

CHEMISTRY - BS, BIOLOGICAL-CHEMISTRY TRACK

The biological chemistry track has been designed for students interested in pursuing graduate study in biological chemistry, biochemistry, pharmacology or related fields or a career in the pharmaceutical industry. Students who wish to enter an MD/PhD program or medical, dental or pharmacy school will, in most cases, need to take an additional advanced biology course beyond those recommended for this track and should check the admission requirements for these programs with the Office of Professional School Advising. Courses in biology, biochemistry, genetics and statistics are recommended as electives.

Program Requirements

First Year

		Semester Credit Hours
Fall		
CHEM 100	Horizons in Chemistry	1
CHEM 119	Fundamentals of Chemistry I ¹	4
ENGL 104	Composition and Rhetoric	3
or ENGL 210	or Technical and Professional Writing	
MATH 151	Engineering Mathematics I	4
or MATH 171	or Calculus I	
American history (http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#american-history)		3

Semester Credit Hours 15

Spring

CHEM 120	Fundamentals of Chemistry II ¹	4
MATH 152	Engineering Mathematics II	4
or MATH 172	or Calculus II	
PHYS 206	Newtonian Mechanics for Engineering and Science	3
PHYS 226	Physics of Motion Laboratory for the Sciences	1
American history (http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#american-history)		3

Semester Credit Hours 15

Second Year

Fall		
CHEM 227	Organic Chemistry I ¹	3
CHEM 231	Techniques of Organic Chemistry	2
PHYS 207	Electricity and Magnetism for Engineering and Science	3
PHYS 227	Electricity and Magnetism Laboratory for the Sciences	1
Select one of the following		3-4
MATH 221	Several Variable Calculus	
MATH 251	Engineering Mathematics III	

MATH 253	Engineering Mathematics III	
Semester Credit Hours		13
Spring		
BIOL 111	Introductory Biology I	4
CHEM 228	Organic Chemistry II ¹	3
CHEM 234	Organic Synthesis and Analysis ²	3
CHEM 362	Descriptive Inorganic Chemistry	3
STAT 211	Principles of Statistics I	3
or STAT 302	or Statistical Methods	

Semester Credit Hours 16

Third Year

Fall		
BIOL 112	Introductory Biology II	4
CHEM 315	Fundamentals of Quantitative Analysis	3
CHEM 318	Quantitative Analysis Laboratory	1
CHEM 327	Physical Chemistry I	3
CHEM 433	Advanced Inorganic Chemistry Laboratory	2
CHEM 491	Research	3

Semester Credit Hours 16

Spring		
CHEM 325	Physical Chemistry Laboratory I	1
CHEM 328	Physical Chemistry II	3
CHEM 491	Research	3
POLS 207	State and Local Government	3
GENE 301	Comprehensive Genetics	3
or GENE 320/	or Biomedical Genetics	
BIMS 320		

Communication (http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#communication)		3
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Semester Credit Hours 16

Fourth Year

Fall		
BICH 410	Comprehensive Biochemistry I	3
or BICH 440	or Biochemistry I	
CHEM 326	Physical Chemistry Laboratory II	1
CHEM 415	Analytical Chemistry	3
POLS 206	American National Government	3

Language, philosophy and culture (http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#language-philosophy-culture)		3
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Social and behavioral sciences (http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#social-behavioral-sciences)		3
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Semester Credit Hours 16

Spring		
BICH 411	Comprehensive Biochemistry II	3
or BICH 441	or Biochemistry II	
CHEM 434	Analytical Instrumentation Laboratory	2
CHEM 481	Seminar ²	2

Creative arts (http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#creative-arts)		3
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General elective ⁴	3-4
Semester Credit Hours	13
Total Semester Credit Hours	120

¹ Select a section designated for chemistry majors.

² This is a designated oral communication (C) or writing (W) course.

³ Three hours of CHEM 484 may be substituted for 3 hours of CHEM 491 in consultation with an advisor.

⁴ Select any course 100-499 not used elsewhere except AERS 100-299 (<http://catalog.tamu.edu/undergraduate/course-descriptions/aers/>); CHEM 222, CHEM 242; MATH 102, MATH 140, MATH 142, MATH 167, MATH 168; MLSC 100-299 (<http://catalog.tamu.edu/undergraduate/course-descriptions/mlsc/>); NVSC 100-299 (<http://catalog.tamu.edu/undergraduate/course-descriptions/nvsc/>); PHYS 201, PHYS 202, PHYS 205.

Graduation requirements include a requirement for 3 hours of International and Cultural Diversity (<http://catalog.tamu.edu/undergraduate/general-information/degree-information/international-cultural-diversity-requirements/>) courses and 3 hours of Cultural Discourse (<http://catalog.tamu.edu/undergraduate/general-information/degree-information/cultural-discourse-requirements/>) courses. A course satisfying a Core category, a college/department requirement, or a general elective can be used to satisfy this requirement.

The total hours of CHEM 484, CHEM 485, CHEM 491 taken by BS chemistry majors on a graded (A–F) basis may not exceed 15. Additional hours of these courses may be taken on a satisfactory/unsatisfactory basis.

Electives should be chosen in consultation with the chemistry advisor and should be selected to meet the residency requirement. (<http://catalog.tamu.edu/undergraduate/general-information/degree-information/#requirementsforabaccalaureatedegree>)