

CHEMISTRY - BS

Program Requirements

First Year

Fall		Semester Credit Hours
CHEM 100	Horizons in Chemistry	1
CHEM 119	Fundamentals of Chemistry I ¹	4
ENGL 104	Composition and Rhetoric	3
HIST 105	History of the United States ²	3
MATH 151 or MATH 171	Engineering Mathematics I or Calculus I	4
Semester Credit Hours		15

Spring

CHEM 120	Fundamentals of Chemistry II ¹	4
HIST 106	History of the United States ²	3
MATH 152 or MATH 172	Engineering Mathematics II or Calculus II	4
PHYS 206	Newtonian Mechanics for Engineering and Science	3
PHYS 226	Physics of Motion Laboratory for the Sciences	1
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		4
MATH 221	Several Variable Calculus	
MATH 251	Engineering Mathematics III	
MATH 253	Engineering Mathematics III	
Semester Credit Hours		13

Spring

CHEM 228	Organic Chemistry II ¹	3
CHEM 234	Organic Synthesis and Analysis ³	3
CHEM 362	Descriptive Inorganic Chemistry	3
Select one of the following:		3
MATH 304	Linear Algebra	
MATH 308	Differential Equations	
STAT 211	Principles of Statistics I	
Mathematics elective (http://catalog.tamu.edu/undergraduate/course-descriptions/math/) ⁴		
Statistics elective (http://catalog.tamu.edu/undergraduate/course-descriptions/stat/) ⁴		
Select one of the following: ⁵		3
Communication (http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#communication)		

Creative arts (<http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#creative-arts>)

Cultural discourse (<http://catalog.tamu.edu/undergraduate/general-information/degree-information/cultural-discourse-requirements/>)

International and cultural diversity (<http://catalog.tamu.edu/undergraduate/general-information/degree-information/international-cultural-diversity-requirements/>)

Language, philosophy and culture (<http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#language-philosophy-culture>)

Social and behavioral sciences (<http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#social-behavioral-sciences>)

Semester Credit Hours 15

Third Year

Fall

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
POLS 206	American National Government	3
Select one of the following: ⁵		3

Communication (<http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#communication>)

Creative arts (<http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#creative-arts>)

Cultural discourse (<http://catalog.tamu.edu/undergraduate/general-information/degree-information/cultural-discourse-requirements/>)

International and cultural diversity (<http://catalog.tamu.edu/undergraduate/general-information/degree-information/international-cultural-diversity-requirements/>)

Language, philosophy and culture (<http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#language-philosophy-culture>)

Social and behavioral sciences (<http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#social-behavioral-sciences>)

Semester Credit Hours 15

Spring

CHEM 325	Physical Chemistry Laboratory I	1
CHEM 328	Physical Chemistry II	3
POLS 207	State and Local Government	3
Select three of the following: ⁵		9

Communication (<http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#communication>)

Creative arts (<http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#creative-arts>)

Cultural discourse (http://catalog.tamu.edu/undergraduate/general-information/degree-information/cultural-discourse-requirements/)	
International and cultural diversity (http://catalog.tamu.edu/undergraduate/general-information/degree-information/international-cultural-diversity-requirements/)	
Language, philosophy and culture (http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#language-philosophy-culture)	
Social and behavioral sciences (http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#social-behavioral-sciences)	
Semester Credit Hours	16
Fourth Year	
Fall	
CHEM 326 Physical Chemistry Laboratory II	1
CHEM 415 Analytical Chemistry	3
CHEM 491 Research ⁶	3
Select one of the following: ⁷	3
CHEM 446 Organic Chemistry III	
CHEM 456 Chemical Biology	
CHEM 462 Inorganic Chemistry	
CHEM 464 Nuclear Chemistry	
CHEM 466 Polymer Chemistry	
CHEM 468 Materials Chemistry of Inorganic Materials	
CHEM 470 Industrial Chemistry	
CHEM 483 Green Chemistry	
CHEM 489 Special Topics in...	
BICH 410 Comprehensive Biochemistry I	
BICH 411 Comprehensive Biochemistry II	
BICH 440 Biochemistry I	
BICH 441 Biochemistry II	
PHYS 309 Modern Physics	
Select two of the following: ⁵	6
Communication (http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#communication)	
Creative arts (http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#creative-arts)	
Cultural discourse (http://catalog.tamu.edu/undergraduate/general-information/degree-information/cultural-discourse-requirements/)	
International and cultural diversity (http://catalog.tamu.edu/undergraduate/general-information/degree-information/international-cultural-diversity-requirements/)	
Language, philosophy and culture (http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#language-philosophy-culture)	
Social and behavioral sciences (http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#social-behavioral-sciences)	
Semester Credit Hours	16

Spring

CHEM 434 Analytical Instrumentation Laboratory	2
CHEM 481 Seminar ³	2
CHEM 491 Research ⁶	3
Select one of the following: ⁷	3
CHEM 446 Organic Chemistry III	
CHEM 456 Chemical Biology	
CHEM 462 Inorganic Chemistry	
CHEM 464 Nuclear Chemistry	
CHEM 466 Polymer Chemistry	
CHEM 468 Materials Chemistry of Inorganic Materials	
CHEM 470 Industrial Chemistry	
CHEM 483 Green Chemistry	
CHEM 489 Special Topics in...	
BICH 410 Comprehensive Biochemistry I	
BICH 411 Comprehensive Biochemistry II	
BICH 440 Biochemistry I	
BICH 441 Biochemistry II	
PHYS 309 Modern Physics	
Select two of the following: ⁵	5
Communication (http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#communication)	
Creative arts (http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#creative-arts)	
Cultural discourse (http://catalog.tamu.edu/undergraduate/general-information/degree-information/cultural-discourse-requirements/)	
International and cultural diversity (http://catalog.tamu.edu/undergraduate/general-information/degree-information/international-cultural-diversity-requirements/)	
Language, philosophy and culture (http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#language-philosophy-culture)	
Social and behavioral sciences (http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#social-behavioral-sciences)	
General elective	
Semester Credit Hours	15
Total Semester Credit Hours	120

- ¹ Select a section designated for chemistry majors.
- ² Students may substitute any 6 hours of American history courses approved by the University Core Curriculum to fulfill this requirement, but no more than 3 hours may be in Texas history. Students seeking teacher certification must take HIST 105 and HIST 106.
- ³ This is a designated C- or W-course.
- ⁴ Must be selected in consultation with an advisor.

- ⁵ These electives must include 12 hours of courses which meet the language, philosophy and culture (3 hours), creative arts (3 hours), social and behavioral science (3 hours) and communication (3 hours) requirements of the University Core Curriculum (<http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/>). In addition, 3 hours of courses must be in the area of International and Cultural Diversity (<http://catalog.tamu.edu/undergraduate/general-information/degree-information/international-cultural-diversity-requirements/>) and 3 hours must be in the area of Cultural Discourse (<http://catalog.tamu.edu/undergraduate/general-information/degree-information/cultural-discourse-requirements/>). These may be in addition to the previous 12 hours of University Core Curriculum (<http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/>) courses, or if a course in this category satisfies an area of the Core, it can be used to meet both requirements. Electives should be chosen in consultation with the chemistry advisor. Electives should be chosen in consultation with the chemistry advisor and should be selected to meet the residency requirement (36 hours at 300-400 level must be taken at TAMU). Electives recommended in the various track programs should be strongly considered.
- ⁶ The total hours of CHEM 485 and 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.
- ⁷ Students wishing to complete an American Chemical Society certified degree program must take at least one semester of biochemistry (i.e., BICH 410 or BICH 440).