College of SCIENCE
Department of CHEMISTRY
Bachelor of Arts (BA) in CHEMISTRY
Major in CHEMISTRY
For students graduating in calendar year 2022 and for student date of entry under UG Catalog 2020-2021

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A dagger (†) indicates a course with prerequisites or co-requisites. These are detailed on the last page of this check-sheet.

I. Pathways General Education Requirements (47 credits)

Concept 1 Discourse (9 credits)

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

	3			3	

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

	3	

Concept 2 Critical Thinking in the Humanities (6 credits)

	3			3	

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

	3			3	

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[1,2]	3		3	
† PHYS 2215-2216 General Physics Laboratory[1,2]	1		1	

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[3,4]	3		3	

(5a): 3 credits in advanced or applied courses. Students must select either STAT 3005 or STAT 3615.

	3	

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

	3			3	

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

	3	

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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	4		4	
† CHEM 1065–1066 General Chemistry for Major Laboratory[5,6]	1		1	
† CHEM 2565–2566 Principles of Organic Chemistry[7]	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 (3 credits)*

† CHEM 2545–2546 Organic Chemistry Laboratory	1		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 (13 credits)**

† CHEM 2424 Descriptive Inorganic Chemistry	3			
† CHEM 4615–4616 Physical Chemistry for the Life Sciences[8,9]	3		3	
† CHEM 3625 Physical Chemistry Laboratory	1			
† MATH 2024 Intermediate Calculus[10]	3			

** MATH 1025–1026 and PHYS 2205–2215–2206–2216 (†)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.[11,12]

	3			3	

VI. Free Electives (29 credits)

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

- If a chemistry major fails to earn a "C" (2.0) or better in CHEM 1055, the student must either retake this class (and earn the minimum grade) **or** take CHEM 1035-1036, *General Chemistry*, to remain in good standing for a chemistry degree. If the chemistry major elects to take CHEM 1035-1036, a minimum grade of "B" (3.0) is required in both in order to enroll in CHEM 2565 and progress towards the B.A. degree.
- If a chemistry major fails to earn a "C" (2.0) or better in CHEM 2565, the student must either retake this class (and earn the minimum grade) **or** take CHEM 2535, *Organic Chemistry*, to remain in good standing for a chemistry degree. If the chemistry major elects to take CHEM 2535, a minimum grade of "B" (3.0) is required to count CHEM 2535 as CHEM 2565 for the CHEM degree.

Prerequisites

This checksheet has no hidden prerequisites, although some of the courses listed are prerequisites for other courses. Please see your advisor or consult the Undergraduate Course Catalog for more information. Please note that Chemistry majors are expected to be "calculus-ready" upon the start of their curriculum.

Acceptable Substitutions

[1]PHYS 2305 (MATH 1225 prerequisite) may be substituted for PHYS 2205 and PHYS 2215

[2]PHYS 2306 (MATH 1226 prerequisite) may be substituted for PHYS 2206 and PHYS 2216

[3]MATH 1225 may be substituted for MATH 1025.

[4]MATH 1226 (MATH 1225 prerequisite) may be substituted for MATH 1026.

[5]Prior credit for CHEM 1045 may be substituted for CHEM 1065.

[6]Prior credit for CHEM 1046 may be substituted for CHEM 1066.

[7]If a student has taken CHEM 2535 prior to adding a degree in chemistry, a minimum grade of "B" (3.0) or better is required to substitute CHEM 2535 as CHEM 2565.

[8]CHEM 3615 may be substituted for CHEM 4615.

[9]CHEM 3616 may be substituted for CHEM 4616.

[10]MATH 2204 (MATH 1226 prerequisite) may be substituted for MATH 2024.

[11]SBIO 3444 Sustainable Biomaterials & Bioenergy or CHEM 4424 (SBIO 4424) Polysaccharide Chemistry may substitute for the Restricted Elective.

[12]A biochemistry or chemical engineering student should not double-count coursework required for that major towards the chemistry upper-level (restricted) elective.

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 2205-2215-2206-2216, 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.

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), Calculations in Chemistry (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.

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Table of Prerequisites and Co-requisites

Courses in this check-sheet marked with a dagger (†) have prerequisites or co-requisites. These are detailed in the following table.

Check-sheet Course	Pre-requisites and Co-requisites
PHYS 2205–2206	Pre: MATH 1016 or MATH 1016H or MATH 1025 or MATH 2015 or MATH 1026 or MATH 1205 or MATH 1205H or MATH 1525 or MATH 1535 or MATH 1225 or MATH 1225H for 2205; 2305 or 2205 for 2206
PHYS 2215–2216	Co: 2205 for 2215; 2206 for 2216.
CHEM 1055–1056	Co: 1065 for 1055; 1066 for 1056
CHEM 1065–1066	Co: 1055 for 1065; 1056 for 1066
CHEM 2555–2556	Pre: 2565 for 2555; 2555 for 2556
CHEM 2545–2556	Pre: 1046 or 1066 or ISC 1116 for 2545; 2545 for 2546. Co: 2565, 2535 for 2545; 2536 for 2546.
CHEM 2154	Pre: 1036 or 1056 or 1056H. Co: 2164
CHEM 2164	Pre: 1046 or 1066. Co: 2154
CHEM 4014	Pre: Junior standing
STAT 3005	Pre: MATH 1205 or MATH 1225; Co: MATH 1206 or MATH 1226
STAT 3615	Pre: MATH 1205 or MATH 1225 or MATH 1025 or MATH 1525
CHEM 2424	Pre: 1036 or 1056
MATH 2024	Pre: 1026 or 2015
CHEM 4615–4616	Pre: (1036 or 1056 or 1056H), (MATH 1026 or MATH 2015 or MATH 1226), (PHYS 2206 or PHYS 2306) for 4615; (1036 or 1056 or 1056H), (MATH 2016 or MATH 2024 or MATH 2224 or MATH 2204 or MATH 2204H or MATH 2214), (PHYS 2206 or PHYS 2306) for 4616
CHEM 3625	Pre: 3615 or 3615H or 4615