

CHEMISTRY, BACHELOR OF SCIENCE

The major in chemistry provides courses and sequences leading to the Bachelor of Science degree in Chemistry. The program is designed to follow the criteria for baccalaureate degrees set forth by the Committee on Professional Training of the American Chemical Society. The program prepares students for professional employment after graduation and also provides strong academic and laboratory experiences for those who wish to pursue graduate degrees in chemistry or attend professional schools.

Students must meet the requirements listed in the Core Curriculum. Students must also complete a minimum of 49 semester hours of chemistry. All students are required to earn at least a grade of "C" in all chemistry, biology, physics, and mathematics courses. All students are required to take the American Chemical Society standardized test in the courses for which the test is available. Students must also take the chemistry exit exam, the Major Field Test (MFT) during the senior year. A GPA of 2.25 and completion of CHEM 1211K and CHEM 1212K with a grade of 'C' or better is required to be a chemistry major. The chemistry major requires completion of required courses with a grade-point average of at least a 2.0.

Code	Title	Semester Hours
Core Curriculum for STEM Majors (MATH 1113 or 1211 required for Area A2) (http://catalog.asurams.edu/undergraduate/core-curriculum/)¹		43
Area F: Courses Related to Major		
CHEM 1211K	Principles of Chemistry I	4
CHEM 1212K	Principles of Chemistry II	4
CHEM 2301K	Organic Chemistry I	4
CHEM 2302K	Organic Chemistry II	4
CHEM 2310	Scientific Mathematics	2
Area G: Major Requirements		
The Chemistry Major Course requirements, AREA G, include 45 credits in required courses and 15 hours of electives.		
BIOL 2107K	Principles of Biology I	4
MATH 2212	Calculus II	4
CHEM 3151K	Quantitative Analysis I	4
CHEM 3152K	Quantitative Analysis II	4
CHEM 3221K	Physical Chemistry I	4
CHEM 3222K	Physical Chemistry II	4
CHEM 3231K	Intermediate Inorganic Chemistry I	4
CHEM 3250K	Biochemistry I	4
CHEM 4100K	Instrumental Analysis	4
CHEM 4110	Chemical Literature I	1
CHEM 4111	Junior Seminar	1
CHEM 4120	Senior Research I	1
CHEM 4130K	Senior Research II	3
PHYS 2100	Computer Applications	3
Electives		15
At least 3 of the elective credits must be non-science courses		
At least 6 of the elective credits must be 3000 level or higher Chemistry electives		

First-Year and Wellness Course Requirements Outside the Core

ASU 1101	First Year Experience: Pathways to Success	1
HEDP, WELL	Health & Wellness Requirement ²	2
Total Semester Hours		124

¹ For students who take MATH 1211 the extra credit hour will be applied to elective hours in the degree program.

² The health & wellness requirement may be fulfilled by taking one - two (2) credit hour health or wellness course OR two one (1) credit hour health or wellness activity courses.

This program of study includes a number of fundamental courses in chemistry and allows for students with interests in additional disciplines to build a broad based curriculum. Students will be required to complete the same courses as in Area A through Area F of the B.S. in Chemistry degree program (ACS track). However, in Area G they will be allowed to take a minimum of 15 hours (at least 5 credits in 3000 level or higher) of electives from one other discipline based on that discipline's minor requirements (e.g. Business or Biology) in place of the 15 hours of required electives which are primarily chemistry courses.

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Area F: Courses Related to Major		
CHEM 1211K	Principles of Chemistry I	4
CHEM 1212K	Principles of Chemistry II	4
CHEM 2301K	Organic Chemistry I	4
CHEM 2302K	Organic Chemistry II	4
CHEM 2310	Scientific Mathematics	2
Area G Major Courses		
BIOL 2107K	Principles of Biology I	4
MATH 2212	Calculus II	4
CHEM 3151K	Quantitative Analysis I	4
CHEM 3152K	Quantitative Analysis II	4
CHEM 3221K	Physical Chemistry I	4
CHEM 3222K	Physical Chemistry II	4
CHEM 3231K	Intermediate Inorganic Chemistry I	4
CHEM 3250K	Biochemistry I	4
CHEM 4100K	Instrumental Analysis	4
CHEM 4110	Chemical Literature I	1
CHEM 4111	Junior Seminar	1
CHEM 4120	Senior Research I	1
CHEM 4130K	Senior Research II	3
PHYS 2100	Computer Applications	3
Minor chosen by student (15 hours)		15
First-Year and Wellness Course Requirements Outside the Core		
ASU 1101	First Year Experience: Pathways to Success	1
HEDP, WELL	Health & Wellness Requirement ¹	2
Total Semester Hours		124

¹ For students who take MATH 1211 the extra credit hour will be applied to elective hours in the degree program.

² The health & wellness requirement may be fulfilled by taking one - two (2) credit hour health or wellness course OR two one (1) credit hour health or wellness activity courses.

BS in Chemistry with a Biological Science Concentration

As a concentration within the Chemistry program, the Biological Chemistry option expands the field of career options for Chemistry and Biological Science students. The new concentration will better prepare students for professional schools, graduate studies and professional occupations such as Biochemist, Physician, Dentist, and Pharmacist. The BS in Chemistry with a Biological Science concentration includes the fundamental courses in Chemistry and Biological Science.

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Area F: Courses Related to Major		
CHEM 1211K	Principles of Chemistry I	4
CHEM 1212K	Principles of Chemistry II	4
BIOL 2107K	Principles of Biology I	4
BIOL 2108K	Principles of Biology II	4
CHEM 2310	Scientific Mathematics	2
Area G Major Courses		
CHEM 2301K	Organic Chemistry I	4
CHEM 2302K	Organic Chemistry II	4
BIOL 3300K	General Botany I	4
BIOL 3101K	Environmental Biology	4
BIOL 3333K	Microbiology and Applications	4
BIOL 3501K	Principles of Genetics	4
BIOL 4701K	Cell and Molecular Biology	4
MATH 2212	Calculus II	4
CHEM 3151K	Quantitative Analysis I	4
CHEM 3221K	Physical Chemistry I	4
CHEM 3222K	Physical Chemistry II	4
CHEM 3250K	Biochemistry I	4
CHEM 4100K	Instrumental Analysis	4
CHEM 4110	Chemical Literature I	1
CHEM 4120	Senior Research I	4
& CHEM 4130K	and Senior Research II	
or BIOL 4001	Research and Independent Study I	
& BIOL 4222K	and Biology Senior Research	
Electives	3000 Level or Higher Chemistry or Biology Electives	3
First-Year and Wellness Course Requirements Outside the Core		
ASU 1101	First Year Experience: Pathways to Success	1
HEDP, WELL	Health & Wellness Requirement ¹	2
Total Semester Hours		124

BS in Chemistry with a Forensic Science Concentration

As a concentration within the Chemistry program, the Forensic Chemistry option expands the field of career options for Chemistry and Forensic Science students. The program will prepare students for professional schools, graduate studies, crime laboratories and government jobs with agencies such as the GBI or FBI in the fields of Chemistry, Forensic Sciences, and Forensic Chemistry. The BS in Chemistry with a Forensic Science concentration includes the fundamental courses in Chemistry and Forensic Science, providing students with more options in the two disciplines.

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Area F: Courses Related to Major		
CHEM 1211K	Principles of Chemistry I	4
CHEM 1212K	Principles of Chemistry II	4
BIOL 2107K	Principles of Biology I	4
FOSC 2100K	Intro to FOSC	3
CHEM 2310	Scientific Mathematics	2
Area G Major Courses		
CHEM 2301K	Organic Chemistry I	4
CHEM 2302K	Organic Chemistry II	4
FOSC 2120K	Forensic Photography	3
FOSC 2130K	Crime Scene Invst & Recon	3
FOSC 3030	Criminal Evidence and Court Procedure	3
FOSC 3020K	Forensic Microscopy of Trace	4
CHEM 3151K	Quantitative Analysis I	4
CHEM 3152K	Quantitative Analysis II	4
CHEM 3221K	Physical Chemistry I	4
CHEM 3250K	Biochemistry I	4
FOSC 4040K	Forensic Serology/DNA Tech I	3
FOSC 4050K	Forensic Chemistry	4
FOSC 4060K	SEM-EDAX of Trace Evidence	3
FOSC 4090K	Controlled Substance/Toxicolog	3
CHEM 4100K	Instrumental Analysis	4
CHEM 4110	Chemical Literature I	1
CHEM 4120	Senior Research I	1
CHEM 4130K	Senior Research II	3
Electives	3000 Level or Higher Chemistry or Forensic Science Electives	3
First-Year and Wellness Course Requirements Outside the Core		
ASU 1101	First Year Experience: Pathways to Success	1
HEDP, WELL	Health & Wellness Requirement ¹	2
Total Semester Hours		125