

BS in Chemistry

There are a wide range of career options for chemists and biochemists in a diverse array of occupational fields. Opportunities can be divided into five main sectors: Industry, Academia, Government, Non-Profit, and Entrepreneurship. In addition, the programs of study for both chemistry and biochemistry degrees provide strong academic, critical thinking, and foundational skills for students interested in pursuing advanced professional degrees in medicine, dentistry, veterinary medicine, and pharmacy, as well as rigorous preparation for graduate school.

Marketable Skills

Students develop the following marketable skills:

- Communication: Reach mutual understanding through the effective exchange of information, ideas, and feelings
- Critical thinking: Analyze and evaluate issues in order to solve problems and develop informed opinions
- Organization: Use resources effectively and efficiently in order to stay focused on different tasks
- Problem-solving: Find solutions to difficult or complex issues
- Research: Be able to search, investigate and critically analyze information in response to a specific research question
- Time management: Prioritize goals and organize time to be more productive and efficient.

Additionally, students will be:

- Using laboratory equipment
- Maintaining precision and accuracy
- Organizing and reporting data, results and conclusions
- Explaining complex ideas for technical and non-technical audiences

The requirement to obtain a BS in Chemistry consists of the general College of Science requirements plus the following specific requirements:

Concentrations

- 7-12 Physical Science Certification
- 7-12 Science Certification
- Secondary Education Minor

Fast Track

The Fast-Track Program (<http://catalog.utep.edu/admissions/undergraduate/fast-track/#text>) enables outstanding undergraduate UTEP students to receive both undergraduate and graduate credit for up to 15 hours of UTEP course work as determined by participating Master's and Doctoral programs.

Not all undergraduate programs have elected to participate in the Fast Track option, so students should see their departmental graduate advisor for information about requirements and guidelines. A list of courses that have been approved for possible use at the graduate level is found here (<http://catalog.utep.edu/admissions/undergraduate/fast-track/#fastrackcoursestext>).

M.S. in Bioinformatics (<http://catalog.utep.edu/grad/college-of-science/college-science-deans-office/bioinformatics-ms/>) / B.S. in Chemistry

Code	Title	Hours
BINF/CHEM 5341	Anal./Model of Bio Structures	3
CHEM 5321	Advanced Organic Chemistry I	3
CHEM 5322	Advanced Organic Chemistry II	3
CHEM 5329	Contem Topics Organic Chemistr	3
CHEM 5339	Contemp Topics in Biochemistry	3

M.S. in Chemistry (<http://catalog.utep.edu/grad/college-of-science/chemistry/chemistry-ms/>) / B.S. in Chemistry

Code	Title	Hours
CHEM 5322	Advanced Organic Chemistry II	3
CHEM 5351	Advanced Physical Chemistry I	3

Degree Plan

Required Credits: 120

Code	Title	Hours
Designated Core (All courses require a grade of C or better) ¹		
Required Courses:		
MATH 1411	Calculus I	
PHYS 2320 & PHYS 2120	Introductory Mechanics and Laboratory for PHYS 2320	
PHYS 2321 & PHYS 2121	Introductory Electromagnetism and Laboratory for PHYS 2321	
University Core Curriculum		
Complete the University Core Curriculum requirements. (p. 5)		42
Chemistry Major		
Required Courses:		
CHEM 1105	Laboratory for CHEM 1305 ^C	1
CHEM 1106	Laboratory for CHEM 1306 ^C	1
CHEM 1305	General Chemistry ^C	3
CHEM 1306	General Chemistry ^C	3
CHEM 2161	Laboratory for CHEM 2261 ^C	1
CHEM 2221	Organic Chemistry I Lab ^C	2
CHEM 2222	Organic Chemistry II Lab ^C	2
CHEM 2361	The Periodic Table	3
CHEM 2321	Organic Chemistry I ^C	3
CHEM 2322	Organic Chemistry II ^C	3
CHEM 3110	Lab for Chemistry 3310	1
CHEM 3151	Lab for Chemistry 3351	1
CHEM 3152	Lab for Chemistry 3352	1
CHEM 3301	Molecular Modeling & Chem Info	3
CHEM 3310	Analytical Chemistry	3
CHEM 3330	Biochem I: Struc & Function	3
or CHEM 3332	Biochem II: Metabol & Bioenerg	
CHEM 3351	Physical Chemistry I	3
CHEM 3352	Physical Chemistry II	3
CHEM 4165	Inorganic Chemistry Lab	1
CHEM 4211	Instrumental Meths Analyt Chem	2
CHEM 4212	Lab for Chemistry 4211	2
CHEM 4328	Advanced Topics Organic Chem	3
CHEM 4365	Inorganic Chemistry	3
MATH 1312	Calculus II	3
MATH 2313	Calculus III	3
RWS 3359	Technical Writing	3
No Minor-Field of Study		
(Complete 9 hours from the courses below; at least 8 hours must be upper-division)		9
BIOL 3320	Genetics	
BIOL 3351	Toxicology	
CHEM 3131	Lab for Chemistry	
CHEM 3332	Biochem II: Metabol & Bioenerg	
CHEM 4176	Introduction to Research	
CHEM 4335	Biophysical Chemistry	
CHEM 4376	Introduction to Research	
Electives		
Select 6 additional hours, with departmental approval		6
Upper Division Requirement		

Select a total of thirty-seven hours of upper division course work ²

Total Hours **120**

¹ Although the UTEP choice is larger, these choices satisfy the requirements of both the core and the major.

² A total of thirty-seven hours of upper division coursework is required for all Bachelor of Science degrees.

C Course requires a C or better

Concentrations

BS in Chemistry with a Concentration in 7-12 Physical Science

Code	Title	Hours
------	-------	-------

Background Check Required

A complete background check is required of all students who wish to receive teacher certification in the State of Texas. Students will be required to pass a background check before certification will be conferred by the State Board of Educator Certification (SBEC).

Designated Core (All courses require a grade of C or better) ¹

Required Courses:

MATH 1411	Calculus I	4
PHYS 2320 & PHYS 2120	Introductory Mechanics and Laboratory for PHYS 2320	4
PHYS 2321 & PHYS 2121	Introductory Electromagnetism and Laboratory for PHYS 2321	4

University Core Curriculum

Complete the University Core Curriculum requirements. (p. 5) 42

Chemistry Major

Required Courses:

CHEM 1105	Laboratory for CHEM 1305 ^C	1
CHEM 1106	Laboratory for CHEM 1306 ^C	1
CHEM 1305	General Chemistry ^C	3
CHEM 1306	General Chemistry ^C	3
CHEM 2161	Laboratory for CHEM 2261 ^C	1
CHEM 2221	Organic Chemistry I Lab ^C	2
CHEM 2222	Organic Chemistry II Lab	2
CHEM 2361	The Periodic Table	3
CHEM 2321	Organic Chemistry I ^C	3
CHEM 2322	Organic Chemistry II ^C	3
CHEM 3110	Lab for Chemistry 3310	1
CHEM 3151	Lab for Chemistry 3351	1
CHEM 3152	Lab for Chemistry 3352	1
CHEM 3310	Analytical Chemistry	3
CHEM 3351	Physical Chemistry I	3
CHEM 3352	Physical Chemistry II	3
CHEM 4176	Introduction to Research	1
CHEM 4211	Instrumental Meths Analyt Chem	2
CHEM 4212	Lab for Chemistry 4211	2
CHEM 4365	Inorganic Chemistry	3
MATH 1312	Calculus II	3
PHYS 3323	Physical Optics	3
PHYS 4355	Intro Quantum Mechanics	3
MATH 2313	Calculus III	3

Secondary Education Minor

Required Courses:

BED 4317	Tch & Empwr ELLs in Sec Schls	3
EDPC 3300	Intro to Youth Dev & Spec Ed	3
RED 3342	Content Area Literacy	3

SCED 3311	Curriculum Plan-Secondary Schl	3
SCED 4368	Teaching Science in Sec School	3
SCED 4691	Student Teaching in Sec School	6
Upper Division Requirement		
Select a total of thirty-seven hours of upper division course work ²		37
Total Hours		120

¹ Although the UTEP choice is larger, these choices satisfy the requirements of both the core and the major.

² A total of thirty-seven hours of upper division coursework is required for all Bachelor of Science degrees.

C Course requires a C or better.

BS in Chemistry with a Concentration in 7-12 Science

Code	Title	Hours
Background Check Required		
A complete background check is required of all students who wish to receive teacher certification in the State of Texas. Students will be required to pass a background check before certification will be conferred by the State Board of Educator Certification (SBEC).		
Designated Core (All courses require a grade of C or better) ¹		
Required Courses:		
BIOL 1107	Topics in Study of Life I	1
BIOL 1108	Organismal Biology Laboratory	1
BIOL 1305	General Biology	3
BIOL 1306	Organismal Biology	3
MATH 1411	Calculus I	4
University Core Curriculum		
Complete the University Core Curriculum requirements. (p. 5)		42
Chemistry Major		
Required Courses:		
CHEM 1105	Laboratory for CHEM 1305 ^C	1
CHEM 1106	Laboratory for CHEM 1306 ^C	1
CHEM 1305	General Chemistry ^C	3
CHEM 1306	General Chemistry ^C	3
CHEM 2221	Organic Chemistry I Lab	2
CHEM 2222	Organic Chemistry II Lab	2
CHEM 2361	The Periodic Table	3
CHEM 2321	Organic Chemistry I ^C	3
CHEM 2322	Organic Chemistry II ^C	3
CHEM 3110	Lab for Chemistry 3310	1
CHEM 3151	Lab for Chemistry 3351	1
CHEM 3152	Lab for Chemistry 3352	1
CHEM 3310	Analytical Chemistry	3
CHEM 3351	Physical Chemistry I	3
CHEM 3352	Physical Chemistry II	3
CHEM 3330	Biochem I: Struc & Function	3
or CHEM 3332	Biochem II: Metabol & Bioenerg	
CHEM 4176	Introduction to Research	1
GEOL 1211 & GEOL 1111	Principles of Earth Sciences and Principles of Earth Sci - Lab	3
MATH 1312	Calculus II	3
MATH 2313	Calculus III	3
PHYS 2320 & PHYS 2120	Introductory Mechanics and Laboratory for PHYS 2320	4
PHYS 2321 & PHYS 2121	Introductory Electromagnetism and Laboratory for PHYS 2321	4

Secondary Education Minor

Required Courses:

BED 4317	Tch & Empwr ELLs in Sec Schls	3
EDPC 3300	Intro to Youth Dev & Spec Ed	3
RED 3342	Content Area Literacy	3
SCED 3311	Curriculum Plan-Secondary Schl	3
SCED 4368	Teaching Science in Sec School	3
SCED 4691	Student Teaching in Sec School	6

Upper Division RequirementSelect a total of thirty-seven hours of upper division course work ² 37**Total Hours** 120¹ Although the UTEP choice is larger, these choices satisfy the requirements of both the core and the major.² A total of thirty-seven hours of upper division coursework is required for all Bachelor of Science degrees.

C Course requires a C or better

University Core Curriculum

The department may make specific suggestions for courses which are most applicable towards your major.

All courses require a C or better

I. Communication (six hours)

Code	Title	Hours
------	-------	-------

Courses in this category focus on developing ideas and expressing them clearly, considering the effect of the message, fostering understanding, and building the skills needed to communicate persuasively. Courses involve the command of oral, aural, written, and visual literacy skills that enable people to exchange messages appropriate to the subject, occasion, and audience.

Select six hours of the following: 6

For students whose secondary education was in English:

COMM 1611	Written and Oral Communication	
ENGL 1313	Writing About Literature	
RWS 1301	Rhetoric & Composition I	
RWS 1302	Rhetoric & Composition 2	
RWS 1601	Rhetoric, Composition & Comm	

For students whose secondary education was not in English:

ESOL 1311	Expos Engl Compos-Spkr Esl	
ESOL 1312	Res & Crit Writng Spkr Esl	

Total Hours 6**II. American History (six hours)**

Code	Title	Hours
------	-------	-------

Courses in this category focus on the consideration of past events and ideas relative to the United States, with the option of including Texas History for a portion of this component area. Courses involve the interaction among individuals, communities, states, the nation, and the world, considering how these interactions have contributed to the development of the United States and its global role.

HIST 1301	History of U.S. to 1865	3
HIST 1302	History of U.S. Since 1865	3

Total Hours 6**III. Language, Philosophy & Culture (three hours)**

Code	Title	Hours
------	-------	-------

Courses in this category focus on how ideas, values, beliefs, and other aspects of culture express and affect human experience. Courses involve the exploration of ideas that foster aesthetic and intellectual creation in order to understand the human condition across cultures.

Select one of the following: 3

AFST 2300	Intro-African Amer Studies	
CHIC 2302	Latina/o Presence in the U.S.	

ENGL 2311	English Literature
ENGL 2312	English Literature
ENGL 2313	Intro to American Fiction
ENGL 2314	Intro to American Drama
ENGL 2318	Intro to American Poetry
FREN 2322	Making of the "Other" Americas
HIST 2301	World History to 1500
HIST 2302	World History Since 1500
PHIL 1301	Introduction to Philosophy
PHIL 2306	Ethics
RS 1301	Introduct to Religious Studies
SPAN 2340	Seeing & Naming: Conversations
WS 2300	Introduction to Womens Studies
WS 2350	Global Feminisms

Total Hours **3**

IV. Mathematics (three hours)

Code	Title	Hours
------	-------	-------

Courses in this category focus on quantitative literacy in logic, patterns, and relationships. Courses involve the understanding of key mathematical concepts and the application of appropriate quantitative tools to everyday experience.

Select one of the following: 3

MATH 1309	College Algebra
MATH 1310	Trigonometry and Conics
MATH 1319	Math in the Modern World
MATH 1320	Math for Social Sciences I
MATH 1411	Calculus I
MATH 1508	Precalculus ^{1,2}
MATH 2301	Math for Social Sciences II
STAT 1380	Statistical Literacy
STAT 2480	Elementary Statistical Methods

1 A higher-level course in the calculus sequence can be substituted.

2 TCCN MATH 1314 will also satisfy this requirement.

Total Hours **3**

V. Life & Physical Sciences (six hours)

Code	Title	Hours
------	-------	-------

Courses in this category focus on describing, explaining, and predicting natural phenomena using the scientific method. Courses involve the understanding of interactions among natural phenomena and the implications of scientific principles on the physical world and on experiences.

Select one of the following: 1-4

ASTR 1107	Astronomy Lab I
ASTR 1307	Elem Astronomy-Solar System
ASTR 1308	Elem Astr Stars & Galaxies
BIOL 1103	Introductory Biology Lab
BIOL 1104	Human Biology Laboratory
BIOL 1107	Topics in Study of Life I
BIOL 1108	Organismal Biology Laboratory
BIOL 1203	Introductory Biology
BIOL 1304	Human Biology
BIOL 1305	General Biology
BIOL 1306	Organismal Biology
BIOL 2111	Human Anat/Physio Lab I
BIOL 2113	Human Anat/Physio Lab II
BIOL 2311	Human Anat/Physiology I

BIOL 2313	Human Anat/Physiology II
CHEM 1105	Laboratory for CHEM 1305
CHEM 1106	Laboratory for CHEM 1306
CHEM 1107	Intro General Chemistry Lab
CHEM 1108	Intro Organic & Biochem Lab
CHEM 1305	General Chemistry
CHEM 1306	General Chemistry
CHEM 1307	Intro to General Chemistry
CHEM 1308	Intro Organic & Biochemistry
ESCI 1101	Environmental Sci. Lab
ESCI 1102	Non-major Lab for ESCI 1301
ESCI 1202	Intro to Environment Science 2
ESCI 1301	Intro to Environmental Sci
GEOG 1106	Laboratory for GEOG 1306
GEOG 1306	Physical Geography
GEOL 1103	Lab for GEOL 1313
GEOL 1104	Lab for GEOL 1314
GEOL 1111	Principles of Earth Sci - Lab
GEOL 1112	Laboratory for Geology 1212
GEOL 1211	Principles of Earth Sciences
GEOL 1212	Principles of Earth Science
GEOL 1230	The Blue Planet
GEOL 1231	Natural Hazards
GEOL 1313	Intro to Physical Geology
GEOL 1314	Intro to Historical Geol
HSCI 2302	Fundamentals of Nutrition
HSCI 2303	Wellness Dynamics
MICR 2330	Microorganisms and Disease
PHYS 1403	General Physics I
PHYS 1404	General Physics II
PHYS 2120	Laboratory for PHYS 2320
PHYS 2121	Laboratory for PHYS 2321
PHYS 2320	Introductory Mechanics
PHYS 2321	Introductory Electromagnetism

Total Hours **6**

VI. Political Science (six hours)

Code	Title	Hours
------	-------	-------

Courses in this category focus on consideration of the Constitution of the United States and the constitutions of the states, with special emphasis on that of Texas. Courses involve the analysis of governmental institutions, political behavior, civic engagement, and their political and philosophical foundations.

Required Courses:

POLS 2310	Introduction to Politics	3
POLS 2311	American Gover & Politics	3

Total Hours **6**

VII. Social and Behavioral Sciences (three hours)

Code	Title	Hours
------	-------	-------

Courses in this category focus on the application of empirical and scientific methods that contribute to the understanding of what makes us human. Courses involve the exploration of behavior and interactions among individuals, groups, institutions, and events, examining their impact on the individual, society, and culture.

Select one of the following: 3

ANTH 1301	Intro-Phys Anth/Archeolog
-----------	---------------------------

ANTH 1302	Intro-Cultural Anthropology
ANTH 1310	Cultural Geography
ANTH 2320	Intro to Linguistics
CE 2326	Econ for Engrs & Scientists
ASIA 2300	Asian American Studies
COMM 2350	Interpersonal Communication
COMM 2372	Mass Media and Society
ECON 2303	Principles of Macroeconomics
ECON 2304	Principles of Microeconomics
EDPC 1301	Introduction to Ed Psychology
EDU 1342	Action Research in Classrooms
ENGL 2320	Introduction to Linguistics
GEOG 1310	Cultural Geography
LEAD 2300	Community Service
LING 2320	An Intro. to Linguistics
LING 2340	Lang. Inside & Out: Sel Topics
PSYC 1301	Introduction to Psychology
SOCI 1301	Introduction to Sociology
SOCI 1310	Cultural Geography

Total Hours **3**

VIII. Creative Arts (three hours)

Code	Title	Hours
------	-------	-------

Courses in this category focus on the appreciation and analysis of creative artifacts and works of the human imagination. Courses involve the synthesis and interpretation of artistic expression and enable critical, creative, and innovative communication about works of art.

Select one of the following: **3**

ART 1300	Art Appreciation
ARTH 1305	History of Art I
ARTH 1306	History of Art II
CHIC 1311	Chicana/o Fine Arts Appreciat
DANC 1304	Dance Appreciation
FILM 1390	Intro-Art of Motion Pict.
MUSL 1324	Music Appreciation
MUSL 1327	Jazz to Rock
MUSL 2321	Music, Culture, and Society
THEA 1313	Introduction to Theatre

Total Hours **3**

IX. Component Area Option (six hours)

Code	Title	Hours
------	-------	-------

a. A minimum of 3 SCH must meet the definition and corresponding Core Objectives specified in one of the foundational component areas. b. As an option for up to 3 semester credit hours of the Component Area Option, an institution may select course(s) that: (i) Meet(s) the definition specified for one or more of the foundational component areas; and (ii) Include(s) a minimum of three Core Objectives, including Critical Thinking Skills, Communication Skills, and one of the remaining Core Objectives of the institution's choice.

BUSN 1301	Intro to Global Business
COMM 1301	Public Speaking
COMM 1302	Business/Profession Comm
CS 1310	Intro-Computational Thinking
CS 1320	Computer Programming Sci/Engr
EL 1301	Eng Innovation and Leadership
LEAD 1300	Introduction to Leadership
SCI 1301	Inquiry in Math & Science

UNIV 1301

Seminar/Critical Inquiry

Total Hours**0****4-Year Sample Degree Plan****BS Chemistry (Starting with Calculus)**

Code	Title	Hours
BS CHEMISTRY		
FRESHMEN		
Fall		
CHEM 1305 & CHEM 1105	General Chemistry and Laboratory for CHEM 1305	4
MATH 1411	Calculus I	4
RWS 1301	Rhetoric & Composition I	3
SCI 1301	Inquiry in Math & Science	3
Spring		
CHEM 1306 & CHEM 1106	General Chemistry and Laboratory for CHEM 1306	4
COMM 1301	Public Speaking	3
MATH 1312	Calculus II	3
PHIL 2306	Ethics	3
RWS 1302	Rhetoric & Composition 2	3
SOPHOMORE		
Fall		
CHEM 2321 & CHEM 2221	Organic Chemistry I and Organic Chemistry I Lab	5
HIST 1301	History of U.S. to 1865	3
MATH 2313	Calculus III	3
PHYS 2320 & PHYS 2120	Introductory Mechanics and Laboratory for PHYS 2320	4
Spring		
HIST 1302	History of U.S. Since 1865	3
CHEM 2322 & CHEM 2222	Organic Chemistry II and Organic Chemistry II Lab	5
CHEM 2361 & CHEM 2161	The Periodic Table and Laboratory for CHEM 2261	4
PHYS 2321 & PHYS 2121	Introductory Electromagnetism and Laboratory for PHYS 2321	4
JUNIOR		
Fall		
POLS 2310	Introduction to Politics	3
CHEM 3310 & CHEM 3110	Analytical Chemistry and Lab for Chemistry 3310	4
CHEM 3351 & CHEM 3151	Physical Chemistry I and Lab for Chemistry 3351	4
RWS 3359	Technical Writing	3
CHEM 3301	Molecular Modeling & Chem Info	3
Spring		
POLS 2311	American Gover & Politics	3
ART 1300	Art Appreciation	3
PSYC 1301	Introduction to Psychology	3
CHEM 3330	Biochem I:Struc & Function	3
CHEM 3352 & CHEM 3152	Physical Chemistry II and Lab for Chemistry 3352	4

SENIOR**Fall**

CHEM 4365 & CHEM 4165	Inorganic Chemistry and Inorganic Chemistry Lab	4
--------------------------	--	---

CHEM 4328	Advanced Topics Organic Chem	3
-----------	------------------------------	---

Upper-Division Elective		3
-------------------------	--	---

Elective		3
----------	--	---

Spring

CHEM 4211 & CHEM 4212	Instrumental Meths Analyt Chem and Lab for Chemistry 4211	4
--------------------------	--	---

Upper-Division Elective		3
-------------------------	--	---

Upper-Division Elective		3
-------------------------	--	---

Elective		3
----------	--	---

Total Hours		120
--------------------	--	------------

BS Chemistry (Starting with Pre-Calculus)

Code	Title	Hours
------	-------	-------

BS CHEMISTRY**FRESHMEN****Fall**

CHEM 1305 & CHEM 1105	General Chemistry and Laboratory for CHEM 1305	4
--------------------------	---	---

MATH 1508	Precalculus	5
-----------	-------------	---

RWS 1301	Rhetoric & Composition I	3
----------	--------------------------	---

SCI 1301	Inquiry in Math & Science	3
----------	---------------------------	---

Spring

CHEM 1306 & CHEM 1106	General Chemistry and Laboratory for CHEM 1306	4
--------------------------	---	---

COMM 1301	Public Speaking	3
-----------	-----------------	---

MATH 1411	Calculus I	4
-----------	------------	---

PHIL 2306	Ethics	3
-----------	--------	---

RWS 1302	Rhetoric & Composition 2	3
----------	--------------------------	---

SOPHOMORE**Fall**

CHEM 2321 & CHEM 2221	Organic Chemistry I and Organic Chemistry I Lab	5
--------------------------	--	---

HIST 1301	History of U.S. to 1865	3
-----------	-------------------------	---

MATH 1312	Calculus II	3
-----------	-------------	---

PHYS 2320 & PHYS 2120	Introductory Mechanics and Laboratory for PHYS 2320	4
--------------------------	--	---

Spring

CHEM 2361 & CHEM 2161	The Periodic Table and Laboratory for CHEM 2261	4
--------------------------	--	---

CHEM 2322 & CHEM 2222	Organic Chemistry II and Organic Chemistry II Lab	5
--------------------------	--	---

HIST 1302	History of U.S. Since 1865	3
-----------	----------------------------	---

MATH 2313	Calculus III	3
-----------	--------------	---

PHYS 2321 & PHYS 2121	Introductory Electromagnetism and Laboratory for PHYS 2321	4
--------------------------	---	---

JUNIOR**Fall**

POLS 2310	Introduction to Politics	3
-----------	--------------------------	---

CHEM 3310 & CHEM 3110	Analytical Chemistry and Lab for Chemistry 3310	4
--------------------------	--	---

CHEM 3351 & CHEM 3151	Physical Chemistry I and Lab for Chemistry 3351	4
RWS 3359	Technical Writing	3
CHEM 3301	Molecular Modeling & Chem Info	3
Spring		
POLS 2311	American Gover & Politics	3
ART 1300	Art Appreciation	3
PSYC 1301	Introduction to Psychology	3
CHEM 3330	Biochem I:Struc & Function	3
CHEM 3352 & CHEM 3152	Physical Chemistry II and Lab for Chemistry 3352	4
SENIOR		
Fall		
CHEM 4365 & CHEM 4165	Inorganic Chemistry and Inorganic Chemistry Lab	4
CHEM 4328	Advanced Topics Organic Chem	3
Upper-Division Elective		3
Elective		3
Spring		
CHEM 4211 & CHEM 4212	Instrumental Meths Analyt Chem and Lab for Chemistry 4211	4
Upper-Division Elective		3
Upper-Division Elective		3
Elective		3
Total Hours		125

BS Chemistry Secondary Education Minor - Physical Science 7-12 Certification (Starting with Calculus)

Code	Title	Hours
BS CHEMISTRY - SECONDARY EDUCATION MINOR - PHYSICAL SCIENCE 7-12 CERTIFICATION (STARTING WITH CALCULUS)		
FRESHMEN		
Fall		
MATH 1411	Calculus I	4
CHEM 1305 & CHEM 1105	General Chemistry and Laboratory for CHEM 1305	4
RWS 1301	Rhetoric & Composition I	3
SCI 1301	Inquiry in Math & Science	3
Spring		
CHEM 1306 & CHEM 1106	General Chemistry and Laboratory for CHEM 1306	4
COMM 1301	Public Speaking	3
MATH 1312	Calculus II	3
PHIL 2306	Ethics	3
RWS 1302	Rhetoric & Composition 2	3
SOPHOMORE		
Fall		
ART 1300	Art Appreciation	3
CHEM 2321 & CHEM 2221	Organic Chemistry I and Organic Chemistry I Lab	5
HIST 1301	History of U.S. to 1865	3
MATH 2313	Calculus III	3
PHYS 2320 & PHYS 2120	Introductory Mechanics and Laboratory for PHYS 2320	4
Spring		

CHEM 2361 & CHEM 2161	The Periodic Table and Laboratory for CHEM 2261	4
CHEM 2322 & CHEM 2222	Organic Chemistry II and Organic Chemistry II Lab	5
HIST 1302	History of U.S. Since 1865	3
PHYS 2321 & PHYS 2121	Introductory Electromagnetism and Laboratory for PHYS 2321	4
RED 3342	Content Area Literacy	3
JUNIOR		
Fall		
POLS 2310	Introduction to Politics	3
PSYC 1301	Introduction to Psychology	3
CHEM 3310 & CHEM 3110	Analytical Chemistry and Lab for Chemistry 3310	4
CHEM 3351 & CHEM 3151	Physical Chemistry I and Lab for Chemistry 3351	4
EDPC 3300	Intro to Youth Dev & Spec Ed	3
Spring		
POLS 2311	American Gover & Politics	3
CHEM 4211 & CHEM 4212	Instrumental Meths Analyt Chem and Lab for Chemistry 4211	4
CHEM 3352 & CHEM 3152	Physical Chemistry II and Lab for Chemistry 3352	4
SCED 4368	Teaching Science in Sec School	3
PHYS 3323	Physical Optics	3
SENIOR		
Fall		
CHEM 4365	Inorganic Chemistry	3
CHEM 4176	Introduction to Research	1
PHYS 4355	Intro Quantum Mechanics	3
SCED 3311	Curriculum Plan-Secondary Schl	3
BED 4317	Tch & Empwr ELLs in Sec Schls	3
Spring		
SCED 4691	Student Teaching in Sec School	6
Total Hours		120

BS Chemistry Secondary Education Minor - Physical Science 7-12 Certification (Starting with Pre-Calculus)

Code	Title	Hours
BS CHEMISTRY - SECONDARY EDUCATION MINOR - PHYSICAL SCIENCE 7-12 CERTIFICATION (STARTING WITH PRE-CALCULUS)		
FRESHMEN		
Fall		
CHEM 1305 & CHEM 1105	General Chemistry and Laboratory for CHEM 1305	4
MATH 1508	Precalculus	5
RWS 1301	Rhetoric & Composition I	3
SCI 1301	Inquiry in Math & Science	3
Spring		
CHEM 1306 & CHEM 1106	General Chemistry and Laboratory for CHEM 1306	4
COMM 1301	Public Speaking	3
MATH 1411	Calculus I	4
PHIL 2306	Ethics	3
RWS 1302	Rhetoric & Composition 2	3

SOPHOMORE**Fall**

ART 1300	Art Appreciation	3
CHEM 2321 & CHEM 2221	Organic Chemistry I and Organic Chemistry I Lab	5
HIST 1301	History of U.S. to 1865	3
MATH 1312	Calculus II	3
PHYS 2320 & PHYS 2120	Introductory Mechanics and Laboratory for PHYS 2320	4

Spring

HIST 1302	History of U.S. Since 1865	3
CHEM 2322 & CHEM 2222	Organic Chemistry II and Organic Chemistry II Lab	5
CHEM 2361 & CHEM 2161	The Periodic Table and Laboratory for CHEM 2261	4
MATH 2313	Calculus III	3
PHYS 2321 & PHYS 2121	Introductory Electromagnetism and Laboratory for PHYS 2321	4

JUNIOR**Fall**

POLS 2310	Introduction to Politics	3
PSYC 1301	Introduction to Psychology	3
CHEM 3310 & CHEM 3110	Analytical Chemistry and Lab for Chemistry 3310	4
CHEM 3351 & CHEM 3151	Physical Chemistry I and Lab for Chemistry 3351	4
RED 3342	Content Area Literacy	3

Spring

POLS 2311	American Gover & Politics	3
CHEM 4211 & CHEM 4212	Instrumental Meths Analyt Chem and Lab for Chemistry 4211	4
CHEM 3352 & CHEM 3152	Physical Chemistry II and Lab for Chemistry 3352	4
PHYS 3323	Physical Optics	3
EDPC 3300	Intro to Youth Dev & Spec Ed	3

SENIOR**Fall**

CHEM 4365	Inorganic Chemistry	3
CHEM 4176	Introduction to Research	1
PHYS 4355	Intro Quantum Mechanics	3
SCED 3311	Curriculum Plan-Secondary Schl	3
BED 4317	Tch & Empwr ELLs in Sec Schls	3
SCED 4368	Teaching Science in Sec School	3

Spring

SCED 4691	Student Teaching in Sec School	6
-----------	--------------------------------	---

Total Hours**125****BS Chemistry Secondary Education Minor - Science 7-12 Certification (Starting with Calculus)**

Code	Title	Hours
------	-------	-------

BS CHEMISTRY - SECONDARY EDUCATION MINOR - SCIENCE 7-12 CERTIFICATION (STARTING WITH CALCULUS)**FRESHMEN****Fall**

CHEM 1305 & CHEM 1105	General Chemistry and Laboratory for CHEM 1305	4
--------------------------	---	---

MATH 1411	Calculus I	4
RWS 1301	Rhetoric & Composition I	3
SCI 1301	Inquiry in Math & Science	3
Spring		
CHEM 1306 & CHEM 1106	General Chemistry and Laboratory for CHEM 1306	4
COMM 1301	Public Speaking	3
MATH 1312	Calculus II	3
PHIL 2306	Ethics	3
RWS 1302	Rhetoric & Composition 2	3
SOPHOMORE		
Fall		
CHEM 2321 & CHEM 2221	Organic Chemistry I and Organic Chemistry I Lab	5
HIST 1301	History of U.S. to 1865	3
MATH 2313	Calculus III	3
PHYS 2320 & PHYS 2120	Introductory Mechanics and Laboratory for PHYS 2320	4
Spring		
CHEM 2322 & CHEM 2222	Organic Chemistry II and Organic Chemistry II Lab	5
CHEM 2361	The Periodic Table	3
HIST 1302	History of U.S. Since 1865	3
PHYS 2321 & PHYS 2121	Introductory Electromagnetism and Laboratory for PHYS 2321	4
JUNIOR		
Fall		
CHEM 3310 & CHEM 3110	Analytical Chemistry and Lab for Chemistry 3310	4
CHEM 3351 & CHEM 3151	Physical Chemistry I and Lab for Chemistry 3351	4
BIOL 1305 & BIOL 1107	General Biology and Topics in Study of Life I	4
POLS 2310	Introduction to Politics	3
RED 3342	Content Area Literacy	3
Spring		
ART 1300	Art Appreciation	3
BIOL 1306 & BIOL 1108	Organismal Biology and Organismal Biology Laboratory	4
CHEM 3330	Biochem I:Struc & Function	3
CHEM 3352 & CHEM 3152	Physical Chemistry II and Lab for Chemistry 3352	4
POLS 2311	American Gover & Politics	3
SENIOR		
Fall		
CHEM 4176	Introduction to Research	1
EDPC 3300	Intro to Youth Dev & Spec Ed	3
GEOL 1211 & GEOL 1111	Principles of Earth Sciences and Principles of Earth Sci - Lab	3
SCED 3311	Curriculum Plan-Secondary Schl	3
SCED 3317	Multicultural Ed in Sec School	3
SCED 4368	Teaching Science in Sec School	3
PSYC 1301	Introduction to Psychology	3
Spring		

SCED 4691	Student Teaching in Sec School	6
Total Hours		120

BS Chemistry Secondary Education Minor - Science 7-12 Certification (Starting with Pre-Calculus)

Code	Title	Hours
BS CHEMISTRY - SECONDARY EDUCATION MINOR - SCIENCE 7-12 CERTIFICATION (STARTING WITH PRE-CALCULUS)		
FRESHMEN		
Fall		
RWS 1301	Rhetoric & Composition I	3
CHEM 1305 & CHEM 1105	General Chemistry and Laboratory for CHEM 1305	4
SCI 1301	Inquiry in Math & Science	3
MATH 1508	Precalculus	5
Spring		
RWS 1302	Rhetoric & Composition 2	3
COMM 1301	Public Speaking	3
CHEM 1306 & CHEM 1106	General Chemistry and Laboratory for CHEM 1306	4
PHIL 2306	Ethics	3
MATH 1411	Calculus I	4
SOPHOMORE		
Fall		
HIST 1301	History of U.S. to 1865	3
ART 1300	Art Appreciation	3
CHEM 2321 & CHEM 2221	Organic Chemistry I and Organic Chemistry I Lab	5
PHYS 2320 & PHYS 2120	Introductory Mechanics and Laboratory for PHYS 2320	4
MATH 1312	Calculus II	3
Spring		
HIST 1302	History of U.S. Since 1865	3
CHEM 2322 & CHEM 2222	Organic Chemistry II and Organic Chemistry II Lab	5
CHEM 2361	The Periodic Table	3
MATH 2313	Calculus III	3
PHYS 2321 & PHYS 2121	Introductory Electromagnetism and Laboratory for PHYS 2321	4
JUNIOR		
Fall		
POLS 2310	Introduction to Politics	3
PSYC 1301	Introduction to Psychology	3
CHEM 3310 & CHEM 3110	Analytical Chemistry and Lab for Chemistry 3310	4
CHEM 3351 & CHEM 3151	Physical Chemistry I and Lab for Chemistry 3351	4
BIOL 1305 & BIOL 1107	General Biology and Topics in Study of Life I	4
Spring		
POLS 2311	American Gover & Politics	3
CHEM 3330	Biochem I:Struc & Function	3
CHEM 3352 & CHEM 3152	Physical Chemistry II and Lab for Chemistry 3352	4
BIOL 1306 & BIOL 1108	Organismal Biology and Organismal Biology Laboratory	4

CHEM 4176	Introduction to Research	1
RED 3342	Content Area Literacy	3
SENIOR		
Fall		
GEOL 1211 & GEOL 1111	Principles of Earth Sciences and Principles of Earth Sci - Lab	3
EDPC 3300	Intro to Youth Dev & Spec Ed	3
SCED 3311	Curriculum Plan-Secondary Schl	3
BED 4317	Tch & Empwr ELLs in Sec Schls	3
SCED 4368	Teaching Science in Sec School	3
Spring		
SCED 4691	Student Teaching in Sec School	6
Total Hours		125