

**College of SCIENCE
Department of CHEMISTRY
Bachelor of Arts (BA) in CHEMISTRY
Major in CHEMISTRY**

For Student Date of Entry Under UG Catalog 2023–2024

A dagger (†) indicates a course with prerequisites or co-requisites. Students should check the Undergraduate Course Catalog or consult their advisors for more information.

I. Pathways General Education Requirements (47 credits)
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Concept 1 Discourse (9 credits)

(1f): 6 credits in foundational courses ENGL 1105–1106 is recommended

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(1a): 3 credits in advanced or applied writing or speaking courses

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Concept 2 Critical Thinking in the Humanities (6 credits)

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Concept 3 Reasoning in the Social Sciences (6 credits). PSYC 1004 and SOC 1004 are recommended for students contemplating careers in health sciences.

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Concept 4 Reasoning in the Natural Sciences (8 credits). The following four-course sequence is required of all students majoring in Chemistry within the B.A. Degree in Chemistry.

† PHYS 2205–2206 General Physics ^[1]	3	
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1	

3	
1	

† PHYS 2215–2216 General Physics Laboratory ^[1]		
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Concept 5 Quantitative and Computational Thinking (9 credits)

(5f): 6 credits in foundational courses. The following course sequence is required of all students majoring in Chemistry within the B.A. Degree in Chemistry.

† MATH 1025–1026 Elementary Calculus ^[2]		
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(5a): 3 credits in advanced or applied courses. Students majoring in Chemistry within the B.A. Degree in Chemistry must select either STAT 3005 (†) or STAT 3615 (†).

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Concept 6 Critique and Practice in Design and the Arts (6 credits = 3 in design + 3 in arts, or 6 in integrated design and arts)

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	3	
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Concept 7 Critical Analysis of Identity and Equity in the United States (3 credits)

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II. Chemistry Bachelor of Arts Core Courses (22 credits)

CHEM 1004 Chemistry First Year Experience	1			
† CHEM 1055–1056 General Chemistry for Majors ^[3]	4		4	
† CHEM 1065–1066 General Chemistry for Major Laboratory ^[4]	1		1	
† CHEM 2565–2566 Principles of Organic Chemistry ^[5]	3		3	
† CHEM 2154 Analytical Chemistry for Chemistry Majors	4			
† CHEM 2164 Analytical Chemistry for Chemistry Majors Lab	1			

III. Additional Required Courses for the Chemistry Bachelor of Arts (4 credits)

† CHEM 2545–2546 Organic Chemistry Laboratory ^[6]	1		1	
† CHEM 2564 Problem-Solving in Organic Chemistry ^[5]	1			
† CHEM 3004 Bridge to the Future	1			
† CHEM 4014 Survey of Chemical Literature	1			

* All students completing a B.A. in Chemistry must complete either †STAT 3005 Statistical Methods or †STAT 3615 Biological Statistics. This requirement is included in Section I above.

IV. Required Courses Specific to the Major in Chemistry (10 credits)**

† CHEM 2424 Descriptive Inorganic Chemistry	3			
† CHEM 4615–4616 Physical Chemistry ^[7]	3		3	
† CHEM 3625 Physical Chemistry Lab	1			

** MATH 1025–1026, PHYS 2205–2206 and PHYS 2215–2216 are also required of all Chemistry Majors within the B.A. Degree Program in Chemistry. They are listed in the General Education requirements (Section I) above.

V. Restricted Electives (6 credits)

Students may choose any two 3-credit, 3000- or 4000-level courses in CHEM (excluding CHEM 3054 and 4054), BCHM, or CHE for which they have met applicable prerequisites. ^[8]^[9]

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VI. Free Electives (30 credits)

Prerequisites

A dagger (†) indicates a course with prerequisites or co-requisites. Students should check the Undergraduate Course Catalog or consult their advisors for information about prerequisites and co-requisites. This checksheet has no hidden prerequisites, although some of the courses listed are prerequisites for other courses. Please note that Chemistry majors are expected to be “calculus-ready” at the start of their curriculum.

Acceptable Substitutions

^[1] *Physics Substitutions.* PHYS 2305 (†) may be substituted for PHYS 2205 and PHYS 2215. PHYS 2306 (†) may be substituted for PHYS 2206 and PHYS 2216.

^[2] *Calculus Substitutions.* MATH 1225 may be substituted for MATH 1025. MATH 1226 (MATH 1225 prerequisite) may be substituted for MATH 1026.

^[3] *General Chemistry Lecture Substitutions.* A student who earned credit for CHEM 1035 with a grade of “B” or better prior to joining the major in Chemistry may substitute CHEM 1035 for CHEM 1055. A student who earned credit for CHEM 1036 with a grade of “B” or better prior to joining the major in Chemistry may substitute CHEM 1036 for CHEM 1056.

^[4] *General Chemistry Lab Substitutions.* A student who earned credit for CHEM 1045 prior to joining the major in Chemistry may substitute CHEM 1045 for CHEM 1065. A student who earned credit for CHEM 1046 prior to joining the major in Chemistry may substitute CHEM 1046 for CHEM 1066.

^[5] *Organic Chemistry Lecture Substitutions.* A student who earned credit for CHEM 2535 with a grade of “B” or better prior to joining the major in Chemistry may substitute CHEM 2535 for CHEM 2565. A student who is substituting CHEM 2535 for CHEM 2565 may also substitute one additional credit of free elective for the one credit CHEM 2564, since CHEM 2564 is meant as a companion course to CHEM 2565. A student who earned credit for CHEM 2536 with a grade of “B” or better prior to joining the major in Chemistry may substitute CHEM 2536 for CHEM 2566.

^[6] *Organic Chemistry Lab Substitutions.* CHEM 2555 (†) may be substituted for CHEM 2545. CHEM 2556 (†) may be substituted for CHEM 2546.

^[7] *Physical Chemistry Substitutions.* CHEM 3615 may be substituted for CHEM 4615. CHEM 3616 may be substituted for CHEM 4616.

^[8] *Restricted Elective Substitutions.* SBIO 3444 Sustainable Biomaterials & Bioenergy or CHEM 4424 (SBIO 4424) Polysaccharide Chemistry may substitute for the Restricted Elective. A Chemistry major (BA) may count at most three (3) credits of CHEM 4994 toward the total credits for Restricted Electives. A biochemistry or chemical engineering student should not double-count coursework required for that major towards the chemistry (BA) total credits for Restricted Electives.

Foreign Language Requirement

Students who did not successfully complete at least two years of a single foreign, classical, or sign language during high school must successfully complete six credit hours of a single foreign, classical, or sign language at the college level. Courses taken to meet this requirement do not count toward the hours required for graduates. Please consult the Undergraduate Catalog for details.

Satisfactory Progress Towards Degree

Upon having attempted 72 credits, student must have completed CHEM 1055–1056, CHEM 1065–1066, CHEM 1004, CHEM 2565–2566, CHEM 2545–2546, PHYS 2205–2206, PHYS 2215–2216, and MATH 1025–1026.

Chemistry majors must maintain an in-major GPA of 2.0. If a chemistry major fails to meet this requirement for one academic term the student will be placed on Policy 91 (Satisfactory Progress Towards Degree) probation. Failure to meet the standard for two consecutive semesters will result in a Policy 91 suspension.

Minimum Grade Requirement: Chemistry majors must earn a grade of “C” (2.0) or better in CHEM 1055, 1056, and 2565.

- A Chemistry major who earned a grade lower than “C” in CHEM 1055 may repeat this course and earn the required grade (“C” or better), or they may take CHEM 1035 and earn a “B” or better.
- A Chemistry major who earned a grade lower than “C” in CHEM 1056 may repeat this course and earn the required grade (“C” or better), or they may take CHEM 1036 and earn a “B” or better.
- A Chemistry major who earned a grade lower than “C” in CHEM 2565 may repeat this course and earn the required grade (“C” or better), or they may take CHEM 2535 and earn a “B” or better. A student repeating CHEM 2565 does not need to repeat CHEM 2564.

Graduation Requirements

Graduation requires completion of a minimum of 120 credit hours with a GPA of 2.0 or greater for all hours attempted. In addition, students must have an in-major GPA of 2.0 or greater counting all required chemistry courses and chemistry electives. The in-major CHEM GPA excludes Chemistry in Context (CHEM 1015, 1016, 1025, 1026), First-Year Experience (CHEM 1004), and Chemistry Problem Solving Skills (CHEM 2984 or CHEM 1014). No more than 6 hours of CHEM 2974, 4974, and 4994 will be included in a student's in-major GPA.