

CHEMISTRY - 5-YEAR BACHELOR OF SCIENCE AND MASTER OF SCIENCE IN CHEMISTRY

Program Requirements

First Year

		Semester Credit Hours
Fall		
CHEM 100	Horizons in Chemistry	1
CHEM 119	Fundamentals of Chemistry I ¹	4
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
Government/Political science (http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#government-political-science)		3

Semester Credit Hours 15

Spring

CHEM 120	Fundamentals of Chemistry II ¹	4
ENGL 104	Composition and Rhetoric	3
	or ENGL 210 or Technical and Professional Writing	
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
Government/Political science (http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#government-political-science)		3

Semester Credit Hours 18

Summer

General electives ²		6
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Semester Credit Hours 6

Second Year

Fall		
CHEM 227	Organic Chemistry I ¹	3
CHEM 231	Techniques of Organic Chemistry	2
CHEM 315	Fundamentals of Quantitative Analysis	3
CHEM 318	Quantitative Analysis Laboratory	1
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		16

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	

American history (http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#american-history)		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 18

Summer

CHEM 491	Research ⁴	6
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Semester Credit Hours 6

Third Year

Fall

CHEM 327	Physical Chemistry I	3
CHEM 433	Advanced Inorganic Chemistry Laboratory	2
Communication (http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#communication)		3
Language, philosophy and culture (http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#language-philosophy-culture)		3
General electives ²		6

Semester Credit Hours 17

Spring

CHEM 325	Physical Chemistry Laboratory I	1
CHEM 328	Physical Chemistry II	3
CHEM 415	Analytical Chemistry	3
CHEM 434	Analytical Instrumentation Laboratory	2
CHEM 481	Seminar ³	2
Creative arts (http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#creative-arts)		3
Graduate Chemistry ⁵		3

Semester Credit Hours 17

Fourth Year

Fall

CHEM 326	Physical Chemistry Laboratory II	1
Graduate Chemistry ⁵		8
General electives ²		3

Semester Credit Hours 12

Spring

Graduate Chemistry ⁵		10
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Semester Credit Hours 10

Fifth Year	
Fall	
Graduate Chemistry ⁵	9
Semester Credit Hours	9
Spring	
Graduate Chemistry ⁵	6
Semester Credit Hours	6
Total Semester Credit Hours	150

The program includes a total of 156 hours, which up to 6 hours may be applied toward both the Bachelor of Science in Chemistry and the Master of Science in Chemistry (Non-thesis option).

¹ Select a section designated for chemistry majors.

² Select any course 100-499 not used elsewhere except AERS 100-299 (<https://catalog.tamu.edu/undergraduate/course-descriptions/aers/>); CHEM 222 (<https://catalog.tamu.edu/search/?P=CHEM%20222>), CHEM 242 (<https://catalog.tamu.edu/search/?P=CHEM%20242>); MATH 102 (<https://catalog.tamu.edu/search/?P=MATH%20102>), MATH 140 (<https://catalog.tamu.edu/search/?P=MATH%20140>), MATH 142 (<https://catalog.tamu.edu/search/?P=MATH%20142>), MATH 167 (<https://catalog.tamu.edu/search/?P=MATH%20167>), MATH 168 (<https://catalog.tamu.edu/search/?P=MATH%20168>); MLSC 100-299 (<https://catalog.tamu.edu/undergraduate/course-descriptions/mlsc/>); NVSC 100-299 (<https://catalog.tamu.edu/undergraduate/course-descriptions/nvsc/>); PHYS 201 (<https://catalog.tamu.edu/search/?P=PHYS%20201>), PHYS 202 (<https://catalog.tamu.edu/search/?P=PHYS%20202>), PHYS 205 (<https://catalog.tamu.edu/search/?P=PHYS%20205>).

³ This is a designated C- or W-course.

⁴ Students may substitute 3 hours of CHEM 484 (<https://catalog.tamu.edu/search/?P=CHEM%20484>) for CHEM 491 (<https://catalog.tamu.edu/search/?P=CHEM%20491>) in consultation with an advisor.

⁵ 21 credit hours must be taken from CHEM 601-673 (<http://catalog.tamu.edu/graduate/course-descriptions/chem/>), CHEM 689; 6 of these credit hours will be applied towards both BS and MS degrees in Chemistry; 6 other hours of graduate courses in chemistry may be selected from CHEM 681 (up to 2 hours), CHEM 684 (up to 4 hours), CHEM 685 (up to 6 hours), CHEM 695 (up to 3 hours), or CHEM 697 (up to 2 hours); 9 additional credit hours of graduate courses may be taken from CHEM or other departments; consult with advisor for course selection information.

Graduation requirements include a requirement for 3 hours of International and Cultural Diversity (<https://catalog.tamu.edu/undergraduate/general-information/degree-information/international-cultural-diversity-requirements/courses>) and 3 hours or Cultural Discourse (<https://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 (<https://catalog.tamu.edu/search/?P=CHEM%20484>), CHEM 485 (<https://catalog.tamu.edu/search/?P=CHEM%20485>), and CHEM 491 (<https://catalog.tamu.edu/search/?P=CHEM%20491>) 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 (36 hours at 300-400 level must be taken at Texas A&M).