

## DEPARTMENT OF CHEMISTRY

Through the Department of Chemistry, courses (CHEM) are offered at the undergraduate level for students pursuing the **Bachelor of Science Degree (B.S.) in Chemistry**, for students majoring in other disciplines wishing to pursue a minor in Chemistry, and for students in other academic areas requiring some preparation in Chemistry. Although only one undergraduate degree (the Bachelor of Science in Chemistry) is offered, two tracks leading to this degree are possible for majors: (1) an American Chemical Society (or ACS) approved track and (2) a pre-medical and a pre-dental track. **Both tracks are composite programs of study, and neither track requires the declaration of an official minor in another academic discipline.** The ACS approved track is designed to prepare students for professional careers as chemists and to ensure their preparation for graduate study. Members of the Department are housed on the fourth floor of the New Science Center with the Department Office located in Room 403.

**At the graduate level, one degree is offered: the Master of Science in Chemistry. The admission criteria, requirements, and graduate courses associated with this degree are described in the Graduate School Bulletin of Texas Southern University.**

Overall, the Department of Chemistry seeks to fulfill two primary missions: (1) to prepare students for professional careers in Chemistry and, eventually, graduate study and (2) to give students, who are majoring in related fields, an understanding of fundamental principles and experimental techniques that will permit them to be successful in their chosen majors. Specific requirements for the B.S. in Chemistry, as well as the minor in Chemistry, are described below.

**For a minor in Chemistry, twenty-one (21) semester credit hours are required** through enrollment in the following courses: CHEM 111, CHEM 112, CHEM 131, CHEM 132, CHEM 211, CHEM 212, CHEM 231, CHEM 232, CHEM 322, and CHEM 332. **Students are required to earn grades of “C” or better, where grades of “C-” are unacceptable, in all of these courses.**

Students wishing to pursue either the B.S. in Chemistry or an undergraduate minor in Chemistry must first gain admission to the University, must satisfy ASSET requirements and eradicate identified deficiencies through the General University Academic Center (GUAC), and must contact the Department Office regarding the declaration of a major or minor as ASSET requirements are fulfilled. Although the Department has no specific criteria for accepting students as majors, it does have criteria for continuance once the major in Chemistry is declared. In order to remain as a candidate in good standing for the Bachelor of Science in Chemistry, a student must have an overall GPA of at least 2.50 with respect to courses taken in the following academic disciplines: Chemistry, Mathematics, and Physics. Students whose overall averages in these academic disciplines fall below 2.50 for two consecutive semesters and students who fail individual courses in these targeted areas more than once will be required to seek another major. **All required Chemistry (CHEM) courses must be completed with grades of “C” or better, where grades of “C-” are unacceptable, to qualify for graduation.** Completion of an exit examination, administered through the Department, is also required of all graduating seniors.

Each major in the Department is assigned a faculty advisor, and this advisor must approve the schedule of courses for assigned students each semester. Majors are expected to keep the Department Office informed of their current local addresses and telephone numbers up to the time of graduation. By the start of the first semester of their senior year, majors should have their transcripts evaluated by the Faculty Chair to ascertain graduation status and to assure themselves that they should be eligible for degree conferral at the end of the senior year.

**In summary, interested students must first gain admission to the University, must fulfill ASSET requirements, and must contact the Department Office with regard to the declaration of a major and/or minor and graduation requirements. An exit examination is required of graduating seniors. For further information, the Department Office should be contacted at (713)-313-7003.**

LISTING OF FACULTY IN THE DEPARTMENT

<p><b>Blunt, Victor M.</b>  <b>Assistant Professor</b>                      B.S. University of the West Indies                      Ph.D. Baylor University</p>	<p><b>Phan, Tuan D.</b>  <b>Assistant Professor</b>                      B.S. Houston Baptist University                      Ph.D. University of Houston</p>
<p><b>Clement, Jade Q.</b>  <b>Associate Professor</b>                      M.D., Shandong Medical University                      M.S., Chinese Academy of Preventive Medicine                      Ph.D., University of Texas at Houston</p>	<p><b>Saleh, Mahmoud</b>  <b>Professor</b>                      B.S., M.S., University of Cairo                      Ph.D., University of California at Davis</p>
<p><b>Deng, Yuanjian</b>  <b>Professor</b>                      B.S., Wuhan University                      M.S., Chinese Academy of Sciences                      Ph.D., University of Houston</p>	<p><b>Sapp, John B.</b>  <b>Professor</b>                      B.S., M.S., Texas Southern University                      Ph.D., University of Houston</p>
<p><b>Fennell, Pearlie</b>  <b>Professor</b>                      B.S., Huston-Tillotson College                      M.S., Texas Southern University                      Ph.D., University of Texas at Houston</p>	<p><b>Wei, Xin</b>  <b>Assistant Professor</b>                      B.S., Nanjing University                      Ph.D. Nanjing University</p>
<p><b>Ford, Robert L.</b>  <b>Professor</b>                      B.S., Southern University                      Ph.D., Purdue University</p>	<p><b>Wilson, Bobby L.</b>  <b>Professor</b>                      B.S., Alabama State University                      M.S., Southern University                      Ph.D., Michigan State University</p>

## CHEMISTRY COURSES

- CHEM 111**                    **General Chemistry Laboratory I**                    (1)  
Introduction to the methods and techniques of chemical experimentation. Three hours of laboratory per week. Prerequisite: Credit for or concurrent enrollment in CHEM 131. **Listed as CHEM 1111 in the Texas Common Course Numbering System.**
- CHEM 112**                    **General Chemistry Laboratory II**                    (1)  
Continuation of CHEM 111. Three hours of laboratory per week. Prerequisites: CHEM 111 and credit for or concurrent enrollment in CHEM 132. **Listed as CHEM 1112 in the Texas Common Course Numbering System.**
- CHEM 131**                    **General Chemistry I**                    (3)  
Introduction to modern theories of atomic structure, periodic trends, chemical bonding, molecular geometry, chemical reactions, including oxidation-reduction and stoichiometric calculations. Three hours of lecture per week. Corequisite: MATH 133. **Listed as CHEM 1311 in the Texas Common Course Numbering System.**
- CHEM 132**                    **General Chemistry II**                    (3)  
Study of the states of matter, solution chemistry, concepts associated with rates of reaction, homogeneous and heterogeneous equilibria, acid-base chemistry, and fundamental thermodynamics. Three hours of lecture per week. Prerequisites: CHEM 131 and MATH 133. **Listed as CHEM 1312 in the Texas Common Course Numbering System.**
- CHEM 143**                    **Inorganic Chemistry**                    (4)  
Course for pre-nursing, human services/consumer sciences, and technology majors. Important topics: atomic structure, periodic classification of the elements, acid-base theory, oxidation, and reduction. Three hours of lecture and two hours of laboratory per week.
- CHEM 144**                    **Organic Chemistry**                    (4)  
Survey course for pre-nursing and human services/consumer sciences majors. Study of the structure, physical properties, and reactions of alcohols, aldehydes, ketones, esters, amides, and amines. Three hours of lecture and two hours of laboratory per week. Prerequisite: CHEM 143 or CHEM 131.
- CHEM 211**                    **Organic Chemistry Laboratory I**                    (1)  
Introduction to the techniques involved in the separation, purification, isolation, and characterization of typical organic compounds. An introduction to organic synthesis. Three hours of laboratory per week. Prerequisites: CHEM 111, CHEM 112, and credit for or concurrent enrollment in CHEM 231. **Listed as CHEM 2123 in the Texas Common Course Numbering System.**
- CHEM 212**                    **Organic Chemistry Laboratory II**                    (1)  
Multistep synthesis and introduction to the interpretation of infrared and nuclear magnetic resonance spectra. Three hours of laboratory per week. Prerequisites: CHEM 211 and credit for or concurrent enrollment in CHEM 232. **Listed as CHEM 2125 in the Texas Common Course Numbering System.**
- CHEM 231**                    **Organic Chemistry I**                    (3)  
Course for science majors dealing with the fundamentals of structure (including stereochemistry), nomenclature, physical properties, and chemical reactions of aliphatic and aromatic hydrocarbons and their derivatives. Three hours of lecture per week. Prerequisite: CHEM 132. **Listed as CHEM 2323 in the Texas Common Course Numbering System.**

<b>CHEM 232</b>	<b>Organic Chemistry II</b> Continuation of CHEM 231. Study of the structure (including stereochemistry), nomenclature, physical properties, and chemical reactions for alcohols, aldehydes, ketones, carboxylic acids and their derivatives, phenols and amines. Three hours of lecture per week. Prerequisite: CHEM 231. <b>Listed as CHEM 2325 in the Texas Common Course Numbering System.</b>	<b>(3)</b>
<b>CHEM 322</b>	<b>Quantitative Analysis Laboratory</b> Practical application of theory dealing with volumetric and gravimetric analysis. Four hours of laboratory per week. Prerequisites: CHEM 111, CHEM 112, and credit for or concurrent enrollment in CHEM 332.	<b>(2)</b>
<b>CHEM 332</b>	<b>Quantitative Analysis</b> Study of reactions in solution, homogeneous and heterogeneous equilibrium concepts, and acid-base theory and the application of these concepts to volumetric and gravimetric analysis. Three hours of lecture per week. Prerequisite: CHEM 132.	<b>(3)</b>
<b>CHEM 343</b>	<b>Biochemistry</b> Course for human services/consumer sciences majors. Study of the chemistry of carbohydrates, proteins, lipids, digestion, and metabolism. Three hours of lecture and three hours of laboratory per week. Prerequisite: CHEM 144 or CHEM 231.	<b>(4)</b>
<b>CHEM 411</b>	<b>Physical Chemistry Laboratory I</b> Course involving application of the theory of physical chemistry to experimental procedures. An introduction of the use of computers to solve chemistry problems and to write laboratory reports. Three hours of laboratory per week. Prerequisites: CS 116, CHEM 322, and credit for or concurrent enrollment in CS 117, CHEM 431, and MATH 241.	<b>(1)</b>
<b>CHEM 412</b>	<b>Physical Chemistry Laboratory II</b> Continuation of CHEM 411. Three hours of laboratory per week. Prerequisites: CS 117, CHEM 411, and credit for or concurrent enrollment in CHEM 432.	<b>(1)</b>
<b>CHEM 431</b>	<b>Physical Chemistry I</b> Study of important theory associated with states of matter, changes of state, chemical equilibria, thermochemistry, and thermodynamics. An introduction to vibration and rotational spectra. Three hours of lecture per week. Prerequisites: CHEM 232, CHEM 332, PHYS 238, and previous credit for or concurrent enrollment in MATH 241.	<b>(3)</b>
<b>CHEM 432</b>	<b>Physical Chemistry II</b> Continuation of CHEM 431. Three hours of lecture per week. Prerequisites: CHEM 431 and previous credit for or concurrent enrollment in MATH 242.	<b>(3)</b>
<b>CHEM 445</b>	<b>Biochemistry</b> Structure, physical properties, and chemical reactions of lipids, proteins, enzymes, and vitamins. An in-depth study of the processes of digestion and metabolism. Two hours of lecture and four hours of laboratory per week. Prerequisites: CHEM 212 and CHEM 232.	<b>(4)</b>
<b>CHEM 450</b>	<b>Inorganic Chemistry I</b> Upper-level course covering an in-depth study of inorganic compounds, including coordination theory, molecular-orbital theory, and ligand-field theory. Three hours of lecture per week. Prerequisites: MATH 242 and credit for or concurrent enrollment in CHEM 431 or consent of the Faculty Chair.	<b>(3)</b>



Bachelor of Science Degree in Chemistry  
 American Chemical Society (ACS) Approved  
 Degree Plan - Total Credits: 122

First Year			
First Semester		Second Semester	
CHEM 111 General Chemistry I Lab	1	CHEM 112 General Chemistry II Lab	1
CHEM 131 General Chemistry I Lec	3	CHEM 132 General Chemistry II Lec	3
MATH 241 Calculus & Analytic Geometry I	4	MATH 242 Calculus & Analytic Geometry. II	4
ENG 131 Freshman English I	3	ENG 132 Freshman English II	3
BIOL 131 Biological Science I Lec	3	BIOL 132 Biological Science II Lec	3
BIOL 111 Biological Science I Lab	1	BIOL 112 Biological Science II Lab	1
	15 hrs		15 hrs

Second Year			
Third Semester		Fourth Semester	
CHEM 211 Organic Chemistry I Lab	1	CHEM 212 Organic Chemistry II lab	1
CHEM 231 Organic Chemistry I Lec	3	CHEM 232 Organic Chemistry II Lec	3
MATH 243 Calculus & Analytic Geometry III	4	MATH 251 Differential Equations	3
ENG 2xx Upper level English	3	CS 117 Computer Science II Lec	3
CS 116 Computer Science I Lec	3	HIST 232 Social & Political History of the United States since 1877	3
HIST 231 Social & Political History of the United States to 1877	3	PHYS 152 University Physics I	3
		PHYS 116 University Physics Lab I	1
	17 hrs		17 hrs

Third Year			
Fifth Semester		Sixth Semester	
CHEM 322 Quantitative Analysis Lab	2	CHEM 445 Biochemistry	4
CHEM 332 Quantitative Analysis Lec	3	POLS 232 American Political Systems II	3
POLS 231 American Political Systems I	3	PHYS 252 University Physics III	3
PHYS 251 University Physics II	3	PHYS 218 University Physics III	1
PHYS 217 University Physics II	1	CHEM 499 Seminar	1
MUSI 131 or ART 131	3	PSY 131 or SOC 157	3
Intro to Music or Drawing and Comp. I		Intro to Psychology or Sociology	
	15 hrs		15 hrs

Fourth Year			
Seventh Semester		Eighth Semester	
CHEM 411 Physical Chemistry I Lab	1	CHEM 412 Physical Chemistry II Lab	1
CHEM 431 Physical Chemistry I Lec	3	CHEM 432 Physical Chemistry II Lec	3
CHEM 450 Inorganic Chemistry I	3	CHEM 451 Inorganic Chemistry II	3
CHEM 454 Research	3	CHEM 453 Instrumental Analysis	3
SC 135 or 136 Business & Professional Communication or Public Address	3	CHEM 4xx	3
		Elective	2
	13 hrs		15 hrs

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First Year			
First Semester		Second Semester	
CHEM 111 General Chemistry I Lab	1	CHEM 112 General Chemistry II Lab	1
CHEM 131 General Chemistry I Lec	3	CHEM 132 General Chemistry II Lec	3
MATH 241 Calculus & Analytic Geometry I	4	MATH 242 Calculus & Analytic Geometry. II	4
BIOL 131 Biological Science I Lec	3	BIOL 132 Biological Science II Lec	3
BIOL 111 Biological Science I Lab	1	BIOL 112 Biological Science II Lab	1
	12 hrs		12 hrs

Second Year			
Third Semester		Fourth Semester	
CHEM 211 Organic Chemistry I Lab	1	CHEM 212 Organic Chemistry II lab	1
CHEM 231 Organic Chemistry I Lec	3	CHEM 232 Organic Chemistry II Lec	3
MATH 243 Calculus & Analytic Geometry III	4	MATH 251 Differential Equations	3
ENG 131 Freshman English I	3	ENG 132 Freshman English II	3
CS 116 Computer Science I Lec	3	MUSI 131 or ART 131 Intro to Music or Drawing and Comp. I	3
		PHYS 152 University Physics I	3
		PHYS 116 University Physics Lab I	1
	14 hrs		17 hrs

Third Year			
Fifth Semester		Sixth Semester	
CHEM 322 Quantitative Analysis Lab	2	CHEM 445 Biochemistry	4
CHEM 332 Quantitative Analysis Lec	3	POLS 231 American Political Systems I	3
ENG 2xx Upper Level English	3	CS 117 Computer Science II Lec	3
HIST 231 Social & Political History of the United States to 1877	3	HIST 232 Social & Political History of the United States to 1877	3
CHEM 499 Seminar	1		
	12 hrs		13 hrs

Fourth year			
Seventh Semester		Eighth Semester	
POLS 232 American Political Systems II	3	PHYS 252 University Physics III	3
PHYS 251 University Physics II	3	PHYS 218 University Physics Lab III	1
PHYS 217 University Physics Lab II	1	CHEM 454 Research	3
PSY 131 or SOC 157 Intro to Psychology or Sociology	3	CHEM 4xx	3
	10 hrs		10 hrs

Fifth Year			
Ninth Semester		Tenth Semester	
CHEM 411 Physical Chemistry I Lab	1	CHEM 412 Physical Chemistry II Lab	1
CHEM 431 Physical Chemistry I Lec	3	CHEM 432 Physical Chemistry II Lec	3
CHEM 450 Inorganic Chemistry I	3	CHEM 451 Inorganic Chemistry II	3
SC 135 or 136 Business & Professional Communication or Public Address	3	CHEM 453 Instrumental Analysis	3
		Elective	2
	10 hrs		12 hrs

Bachelor of Science Degree in Chemistry  
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First year			
First Semester		Second Semester	
CHEM 111 General Chemistry I Lab	1	CHEM 112 General Chemistry II Lab	1
CHEM 131 General Chemistry I Lec	3	CHEM 132 General Chemistry II Lec	3
MATH 241 Calculus & Analytic Geometry I	4	MATH 242 Calculus & Analytic Geometry. II	4
ENG 131 Freshman English I	3	ENG 132 Freshman English II	3
	11 hrs		11 hrs
Second Year			
Third Semester		Fourth Semester	
BIOL 111 Biological Science I Lab	1	BIOL 112 Biological Science II Lab	1
BIOL 131 Biological Science I Lec	3	BIOL 132 Biological Science II Lec	3
MATH 243 Calculus & Analytic Geometry III	4	MATH 251 Differential Equations	3
ENG 2xx Upper level English	3	CS 116 Computer Science I Lec	3
		PHYS 152 University Physics I	3
		PHYS 116 University Physics Lab I	1
	11 hrs		14 hrs
Third Year			
Fifth Semester		Sixth Semester	
CHEM 211 Organic Chemistry I Lab	1	CHEM 212 Organic Chemistry II lab	1
CHEM 231 Organic Chemistry I Lec	3	CHEM 232 Organic Chemistry II Lec	3
MUSI 131 or ART 131	3	CS 117 Computer Science II Lec	3
Intro to Music or Drawing and Comp. I			
HIST 231 Social & Political History of the United States to 1877	3	HIST 232 Social & Political History of the United States since 1877	3
	10 hrs		10 hrs
Fourth Year			
Seventh Semester		Eighth Semester	
CHEM 322 Quantitative Analysis Lab	2	CHEM 4xx	3
CHEM 332 Quantitative Analysis Lec	3	CHEM 445 Biochemistry	4
CHEM 499 Seminar	1	POLS 231 American Political Systems I	3
PSY 131 or SOC 157	3		
Intro to Psychology or Sociology			
	9 hrs		10 hrs
Fifth Year			
Ninth Semester		Tenth Semester	
PHYS 251 University Physics II	3	PHYS 252 University Physics III	3
PHYS 217 University Physics Lab II	1	PHYS 218 University Physics Lab III	1
POLS 232 American Political Systems II	3	SC 135 or 136 Business & Professional Communication or Public Address	3
	7 hrs		7 hrs
Sixth Year			
Eleventh Semester		Twelfth Semester	
CHEM 454 Research	3	CHEM 453 Instrumental Analysis	3
CHEM 411 Physical Chemistry I Lab	1	CHEM 412 Physical Chemistry II Lab	1
CHEM 431 Physical Chemistry I Lec	3	CHEM 432 Physical Chemistry II Lec	3
CHEM 450 Inorganic Chemistry I	3	CHEM 451 Inorganic Chemistry II	3
		Elective	2
	10 hrs		12 hrs

Bachelor of Science Degree in Chemistry  
Pre-Medical and Pre-Dental Track  
Four Year Degree Plan – Total Credits: 120

First Year			
First Semester		Second Semester	
CHEM 111 General Chemistry I Lab	1	CHEM 112 General Chemistry II Lab	1
CHEM 131 General Chemistry I Lec	3	CHEM 132 General Chemistry II Lec	3
MATH 133 College Algebra	3	MATH 134 Plane Trigonometry	3
BIOL 111 Biological Science I Lab	1	BIOL 112 Biological Science II Lab	1
BIOL 131 Biological Science I Lec	3	BIOL 132 Biological Science II Lec	3
ENG 131 Freshman English I	3	ENG 132 Freshman English II	3
	14 hrs		14 hrs

Second Year			
Third Semester		Fourth Semester	
CHEM 211 Organic Chemistry I Lab	1	CHEM 212 Organic Chemistry II Lab	1
CHEM 231 Organic Chemistry I Lec	3	CHEM 232 Organic Chemistry II Lec	3
MATH 241 Calculus & Analytic Geometry I	4	MATH 242 Calculus & Analytic Geometry II	4
HIST 231 Social & Political History of the United States to 1877	3	HIST 232 Social & Political History of the United States since 1877	3
CS 116 Introduction to Computer Science I	3	CS 117 Introduction to Computer Science II	3
ENG 2xx	3	MUSI 131 or Art 131	3
		Introduction to Music or Drawing & Composition I	
	17 hrs		17 hrs

Third Year			
Fifth Semester		Sixth Semester	
CHEM 322 Quantitative Analysis Lab	2	CHEM 445 Biochemistry	4
CHEM 332 Quantitative Analysis Lec	3	POLS 232 American Political Systems II	3
POLS 231 American Political Systems I	3	PHYS 238 College Physics II	3
PHYS 213 College Physics Lab I	1	PHYS 214 College Physics Lab II	1
PHYS 237 College Physics I	3	BIOL 231 Cell Biology	3
PSY 131 or SOC 157 Gen. Psy or Intro Soc	3	CHEM 499 Seminar	1
CHEM 499 Seminar	1		
	16 hrs		15 hrs

Fourth Year			
Seventh Semester		Eighth Semester	
CHEM 411 Physical Chemistry I Lab	1	CHEM 412 Physical Chemistry II Lab	1
CHEM 431 Physical Chemistry I Lec	3	CHEM 432 Physical Chemistry II Lec	3
CHEM 450 Inorganic Chemistry I	3	CHEM 451 Inorganic Chemistry II	3
SC 135 or 136 Business & Professional Communication or Public Address	3	CHEM 453 Instrumental Analysis	3
BIOL 460 Biostatistics	3	BIOL 245 Human Anatomy & Physiology	4
	13 hrs		14 hrs

Bachelor of Science Degree in Chemistry  
Pre-Medical and Pre-Dental Track  
Five Year Degree Plan – Total Credits: 120

First Year			
First Semester		Second Semester	
CHEM 111 General Chemistry I Lab	1	CHEM 112 General Chemistry II Lab	1
CHEM 131 General Chemistry I Lec	3	CHEM 132 General Chemistry II Lec	3
MATH 133 College Algebra	3	MATH 134 Plane Trigonometry	3
BIOL 111 Biological Science I Lab	1	BIOL 112 Biological Science II Lab	1
BIOL 131 Biological Science I Lec	3	BIOL 132 Biological Science II Lec	3
ENG 131 Freshman English I	3	ENG 132 Freshman English II	3
	14 hrs		14 hrs

Second Year			
Third Semester		Fourth Semester	
CHEM 211 Organic Chemistry I Lab	1	CHEM 212 Organic Chemistry II Lab	1
CHEM 231 Organic Chemistry I Lec	3	CHEM 232 Organic Chemistry II Lec	3
MATH 241 Calculus & Analytic Geometry I	4	MATH 242 Calculus & Analytic Geometry II	4
ENG 2xx	3	CS 116 Introduction to Computer Science I	3
	11 hrs		11 hrs

Third Year			
Fifth Semester		Sixth Semester	
CHEM 322 Quantitative Analysis Lab	2	CHEM 445 Biochemistry	4
CHEM 332 Quantitative Analysis Lec	3	POLS 232 American Political Systems II	3
CS 117 Computer Science II Lec	3	BIOL 231 Cell Biology	3
CHEM 499 Seminar	1	CHEM 499 Seminar	1
POLS 231 American Political Systems I	3		
	12 hrs		11 hrs

Fourth Year			
Seventh Semester		Eighth Semester	
HIST 231 Social & Political History of the United States to 1877	3	HIST 232 Social & Political History of the United States since 1877	3
PHYS 213 College Physics Lab I	1	PHYS 214 College Physics Lab II	1
PHYS 237 College Physics I	3	PHYS 238 College Physics II	3
SC 135 or 136 Business & Professional Communication or Public Address	3	BIOL 460 Biostatistics	3
PSY 131 or SOC 157 Gen. Psy or Intro Soc	3	BIOL 245 Human Anatomy & Physiology	4
	13 hrs		14 hrs

Fifth Year			
Ninth Semester		Tenth Semester	
CHEM 411 Physical Chemistry I Lab	1	CHEM 412 Physical Chemistry II Lab	1
CHEM 431 Physical Chemistry I Lec	3	CHEM 432 Physical Chemistry II Lec	3
CHEM 450 Inorganic Chemistry I	3	CHEM 451 Inorganic Chemistry II	3
MUSI 131 OR Art 131 Introduction to Music or Drawing & Composition I	3	CHEM 453 Instrumental Analysis	3
	10 hrs		10 hrs

Bachelor of Science Degree in Chemistry  
Pre-Medical and Pre-Dental Track  
Six Year Degree Plan – Total Credits: 120

First Year			
First Semester	Second	Semester	
CHEM 111 General Chemistry I Lab	1	CHEM 112 General Chemistry II Lab	1
CHEM 131 General Chemistry I Lec	3	CHEM 132 General Chemistry II Lec	3
MATH 133 College Algebra	3	MATH 134 Plane Trigonometry	3
ENG 131 Freshman English I	3	ENG 132 Freshman English II	3
	10 hrs		10 hrs

Second Year			
Third Semester	Fourth	Semester	
BIOL 131 Biological Science Lec	3	BIOL 132 Biological Science II Lec	3
BIOL 111 Biological Science I Lab	1	BIOL 112 Biological Science II Lab	1
MATH 241 Calculus & Analytic Geometry I	4	MATH 242 Calculus & Analytic Geometry II	4
ENG 2xx	3	CS 116 Introduction to Computer Science I	3
	11 hrs		11 hrs

Third Year			
Fifth Semester	Sixth	Semester	
CHEM 211 Organic Chemistry I Lab	1	CHEM 212 Organic Chemistry II Lab	1
CHEM 231 Organic Chemistry I Lec	3	CHEM 232 Organic Chemistry II Lec.	3
CS 117 Computer Science II Lec	3	HIST 232 Social & Political History of the United States since 1877	3
HIST 231 Social & Political History of the United States to 1877	3	MUSI 131 or ART 131 Intro to Music or Drawing and Comp I	3
	10 hrs		10 hrs

Fourth Year			
Seventh Semester	Eighth	Semester	
CHEM 499 Seminar	1	CHEM 445 Biochemistry	4
CHEM 322 Quantitative Analysis Lab	2	POLS 232 American Political Systems II	3
CHEM 332 Quantitative Analysis Lec	3	BIOL 231 Cell Biology	3
POLS 231 American Political Systems I	3	CHEM 499 Seminar	1
	12 hrs		11 hrs

Fifth Year			
Ninth Semester	Tenth	Semester	
PHYS 213 College Physics Lab I	1	PHYS 214 College Physics Lab II	1
PHYS 237 College Physics I	3	PHYS 238 College Physics II	3
SC 135 or 136 Business & Professional Communication or Public Address	3	BIOL 245 Human Anatomy & Physiology	4
		BIOL 460 Biostatistics	3
	7 hrs		11 hrs

Sixth year			
Eleventh Semester	Twelfth	Semester	
CHEM 411 Physical Chemistry I Lab	1	CHEM 412 Physical Chemistry II Lab	1
CHEM 431 Physical Chemistry I Lec	3	CHEM 432 Physical Chemistry II Lec.	3
CHEM 450 Inorganic Chemistry I	3	CHEM 451 Inorganic Chemistry II	3
		CHEM 453 Instrumental Analysis	3
	7 hrs		10 hrs