITATIVE CHEMISTRY LABORATORY	2
CHEM 3315	INTRODUCTION TO BIOPHYSICAL CHEMISTRY	3
CHEM 4311	BIOCHEMISTRY I	3

Chemistry Electives Chosen with the Chemistry Advisor	6
Total Hours	**33**

Please note that a second major in Chemistry is not the same as a double major in which students complete the requirements for a second degree.

Please see the undergraduate chemistry advisor for additional information.

Teacher Certification

Students interested in earning a Bachelor of Arts or Bachelor of Science degree with a major in chemistry leading to secondary teacher certification should refer to the “Bachelor of Arts Degree in Chemistry with Physical Science Pathway (UTeach Program)” degree plan or the "Bachelor of Arts Degree in Chemistry with Chemistry Pathway (UTeach Program)" degree plan for teacher certification requirements.

Calculation of Chemistry Grade Point Average

Only chemistry courses required in the degree program will be used in calculating the chemistry grade point average for chemistry degree candidates.

Honors Program

Students who qualify are encouraged to participate in the University Honors College. Students should enroll in honors sections of chemistry courses when available and should include CHEM 4381 as approved by the departmental undergraduate advisor.

Chemistry Course Registration & Requirements

Students may not be "pre-enrolled" in chemistry courses while pre-requisite courses at another institution are pending grades. Only UT Arlington credits may be used for pre-enrollment purposes.

Canvas grades (or other learning-management system grades) may not be used as proof of completion for a pre-requisite course. Students must submit either an official transcript to the registrar's office, or submit a transcript with a letter grade for the pre-requisite course to the undergraduate chemistry advisor in order to be enrolled in a chemistry course. If a student is submitting the transcript via email, the email must be sent from their UTA email address.

The ACS-certified degree programs (Bachelor of Science in Chemistry and Bachelor of Science in Biochemistry) require the capstone course CHEM 3322. The capstone course is meant to test students in their knowledge of Math, Physics, and Chemistry in order to assess their cumulative knowledge of the sciences needed for success in their profession. This course requirement may not be satisfied with transfer credit without the approval of the undergraduate curriculum committee of the Department of Chemistry and Biochemistry.

Department of Chemistry and Biochemistry Academic Regulations

All students pursuing a degree in one of the academic programs from the Department of Chemistry and Biochemistry must abide by the academic regulations of the University and the following additional rules established by the Department of Chemistry and Biochemistry.

Three-Attempt Rule: A student may not attempt a course (at UT Arlington and/or at any other institution) more than three times and apply that course toward a chemistry/biochemistry degree. Enrollment in a course for a period of time sufficient for assignment of a grade, including a grade of W, is considered an attempt.

Undergraduate Degrees

Requirements for a Bachelor of Arts Degree in Chemistry

This program is suitable preparation for admission to medical and dental schools, and other health-related professions.

The University Core Curriculum consists of 42 credit hours from University Core Curriculum (http://catalog.uta.edu/academicregulations/degreerequirements/generalcorerequirements/).

Pre-Professional Courses		
Recommended Core Requirements		
UNIV 1131	STUDENT SUCCESS	1
or UNIV 1101	CAREER PREPARATION AND STUDENT SUCCESS	
ENGL 1301	RHETORIC AND COMPOSITION I	3
ENGL 1302	RHETORIC AND COMPOSITION II	3
See General Core Requirements for Creative Arts		3
POLS 2311	GOVERNMENT OF THE UNITED STATES	3
POLS 2312	STATE AND LOCAL GOVERNMENT	3
See General Core Requirements for Language, Philosophy, and Culture		3
HIST 1301	HISTORY OF THE UNITED STATES TO 1865	3
HIST 1302	HISTORY OF THE UNITED STATES, 1865 TO PRESENT	3
See General Core Requirements for Social and Behavioral Sciences		3
MATH 1426	CALCULUS I	4
MATH 2425	CALCULUS II	4
See General Core Requirements for Foundational Component Area		3
PHYS 1441	GENERAL COLLEGE PHYSICS I	4
PHYS 1442	GENERAL COLLEGE PHYSICS II	4
Program Requirements		
14 hours in a single modern/classical language or eight hours in a language plus six advanced hours from one liberal arts area cluster to be chosen with the guidance of the undergraduate advisor [1A]		14
Biology or Geology for science majors courses [1B]		8
Professional Courses		
Major		
CHEM 1341	GENERAL CHEMISTRY I	3
CHEM 1181	GENERAL CHEMISTRY I LABORATORY FOR ADVANCED CHEMICAL TECHNOLOGIES	1
CHEM 1342	GENERAL CHEMISTRY II	3
CHEM 1182	GENERAL CHEMISTRY II LABORATORY FOR ADVANCED CHEMICAL TECHNOLOGIES	1
CHEM 2321	ORGANIC CHEMISTRY I	3
CHEM 2322	ORGANIC CHEMISTRY II	3
CHEM 2335	QUANTITATIVE CHEMISTRY [1C]	3
CHEM 2283	SYNTHESIS AND ANALYSIS LABORATORY I	2
CHEM 2284	SYNTHESIS AND ANALYSIS LABORATORY II	2
CHEM 3315	INTRODUCTION TO BIOPHYSICAL CHEMISTRY	3
CHEM 3175	BIOPHYSICAL CHEMISTRY LABORATORY	1
CHEM 3317	INORGANIC CHEMISTRY	3
CHEM 4101	SEMINAR IN CHEMISTRY	1
CHEM 4311	BIOCHEMISTRY I	3
Select one from the following:		2
CHEM 3307	INTRODUCTION TO POLYMER CHEMISTRY	
CHEM 4242	LABORATORY TECHNIQUES IN BIOCHEMISTRY	
CHEM 4312	BIOCHEMISTRY II	
CHEM 4318	INORGANIC CHEMISTRY	
CHEM 4346	ADVANCED SYNTHETIC METHODS	
Advanced electives at the 3000 or 4000 level sufficient to meet the 36 advanced hours requirement		17
All students are strongly encouraged to enroll in undergraduate research		
Total Hours		**120**

The minimum biology requirement for premedical students is BIOL 1441 CELL AND MOLECULAR BIOLOGY and three additional courses. Specifically, BIOL 2444 GENERAL MICROBIOLOGY and BIOL 3442 HUMAN PHYSIOLOGY are recommended plus three additional hours.

SUGGESTED COURSE SEQUENCE

First Year

First Semester	Hours	Second Semester	Hours
CHEM 1341	3	CHEM 1342	3
CHEM 1181	1	CHEM 1182	1
MATH 1426	4	MATH 2425	4
BIOL 1441 or GEOL 1301[1C]	4	BIOL 1442 or GEOL 1302[1C]	4
ENGL 1301	3	ENGL 1302	3
UNIV 1131 or 1101	1		
	16		**15**

Second Year

First Semester	Hours	Second Semester	Hours
CHEM 2321	3	CHEM 2322	3
CHEM 2283	2	CHEM 2335	3
PHYS 1441	4	CHEM 2284	2
Language, Philosophy, and Culture	3	PHYS 1442	4
Modern/Classical Language[1A]	4	Modern/Classical Language[1A]	4
	16		**16**

Third Year

First Semester	Hours	Second Semester	Hours
CHEM 3315	3	CHEM 4311	3
CHEM 3175	1	POLS 2312	3
POLS 2311	3	Modern/Classical Language[1A]	3
Modern/Classical Language[1A]	3	Creative Arts	3
Advanced Elective	6	Advanced Elective	3
	16		**15**

Fourth Year

First Semester	Hours	Second Semester	Hours
CHEM 3317	3	CHEM 3000 level or above (can be up to 3 hrs)	2
CHEM 4101	1	HIST 1302	3
HIST 1301	3	Social and Behavioral Sciences	3
Foundational Component Area	3	Advanced Electives	3
Advanced Electives	5		
	15		**11**

Total Hours: 120

1A See approved list of courses (http://catalog.uta.edu/science/) for the College of Science's liberal arts area clusters.
1B Student may take GEOL 1301 and 1302 to meet degree requirement. This will affect the number of electives needed to reach 120 hours.
1C Completion of CHEM 2335 with the grade of "C" or above will satisfy the computer proficiency requirement.

Requirements for a Bachelor of Arts Degree in Chemistry with Chemistry Teacher PATHWAY (UTeach Program)

This program is suitable preparation for students who desire certification with a teaching field in chemistry and/or physical science.

The University Core Curriculum consists of 42 credit hours from University Core Curriculum (http://catalog.uta.edu/academicregulations/degreerequirements/generalcorerequirements/).

Pre-Professional Courses

Recommended Core Requirements		
UNIV 1131	STUDENT SUCCESS	1
or UNIV 1101	CAREER PREPARATION AND STUDENT SUCCESS	
ENGL 1301	RHETORIC AND COMPOSITION I	3
ENGL 1302	RHETORIC AND COMPOSITION II	3
See General Core Requirements for Creative Arts		3
POLS 2311	GOVERNMENT OF THE UNITED STATES	3

POLS 2312	STATE AND LOCAL GOVERNMENT	3
PHIL 2314	PERSPECTIVES ON SCIENCE AND MATHEMATICS	3
HIST 1301	HISTORY OF THE UNITED STATES TO 1865	3
HIST 1302	HISTORY OF THE UNITED STATES, 1865 TO PRESENT	3
See General Core Requirements for Social and Behavioral Sciences		3
MATH 1426	CALCULUS I	4
MATH 2425	CALCULUS II	4
PHYS 1441	GENERAL COLLEGE PHYSICS I	4
PHYS 1442	GENERAL COLLEGE PHYSICS II	4
Program Requirements		
MODL 1442	TOPICS IN MODERN LANGUAGE LEVEL II	4
BIOL 1441	BIOLOGY I FOR SCIENCE MAJORS: CELL AND MOLECULAR BIOLOGY	4
BIOL 1442	BIOLOGY II FOR SCIENCE MAJORS: ECOLOGY AND EVOLUTION	4
Elective Course		2
Professional Courses		
SCIE 1201	STEP 1: INQUIRY APPROACHES TO TEACHING	2
SCIE 1202	STEP 2: INQUIRY-BASED LESSON DESIGN	2
SCIE 4107	CAPSTONE TEACHING EXPERIENCE SEMINAR	1
SCIE 4331	KNOWING AND LEARNING IN STEM	3
SCIE 4332	CLASSROOM INTERACTIONS	3
SCIE 4333	MULTIPLE TEACHING PRACTICES	3
SCIE 4607	CAPSTONE TEACHING EXPERIENCE FOR STEM SECONDARY GRADES	6
Major		
CHEM 1341	GENERAL CHEMISTRY I	3
CHEM 1181	GENERAL CHEMISTRY I LABORATORY FOR ADVANCED CHEMICAL TECHNOLOGIES	1
CHEM 1342	GENERAL CHEMISTRY II	3
CHEM 1182	GENERAL CHEMISTRY II LABORATORY FOR ADVANCED CHEMICAL TECHNOLOGIES	1
CHEM 2321	ORGANIC CHEMISTRY I	3
CHEM 2322	ORGANIC CHEMISTRY II	3
CHEM 2335	QUANTITATIVE CHEMISTRY	3
CHEM 2283	SYNTHESIS AND ANALYSIS LABORATORY I	2
CHEM 2284	SYNTHESIS AND ANALYSIS LABORATORY II	2
CHEM 3315	INTRODUCTION TO BIOPHYSICAL CHEMISTRY	3
CHEM 3175	BIOPHYSICAL CHEMISTRY LABORATORY	1
CHEM 3317	INORGANIC CHEMISTRY	3
CHEM 4101	SEMINAR IN CHEMISTRY	1
CHEM 4311	BIOCHEMISTRY I	3
CHEM 4343	RESEARCH METHODS - UTEACH	3
CHEM 4461	INSTRUMENTAL ANALYSIS	4
Select one from the following:		3
CHEM 3307	INTRODUCTION TO POLYMER CHEMISTRY	
CHEM 4312	BIOCHEMISTRY II	
CHEM 4318	INORGANIC CHEMISTRY	
CHEM 4346	ADVANCED SYNTHETIC METHODS	
All students are strongly encouraged to enroll in undergraduate research.		
Total Hours		**120**

SUGGESTED COURSE SEQUENCE

First Year

First Semester	Hours	Second Semester	Hours
CHEM 1341	3	CHEM 1342	3
CHEM 1181	1	CHEM 1182	1
MATH 1426	4	MATH 2425	4

SCIE 1201	2	SCIE 1202	2
ENGL 1301	3	PHYS 1441	4
POLS 2311	3	ENGL 1302	3
UNIV 1131 or 1101	1		
	17		**17**

Second Year

First Semester	Hours	Second Semester	Hours
CHEM 2321	3	CHEM 2322	3
CHEM 2335	3	CHEM 2284	2
CHEM 2283	2	PHYS 1442	4
SCIE 4331	3	SCIE 4332	3
HIST 1301	3	MODL 1442	4
	14		**16**

Third Year

First Semester	Hours	Second Semester	Hours
POLS 2312	3	CHEM 4311	3
HIST 1302	3	CHEM 4343	3
CHEM 3315	3	CHEM 4461	4
CHEM 3175	1	PHIL 2314	3
CHEM 3317	3	Elective Course	2
	13		**15**

Fourth Year

First Semester	Hours	Second Semester	Hours
SCIE 4333	3	SCIE 4107	1
BIOL 1441	4	SCIE 4607	6
CHEM 4101	1	BIOL 1442	4
Social and Behavioral Sciences	3	Creative Arts	3
Advanced Chemistry Elective	3		
	14		**14**

Total Hours: 120

Requirements for a Bachelor of Arts Degree in Chemistry with Physical Science Teacher pathway (UTeach Program)

This program is suitable preparation for students who desire certification with a teaching field in chemistry and/or physical science.

The University Core Curriculum consists of 42 credit hours from University Core Curriculum (http://catalog.uta.edu/academicregulations/degreerequirements/generalcorerequirements/).

Pre-Professional Courses		
Recommended Core Requirements		
UNIV 1131	STUDENT SUCCESS	1
or UNIV 1101	CAREER PREPARATION AND STUDENT SUCCESS	
ENGL 1301	RHETORIC AND COMPOSITION I	3
ENGL 1302	RHETORIC AND COMPOSITION II	3
See General Core Requirements for Creative Arts		3
POLS 2311	GOVERNMENT OF THE UNITED STATES	3
POLS 2312	STATE AND LOCAL GOVERNMENT	3
PHIL 2314	PERSPECTIVES ON SCIENCE AND MATHEMATICS	3
HIST 1301	HISTORY OF THE UNITED STATES TO 1865	3
HIST 1302	HISTORY OF THE UNITED STATES, 1865 TO PRESENT	3
See General Core Requirements for Social and Behavioral Sciences		3
MATH 1426	CALCULUS I	4
MATH 2425	CALCULUS II	4
PHYS 1443	GENERAL TECHNICAL PHYSICS I	4
PHYS 1444	GENERAL TECHNICAL PHYSICS II	4
Program Requirements		
PHYS 2315	INTRODUCTORY ASTROPHYSICS	3

PHYS 3313	INTRODUCTION TO MODERN PHYSICS	3
PHYS 3445	OPTICS	4
PHYS 3455	ELECTRONICS	4
BIOL 1441	BIOLOGY I FOR SCIENCE MAJORS: CELL AND MOLECULAR BIOLOGY	4
BIOL 1442	BIOLOGY II FOR SCIENCE MAJORS: ECOLOGY AND EVOLUTION	4
Professional Courses		
SCIE 1201	STEP 1: INQUIRY APPROACHES TO TEACHING	2
SCIE 1202	STEP 2: INQUIRY-BASED LESSON DESIGN	2
SCIE 4107	CAPSTONE TEACHING EXPERIENCE SEMINAR	1
SCIE 4331	KNOWING AND LEARNING IN STEM	3
SCIE 4332	CLASSROOM INTERACTIONS	3
SCIE 4333	MULTIPLE TEACHING PRACTICES	3
SCIE 4607	CAPSTONE TEACHING EXPERIENCE FOR STEM SECONDARY GRADES	6
Major		
CHEM 1341	GENERAL CHEMISTRY I	3
CHEM 1181	GENERAL CHEMISTRY I LABORATORY FOR ADVANCED CHEMICAL TECHNOLOGIES	1
CHEM 1342	GENERAL CHEMISTRY II	3
CHEM 1182	GENERAL CHEMISTRY II LABORATORY FOR ADVANCED CHEMICAL TECHNOLOGIES	1
CHEM 2321	ORGANIC CHEMISTRY I	3
CHEM 2322	ORGANIC CHEMISTRY II	3
CHEM 2335	QUANTITATIVE CHEMISTRY	3
CHEM 2283	SYNTHESIS AND ANALYSIS LABORATORY I	2
CHEM 2284	SYNTHESIS AND ANALYSIS LABORATORY II	2
CHEM 3315	INTRODUCTION TO BIOPHYSICAL CHEMISTRY	3
CHEM 3175	BIOPHYSICAL CHEMISTRY LABORATORY	1
CHEM 4311	BIOCHEMISTRY I	3
CHEM 4343	RESEARCH METHODS - UTEACH	3
CHEM 3317	INORGANIC CHEMISTRY	3
or CHEM 4318	INORGANIC CHEMISTRY	
All students are strongly encouraged to enroll in undergraduate research.		
Total Hours		**120**

SUGGESTED COURSE SEQUENCE

First Year

First Semester	Hours	Second Semester	Hours
CHEM 1341	3	CHEM 1342	3
CHEM 1181	1	CHEM 1182	1
MATH 1426	4	MATH 2425	4
SCIE 1201	2	PHYS 1443	4
ENGL 1301	3	SCIE 1202	2
POLS 2311	3	ENGL 1302	3
UNIV 1131 or 1101	1		
	17		**17**

Second Year

First Semester	Hours	Second Semester	Hours
CHEM 2321	3	CHEM 2322	3
CHEM 2335	3	CHEM 2284	2
CHEM 2283	2	SCIE 4332	3
SCIE 4331	3	PHYS 2315	3
PHYS 1444	4	HIST 1301	3
	15		**14**

Third Year

First Semester	Hours	Second Semester	Hours
CHEM 4311	3	CHEM 3317	3
POLS 2312	3	CHEM 3315	3
PHYS 3313	3	CHEM 3175	1

PHIL 2314	3	PHYS 3445	4
HIST 1302	3	CHEM 4343	3
	15		**14**

Fourth Year

First Semester	**Hours**	**Second Semester**	**Hours**
SCIE 4333	3	SCIE 4107	1
BIOL 1441	4	SCIE 4607	6
PHYS 3455	4	BIOL 1442	4
Social and Behavioral Sciences	3	Creative Arts	3
	14		**14**

Total Hours: 120

Requirements for a Bachelor of Science Degree in Chemistry - American Chemical Society Certified

This program meets the standards for professional baccalaureate programs established by the American Chemical Society. It is recommended to students who plan to enter into graduate study in chemistry and for those who anticipate professional careers as chemists.

The University Core Curriculum consists of 42 credit hours from University Core Curriculum (http://catalog.uta.edu/academicregulations/degreerequirements/generalcorerequirements/).

Pre-Professional Courses		
Recommended Core Requirements		
UNIV 1131	STUDENT SUCCESS	1
or UNIV 1101	CAREER PREPARATION AND STUDENT SUCCESS	
ENGL 1301	RHETORIC AND COMPOSITION I	3
ENGL 1302	RHETORIC AND COMPOSITION II	3
See General Core Requirements for Creative Arts		3
POLS 2311	GOVERNMENT OF THE UNITED STATES	3
POLS 2312	STATE AND LOCAL GOVERNMENT	3
See General Core Requirements for Language, Philosophy, and Culture		3
HIST 1301	HISTORY OF THE UNITED STATES TO 1865	3
HIST 1302	HISTORY OF THE UNITED STATES, 1865 TO PRESENT	3
See General Core Requirements for Social and Behavioral Sciences		3
MATH 1426	CALCULUS I	4
MATH 2425	CALCULUS II	4
MATH 2326	CALCULUS III	3
See General Core Requirements for Foundational Component Area		3
PHYS 1443	GENERAL TECHNICAL PHYSICS I	4
PHYS 1444	GENERAL TECHNICAL PHYSICS II	4
Program Requirements		
MATH 3319	DIFFERENTIAL EQUATIONS & LINEAR ALGEBRA	3
or MATH 3318	DIFFERENTIAL EQUATIONS	
Advanced PHYS course at 3000 level or above:		3
PHYS 3313	INTRODUCTION TO MODERN PHYSICS	
Biology or Geology for science majors courses [2A]		8
Professional Courses		
Major		
CHEM 1341	GENERAL CHEMISTRY I	3
CHEM 1181	GENERAL CHEMISTRY I LABORATORY FOR ADVANCED CHEMICAL TECHNOLOGIES	1
CHEM 1342	GENERAL CHEMISTRY II	3
CHEM 1182	GENERAL CHEMISTRY II LABORATORY FOR ADVANCED CHEMICAL TECHNOLOGIES	1
CHEM 2321	ORGANIC CHEMISTRY I	3
CHEM 2322	ORGANIC CHEMISTRY II	3
CHEM 2335	QUANTITATIVE CHEMISTRY [2B]	3
CHEM 2283	SYNTHESIS AND ANALYSIS LABORATORY I	2

CHEM 2284	SYNTHESIS AND ANALYSIS LABORATORY II	2
CHEM 3321	PHYSICAL CHEMISTRY I	3
CHEM 3181	PHYSICAL CHEMISTRY I LABORATORY	1
CHEM 3322	PHYSICAL CHEMISTRY II	3
CHEM 3182	PHYSICAL CHEMISTRY II LABORATORY	1
CHEM 3317	INORGANIC CHEMISTRY	3
CHEM 4101	SEMINAR IN CHEMISTRY	1
CHEM 4311	BIOCHEMISTRY I	3
CHEM 4318	INORGANIC CHEMISTRY	3
CHEM 4346	ADVANCED SYNTHETIC METHODS	3
CHEM 4461	INSTRUMENTAL ANALYSIS	4
CHEM 3000 level or above pre-approved by the undergraduate advisor		3
Advanced electives at the 3000 or 4000 level sufficient to meet the 36 advanced hours requirement		2
Electives sufficient to complete the total hours required for the degree		5
All students are strongly encouraged to enroll in undergraduate research		
Total Hours		**120**

SUGGESTED COURSE SEQUENCE

First Year

First Semester	Hours	Second Semester	Hours
CHEM 1341	3	CHEM 1342	3
CHEM 1181	1	CHEM 1182	1
MATH 1426	4	MATH 2425	4
ENGL 1301	3	ENGL 1302	3
BIOL 1441 or GEOL 1301[2A]	4	BIOL 1442 or GEOL 1302[2A]	4
UNIV 1131 or 1101	1		
	16		**15**

Second Year

First Semester	Hours	Second Semester	Hours
CHEM 2321	3	CHEM 2322	3
CHEM 2335	3	PHYS 1444	4
CHEM 2283	2	CHEM 2284	2
MATH 2326	3	MATH 3319 or 3318	3
PHYS 1443	4	Language, Philosophy, and Culture	3
	15		**15**

Third Year

First Semester	Hours	Second Semester	Hours
CHEM 3321	3	CHEM 3322	3
CHEM 3181	1	CHEM 3182	1
CHEM 3317	3	CHEM 4318	3
PHYS 3313	3	POLS 2312	3
POLS 2311	3	Creative Arts	3
Social and Behavioral Sciences	3	Foundational Component Area	3
	16		**16**

Fourth Year

First Semester	Hours	Second Semester	Hours
CHEM 4311	3	CHEM 4346	3
CHEM 4101	1	CHEM 3000 level or above	3
CHEM 4461	4	HIST 1302	3
HIST 1301	3	Electives	5
Advanced Electives	2		
	13		**14**

Total Hours: 120

2A Student may take GEOL 1301 and 1302 to meet requirement. This will affect the number of electives needed to reach 120 hours.

2B Completion of CHEM 2335 with the grade of "C" or above will satisfy the computer proficiency requirement.

Requirements for a Bachelor of Science Degree in Biochemistry - American Chemical Society Certified

This program is recommended to students who plan to enter into graduate study in biochemistry and for those who anticipate professional careers as biochemists. This program is also suitable for premedical and predental students and for training in allied health sciences.

The University Core Curriculum consists of 42 credit hours from University Core Curriculum (http://catalog.uta.edu/academicregulations/degreerequirements/generalcorerequirements/).

Pre-Professional Courses		
Recommended Core Requirements		
UNIV 1131	STUDENT SUCCESS	1
or UNIV 1101	CAREER PREPARATION AND STUDENT SUCCESS	
ENGL 1301	RHETORIC AND COMPOSITION I	3
ENGL 1302	RHETORIC AND COMPOSITION II	3
See General Core Requirements for Creative Arts		3
POLS 2311	GOVERNMENT OF THE UNITED STATES	3
POLS 2312	STATE AND LOCAL GOVERNMENT	3
See General Core Requirements for Language, Philosophy, and Culture		3
HIST 1301	HISTORY OF THE UNITED STATES TO 1865	3
HIST 1302	HISTORY OF THE UNITED STATES, 1865 TO PRESENT	3
See General Core Requirements for Social and Behavioral Sciences		3
MATH 1426	CALCULUS I	4
MATH 2425	CALCULUS II	4
MATH 2326	CALCULUS III	3
See General Core Requirements for Foundational Component Area		3
PHYS 1443	GENERAL TECHNICAL PHYSICS I	4
PHYS 1444	GENERAL TECHNICAL PHYSICS II	4
Program Requirements		
BIOL 1441	BIOLOGY I FOR SCIENCE MAJORS: CELL AND MOLECULAR BIOLOGY	4
BIOL 3315	GENETICS	3
BIOL 2444	GENERAL MICROBIOLOGY	4
Professional Courses		
Major		
CHEM 1341	GENERAL CHEMISTRY I	3
CHEM 1181	GENERAL CHEMISTRY I LABORATORY FOR ADVANCED CHEMICAL TECHNOLOGIES	1
CHEM 1342	GENERAL CHEMISTRY II	3
CHEM 1182	GENERAL CHEMISTRY II LABORATORY FOR ADVANCED CHEMICAL TECHNOLOGIES	1
CHEM 2321	ORGANIC CHEMISTRY I	3
CHEM 2322	ORGANIC CHEMISTRY II	3
CHEM 2335	QUANTITATIVE CHEMISTRY [3A]	3
CHEM 2283	SYNTHESIS AND ANALYSIS LABORATORY I	2
CHEM 2284	SYNTHESIS AND ANALYSIS LABORATORY II	2
CHEM 3321	PHYSICAL CHEMISTRY I	3
CHEM 3181	PHYSICAL CHEMISTRY I LABORATORY	1
CHEM 3322	PHYSICAL CHEMISTRY II	3
CHEM 3182	PHYSICAL CHEMISTRY II LABORATORY	1
CHEM 4242	LABORATORY TECHNIQUES IN BIOCHEMISTRY	2
CHEM 4311	BIOCHEMISTRY I	3
CHEM 4312	BIOCHEMISTRY II	3
CHEM 4313	METABOLISM AND REGULATION	3
or CHEM 4316	BIOCHEMICAL GENETICS	

CHEM 4314	ENZYMOLOGY	3
CHEM 3317	INORGANIC CHEMISTRY	3
or CHEM 4318	INORGANIC CHEMISTRY	
CHEM 4346	ADVANCED SYNTHETIC METHODS	3
CHEM 4461	INSTRUMENTAL ANALYSIS	4
Advanced electives at the 3000 or 4000 level sufficient to meet the 36 advanced hours requirement		1
Electives sufficient to complete the total hours required for the degree		5
All students are strongly encouraged to enroll in undergraduate research		
Total Hours		**120**

SUGGESTED COURSE SEQUENCE

First Year

First Semester	Hours	Second Semester	Hours
CHEM 1341	3	CHEM 1342	3
CHEM 1181	1	CHEM 1182	1
MATH 1426	4	MATH 2425	4
BIOL 1441	4	ENGL 1302	3
ENGL 1301	3	Creative Arts	3
UNIV 1131 or 1101	1		
	16		**14**

Second Year

First Semester	Hours	Second Semester	Hours
CHEM 2321	3	CHEM 2322	3
CHEM 2335	3	CHEM 2284	2
CHEM 2283	2	PHYS 1444	4
PHYS 1443	4	BIOL 3315	3
MATH 2326	3	Language, Philosophy, and Culture	3
	15		**15**

Third Year

First Semester	Hours	Second Semester	Hours
CHEM 3321	3	CHEM 3322	3
CHEM 3181	1	CHEM 3182	1
CHEM 4311	3	CHEM 4312	3
BIOL 2444	4	CHEM 4242	2
HIST 1301	3	HIST 1302	3
Social and Behavioral Science	3	Foundational Component Area	3
	17		**15**

Fourth Year

First Semester	Hours	Second Semester	Hours
CHEM 4313 or 4316	3	CHEM 4346	3
CHEM 3317 or 4318	3	CHEM 4314	3
CHEM 4461	4	POLS 2312	3
POLS 2311	3	Advanced Elective	1
Electives	3	Electives	2
	16		**12**

Total Hours: 120

3A Completion of CHEM 2335 with the grade of "C" or above will satisfy the computer proficiency requirement.

Requirements for a Bachelor of Science Degree in Biological Chemistry

This program is recommended to students who plan to enter into medical and dental school and for training in allied health sciences. This program is also suitable for students who anticipate professional careers in the field of biotechnology or graduate training in biochemistry.

The University Core Curriculum consists of 42 credit hours from University Core Curriculum (http://catalog.uta.edu/academicregulations/degreerequirements/generalcorerequirements/).

Pre-Professional Courses		
Recommended Core Requirements		
UNIV 1131	STUDENT SUCCESS	1
or UNIV 1101	CAREER PREPARATION AND STUDENT SUCCESS	
ENGL 1301	RHETORIC AND COMPOSITION I	3
ENGL 1302	RHETORIC AND COMPOSITION II	3
See General Core Requirements for Creative Arts		3
POLS 2311	GOVERNMENT OF THE UNITED STATES	3
POLS 2312	STATE AND LOCAL GOVERNMENT	3
See General Core Requirements for Language, Philosophy, and Culture		3
HIST 1301	HISTORY OF THE UNITED STATES TO 1865	3
HIST 1302	HISTORY OF THE UNITED STATES, 1865 TO PRESENT	3
See General Core Requirements for Social and Behavioral Sciences		3
MATH 1421	PREPARATION FOR CALCULUS	4
MATH 1426	CALCULUS I	4
MATH 2425	CALCULUS II	4
See General Core Requirements for Foundational Component Area		3
PHYS 1441	GENERAL COLLEGE PHYSICS I	4
PHYS 1442	GENERAL COLLEGE PHYSICS II	4
Program Requirements		
BIOL 1441	BIOLOGY I FOR SCIENCE MAJORS: CELL AND MOLECULAR BIOLOGY	4
BIOL 1442	BIOLOGY II FOR SCIENCE MAJORS: ECOLOGY AND EVOLUTION	4
BIOL 2444	GENERAL MICROBIOLOGY	4
Select two of the following:		6
BIOL 3301	CELL PHYSIOLOGY	
BIOL 3312	IMMUNOLOGY	
BIOL 3315	GENETICS (recommended)	
BIOL 3442	HUMAN PHYSIOLOGY [4B]	
Professional Courses		
CHEM 1341	GENERAL CHEMISTRY I	3
CHEM 1181	GENERAL CHEMISTRY I LABORATORY FOR ADVANCED CHEMICAL TECHNOLOGIES	1
CHEM 1342	GENERAL CHEMISTRY II	3
CHEM 1182	GENERAL CHEMISTRY II LABORATORY FOR ADVANCED CHEMICAL TECHNOLOGIES	1
CHEM 2321	ORGANIC CHEMISTRY I	3
CHEM 2322	ORGANIC CHEMISTRY II	3
CHEM 2335	QUANTITATIVE CHEMISTRY [4A]	3
CHEM 2283	SYNTHESIS AND ANALYSIS LABORATORY I	2
CHEM 2284	SYNTHESIS AND ANALYSIS LABORATORY II	2
CHEM 3315	INTRODUCTION TO BIOPHYSICAL CHEMISTRY	3
CHEM 3175	BIOPHYSICAL CHEMISTRY LABORATORY	1
CHEM 4242	LABORATORY TECHNIQUES IN BIOCHEMISTRY	2
CHEM 4311	BIOCHEMISTRY I	3
CHEM 4312	BIOCHEMISTRY II	3
CHEM 4313	METABOLISM AND REGULATION	3
or CHEM 4316	BIOCHEMICAL GENETICS	
CHEM 4314	ENZYMOLOGY	3
CHEM 3317	INORGANIC CHEMISTRY	3
or CHEM 4318	INORGANIC CHEMISTRY	
CHEM 4461	INSTRUMENTAL ANALYSIS	4
Advanced electives at the 3000 or 4000 level sufficient to meet the 36 advanced hours requirement [4B]		4
Electives sufficient to complete the total hours required for the degree		1

All students are strongly encouraged to enroll in undergraduate research	
Total Hours	**120**

SUGGESTED COURSE SEQUENCE

First Year

First Semester	Hours	Second Semester	Hours
CHEM 1341	3	CHEM 1342	3
CHEM 1181	1	CHEM 1182	1
BIOL 1441	4	BIOL 1442	4
ENGL 1301	3	MATH 1426	4
MATH 1421	4	ENGL 1302	3
UNIV 1131 or 1101	1		
	16		**15**

Second Year

First Semester	Hours	Second Semester	Hours
CHEM 2321	3	CHEM 2322	3
CHEM 2335	3	CHEM 2284	2
CHEM 2283	2	PHYS 1442	4
PHYS 1441	4	BIOL 3315	3
MATH 2425	4	Language, Philosophy, and Culture	3
	16		**15**

Third Year

First Semester	Hours	Second Semester	Hours
CHEM 3315	3	CHEM 4242	2
CHEM 3175	1	CHEM 4312	3
CHEM 4311	3	BIOL 3301, 3312, or 3442[4B]	3
BIOL 2444	4	HIST 1302	3
HIST 1301	3	Foundational Component Area	3
Social and Behavioral Sciences	3		
	17		**14**

Fourth Year

First Semester	Hours	Second Semester	Hours
CHEM 3317 or 4318	3	CHEM 4461	4
CHEM 4313 or 4316	3	CHEM 4314	3
POLS 2311	3	POLS 2312	3
Elective	1	Creative Arts	3
		Advanced Elective[4B]	4
	10		**17**

Total Hours: 120

4A Completion of CHEM 2335 with the grade of "C" or above will satisfy the computer proficiency requirement.

4B When you choose BIOL 3442, you need the three credit hours of an advanced elective.

Requirements for Fast-Track Program: Bachelor of Science and Master of Science in Chemistry

This program is recommended for students who wish to earn graduate level course credit and who wish to obtain graduate level research experience. This program is suitable for those students who plan to pursue doctoral graduate studies in chemistry and for those who anticipate professional careers as chemists. **B.S. in Chemistry degree of this Fast-Track program is an American Chemical Society Certified degree.**

FOUNDATION COURSES

Students must take the following 4 specific undergraduate CHEM courses in order to be admitted into the Fast Track program. The cumulative GPA required for the foundation courses is a 3.25. Students must also maintain a 3.3 GPA or higher in all CHEM courses completed at UTA, and have a cumulative GPA of a 3.3 or higher.

CHEM 2322	ORGANIC CHEMISTRY II	3
CHEM 2335	QUANTITATIVE CHEMISTRY	3
One of the following two courses		3

CHEM 3317	INORGANIC CHEMISTRY	
CHEM 4318	INORGANIC CHEMISTRY	
One of the following two courses		3
CHEM 3321	PHYSICAL CHEMISTRY I	
CHEM 3322	PHYSICAL CHEMISTRY II	

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Pre-Professional Courses

Recommended Core Requirements		
UNIV 1131	STUDENT SUCCESS	1
or UNIV 1101	CAREER PREPARATION AND STUDENT SUCCESS	
ENGL 1301	RHETORIC AND COMPOSITION I	3
ENGL 1302	RHETORIC AND COMPOSITION II	3
See General Core Requirements for Creative Arts		3
POLS 2311	GOVERNMENT OF THE UNITED STATES	3
POLS 2312	STATE AND LOCAL GOVERNMENT	3
See General Core Requirements for Language, Philosophy, and Culture		3
HIST 1301	HISTORY OF THE UNITED STATES TO 1865	3
HIST 1302	HISTORY OF THE UNITED STATES, 1865 TO PRESENT	3
See General Core Requirements for Social and Behavioral Sciences		3
MATH 1426	CALCULUS I	4
MATH 2425	CALCULUS II	4
MATH 2326	CALCULUS III	3
See General Core Requirements for Foundational Component Area		3
PHYS 1443	GENERAL TECHNICAL PHYSICS I	4
PHYS 1444	GENERAL TECHNICAL PHYSICS II	4
Program Requirements		
MATH 3318	DIFFERENTIAL EQUATIONS	3
or MATH 3319	DIFFERENTIAL EQUATIONS & LINEAR ALGEBRA	
Advanced PHYS course at 3000 level or above:		3
PHYS 3313	INTRODUCTION TO MODERN PHYSICS	
Biology or Geology for science majors courses [5A]		8
Professional Courses		
CHEM 1341	GENERAL CHEMISTRY I	3
CHEM 1181	GENERAL CHEMISTRY I LABORATORY FOR ADVANCED CHEMICAL TECHNOLOGIES	1
CHEM 1342	GENERAL CHEMISTRY II	3
CHEM 1182	GENERAL CHEMISTRY II LABORATORY FOR ADVANCED CHEMICAL TECHNOLOGIES	1
CHEM 2321	ORGANIC CHEMISTRY I	3
CHEM 2322	ORGANIC CHEMISTRY II	3
CHEM 2335	QUANTITATIVE CHEMISTRY [5B]	3
CHEM 2283	SYNTHESIS AND ANALYSIS LABORATORY I	2
CHEM 2284	SYNTHESIS AND ANALYSIS LABORATORY II	2
CHEM 3317	INORGANIC CHEMISTRY	3
CHEM 3321	PHYSICAL CHEMISTRY I	3
CHEM 3322	PHYSICAL CHEMISTRY II	3
CHEM 3182	PHYSICAL CHEMISTRY II LABORATORY	1
CHEM 3181	PHYSICAL CHEMISTRY I LABORATORY	1
CHEM 4101	SEMINAR IN CHEMISTRY	1
CHEM 4311	BIOCHEMISTRY I	3
CHEM 4318	INORGANIC CHEMISTRY	3
CHEM 4346	ADVANCED SYNTHETIC METHODS	3

CHEM 4461	INSTRUMENTAL ANALYSIS	4
CHEM 4380	UNDERGRADUATE RESEARCH	3
Advanced electives at the 3000 or 4000 level sufficient to meet the 36 advanced hours requirement.		2
Electives sufficient to complete the total hours requirement for the undergraduate degree.		5
Student's have the option of taking 9-10 hours worth of graduate courses for undergraduate credit that can also be used towards their master's in chemistry. Please see the Chemistry Advisor for possible graduate level coursework that can be used in place of undergraduate coursework.		
Refer to the Graduate Catalog and the graduate advisor for MS in Chemistry degree requirements (Master's Degree with Thesis).		30
Total Hours		**150**

SUGGESTED COURSE SEQUENCE

First Year

First Semester	Hours	Second Semester	Hours
CHEM 1341	3	CHEM 1342	3
CHEM 1181	1	CHEM 1182	1
MATH 1426	4	MATH 2425	4
ENGL 1301	3	ENGL 1302	3
POLS 2311	3	POLS 2312	3
UNIV 1131 or 1101	1		
	15		**14**

Second Year

First Semester	Hours	Second Semester	Hours
CHEM 2321	3	CHEM 2322	3
CHEM 2335	3	CHEM 2284	2
CHEM 2283	2	MATH 2326	3
PHYS 1443	4	PHYS 1444	4
Elective Course	3	Language, Philosophy, and Culture Requirement	3
	15		**15**

Third Year

First Semester	Hours	Second Semester	Hours
CHEM 3321	3	CHEM 3322 or 5361[5C]	3
CHEM 3181	1	CHEM 3182	1
BIOL 1441	4	CHEM 4318	3
MATH 3319	3	PHYS 3313	3
HIST 1301	3	HIST 1302	3
		Elective Course	2
	14		**15**

Fourth Year

First Semester	Hours	Second Semester	Hours
CHEM 3317 or 5341[5C]	3	CHEM 4311 or 5331[5C]	3
CHEM 4101	1	CHEM 4346	3
CHEM 4461 or 5421[5C]	4	CHEM 4380	3
BIOL 1442	4	Social and Behavioral Science	3
Creative Arts	3	Foundational Component Course	3
Advanced Elective Course	2		
	17		**15**

Total Hours: 120

5A Student may take GEOL 1301 and 1302 to meet degree requirement. This will affect the number of electives needed to reach 120 hours.

5B Completion of CHEM 2335 with the grade of "C" or above will satisfy the computer proficiency requirement.

5C Once admitted to this Fast-Track program, students will be allowed to take up to 9 credit hours of CHEM graduate courses (if CHEM 5461 is taken, 10 credit hours are allowed) that may be used to satisfy both bachelor's and master's degree requirements.

Requirements for Fast Track Program: Bachelor of Science in Biochemistry and Master of Science in Biomedical Engineering

This program is recommended for students who wish to earn graduate level course credit and who wish to obtain graduate level research experience. This program is suitable for those students who plan to pursue doctoral graduate studies in chemistry and for those who anticipate professional careers as chemists. **B.S. in Biochemistry degree of this Fast-Track program is an American Chemical Society Certified degree.**

FOUNDATION COURSES

Students must take the following 3 specific undergraduate courses in order to be admitted into the Fast Track program. The cumulative GPA required for the foundation courses is a 3.3. Students must also maintain a 3.3 GPA or higher in all CHEM courses completed at UTA, and have a cumulative GPA of a 3.3 or higher.

BE 3380	HUMAN PHYSIOLOGY IN BE	3
CHEM 2335	QUANTITATIVE CHEMISTRY	3
CHEM 4311	BIOCHEMISTRY I	3

The University Core Curriculum consists of 42 credit hours from University Core Curriculum (http://catalog.uta.edu/academicregulations/degreerequirements/generalcorerequirements/).

UNIV 1131	STUDENT SUCCESS	1
or UNIV 1101	CAREER PREPARATION AND STUDENT SUCCESS	
Communications Core Requirement:		
ENGL 1301	RHETORIC AND COMPOSITION I	3
ENGL 1302	RHETORIC AND COMPOSITION II	3
History Core Requirement:		
HIST 1301	HISTORY OF THE UNITED STATES TO 1865	3
HIST 1302	HISTORY OF THE UNITED STATES, 1865 TO PRESENT	3
Political Science Core Requirement:		
POLS 2311	GOVERNMENT OF THE UNITED STATES	3
POLS 2312	STATE AND LOCAL GOVERNMENT	3
See General Core Requirements for Social and Behavioral Sciences		3
See General Core Requirements for Language, Philosophy, and Culture		3
See General Core Requirements for Creative Arts		3
Degree Requirements:		
Math:		
MATH 1426	CALCULUS I	4
MATH 2425	CALCULUS II	4
MATH 2326	CALCULUS III	3
MATH 3319	DIFFERENTIAL EQUATIONS & LINEAR ALGEBRA	3
Biology Requirements:		
BIOL 1441	BIOLOGY I FOR SCIENCE MAJORS: CELL AND MOLECULAR BIOLOGY	4
BIOL 3315	GENETICS	3
Undergraduate Biomedical Engineering Requirements:		
BE 3380	HUMAN PHYSIOLOGY IN BE	3
BE 4337	TRANSPORT PHENOMENA IN BIOMEDICAL ENGINEERING	3
Physics Requirements:		
PHYS 1443	GENERAL TECHNICAL PHYSICS I	4
PHYS 1444	GENERAL TECHNICAL PHYSICS II	4
Chemistry Requirements:		
CHEM 1341	GENERAL CHEMISTRY I	3
CHEM 1181	GENERAL CHEMISTRY I LABORATORY FOR ADVANCED CHEMICAL TECHNOLOGIES	1
CHEM 1342	GENERAL CHEMISTRY II	3
CHEM 1182	GENERAL CHEMISTRY II LABORATORY FOR ADVANCED CHEMICAL TECHNOLOGIES	1
CHEM 2321	ORGANIC CHEMISTRY I	3
CHEM 2322	ORGANIC CHEMISTRY II	3

CHEM 2335	QUANTITATIVE CHEMISTRY	3
CHEM 2283	SYNTHESIS AND ANALYSIS LABORATORY I	2
CHEM 2284	SYNTHESIS AND ANALYSIS LABORATORY II	2
CHEM 3321	PHYSICAL CHEMISTRY I	3
CHEM 3181	PHYSICAL CHEMISTRY I LABORATORY	1
CHEM 3322	PHYSICAL CHEMISTRY II	3
CHEM 3182	PHYSICAL CHEMISTRY II LABORATORY	1
CHEM 3317	INORGANIC CHEMISTRY	3
CHEM 4311	BIOCHEMISTRY I	3
CHEM 4242	LABORATORY TECHNIQUES IN BIOCHEMISTRY	2
CHEM 4312	BIOCHEMISTRY II	3
CHEM 4461	INSTRUMENTAL ANALYSIS	4
Choose 1 of the following two courses:		3
CHEM 4313	METABOLISM AND REGULATION	
CHEM 4314	ENZYMOLOGY	
Graduate Level BE Coursework: [6A]		
BE 5333	NANO BIOMATERIALS AND LIVING-SYSTEMS INTERACTION	3
BE 5365	TISSUE ENGINEERING LAB	3
BE 5372	DRUG DELIVERY	3
Electives sufficient to reach the 120 credit requirement.		1
For information regarding the master's portion of this degree plan, please see the biomedical engineering department.		
Total Hours		**120**

SUGGESTED COURSE SEQUENCE

First Year

First Semester	Hours	Second Semester	Hours
CHEM 1341	3	CHEM 1342	3
CHEM 1181	1	CHEM 1182	1
MATH 1426	4	MATH 2425	4
BIOL 1441	4	ENGL 1302	3
ENGL 1301	3	Creative Arts	3
UNIV 1131 or 1101	1		
	16		**14**

Second Year

First Semester	Hours	Second Semester	Hours
CHEM 2321	3	CHEM 2322	3
CHEM 2335	3	CHEM 2284	2
CHEM 2283	2	MATH 3319	3
MATH 2326	3	PHYS 1444	4
PHYS 1443	4	Language, Philosophy, and Culture	3
	15		**15**

Third Year

First Semester	Hours	Second Semester	Hours
CHEM 3321	3	CHEM 3322	3
CHEM 3181	1	CHEM 3181	1
CHEM 3317	3	CHEM 4312	3
CHEM 4311	3	CHEM 4242	2
BE 3380	3	BE 4337	3
HIST 1301	3	HIST 1302	3
	16		**15**

Fourth Year

First Semester	Hours	Second Semester	Hours
CHEM 4461	4	BE 5333	3
Choose 1 of the following selected courses:	3	BE 5365	3
CHEM 4313		POLS 2312	3
CHEM 4314		Social and Behavioral Sciences	3

BE 5372	3	Electives	1
BIOL 3315	3		
POLS 2311	3		
	16		**13**

Total Hours: 120

6A Undergraduate courses being satisfied by these graduate courses are CHEM 4313 (or CHEM 4314), CHEM 4346, and one hour advanced elective. One credit hour difference will be satisfied by other undergraduate courses.

Oral Communication and Computer Competency Requirements

For all chemistry degree programs except the UTeach certification degree programs, the university computer competency requirement will be met by: completion of CHEM 2335 QUANTITATIVE CHEMISTRY with the grade of "C" or above or taking CSE 1301 or by passing the University computer proficiency examination. For the UTeach certification degree programs, completion of EDUC 4331 KNOWING AND LEARNING IN MATH AND SCIENCE fulfills the requirement.

The University oral communication competency requirement may be satisfied by taking CHEM 4101 (required for the Bachelor of Science degree in Chemistry, the Bachelor of Arts degree in Chemistry, and the combined BS-MS degree in Chemistry) or by taking CHEM 4313 or CHEM 4314 (required for the Bachelor of Science degree in Biochemistry and the Bachelor of Science degree in Biological Chemistry). For the UTeach certification degree programs, completion ofSCIE 1201 or SCIE 1334 (required for the UTeach programs) fulfills the requirement.

Students should refer to the specific degree plans and the chemistry undergraduate advisor for details regarding these requirements.

Declaring a Minor in Chemistry

Students who wish to obtain a minor in Chemistry must take at least 18 semester hours of chemistry, of which at least 6 semester hours must be at the 3000/4000 level. Only lecture courses, which satisfy a degree requirement for one of the degrees offered by the Department of Chemistry and Biochemistry may be used. Research courses, Chemistry Readings, and Internship credits may not be used towards the chemistry minor.

Declaring a Minor in Biochemistry

Students who wish to obtain a minor in Biochemistry must take at least 18 semester hours of chemistry which must include CHEM 4311 and CHEM 4312. Only courses which satisfy a degree requirement for one of the degrees offered by the Department of Chemistry and Biochemistry may be used.