

**DEGREE WORKSHEET FOR:**

**BS Chemistry, Biochemistry Emphasis (ACS Certified)**

**2022-2023 Catalog**

**Degree Requirements – 120 credits**

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| **YEAR 1 - FALL (16 credits)** | **YEAR 1 - SPRING (15 credits)** |
| CHEM 111/111L Principles of Chemistry l (LAS1; LASL\*) | 4/1 credits | CHEM 112/112L Principles of Chemistry II  | 4/1 credits |
| ENG 122 College Composition-recommended (LAW1\*) | 3 credits | MATH 132 Calculus II (LAX1\*) | 4 credits |
| BIO 110 Biology: Atoms to Cells (LAS1; LASL\*) | 4 credits | Liberal Arts Curriculum1 (choose one LAB1, LAB2 or LAB3 that is also a LAMS and/or LAIS\*) | 3 credits |
| MATH 1312 Calculus I (LAX1\*) | 4 credits | Electives | 3 credits |
| **YEAR 2 - FALL (14 credits)** | **YEAR 2 - SPRING (16 credits)** |
| CHEM 331/331L Organic Chemistry I  | 4/1 credits | CHEM 332/332L Organic Chemistry II  | 4/1 credits |
| PHYS 240 General Physics I (LAS1; LASL\*) | 5 credits | PHYS 241 General Physics II  | 5 credits |
| MATH 233 Calculus III | 4 credits | SCI 2913 Scientific Writing (LAW2\*)  | 3 credits |
|  |  | BIO 210 Cell Biology  | 3 credits |
| **YEAR 3 - FALL (15 credits)** | **YEAR 3 - SPRING (15 credits)** |
| CHEM 321 Chemical Analysis (F) | 4 credits | CHEM 421 Instrumental Analysis (S)4 or elective | 4 credits |
| CHEM 481/481L General Biochemistry I (F) | 3/1 credits | CHEM 482/482L General Biochemistry II (S) | 3/1 credit |
| Liberal Arts Curriculum1 (LAMS and/or LAIS\*) | 3 credits | Liberal Arts Curriculum1 (choose one LAA1, LAA2, LAA3, LAA4 **and** one LAH1\*) | 6 credits |
| Biology Electives4 | 3-4 credits | Electives | 1-2 credits |
| **YEAR 4 - FALL (16 credits)** | **YEAR 4 - SPRING (13 credits)** |  |
| CHEM 452/452L Physical Chemistry I (F)4 or elective | 4/1 credits | CHEM 451/451L Physical Chemistry II (S) | 4/1 credits |
| CHEM 499 Seminar & Research in Chemistry | 1 credit | CHEM 499 Seminar & Research in Chemistry | 1 credit |
| Biology Electives5 | 4 credits | CHEM 442 Inorganic Chemistry II and CHEM 443 Inorganic Chemistry Lab (S)4or elective | 3/1 credits |
| CHEM 441 Inorganic Chemistry I (F) | 3 credits | or elective | 1 credit |
| Liberal Arts Curriculum1 (LAA1, LAA2, LAA3, LAA4\*) | 3 credits | Liberal Arts Curriculum1 (choose one additional LAA, LAH or LAB\*) | 3 credits |
|  |  | Chemistry Assessment Exam6 | 0 credits |

**\*See the** [**Liberal Arts Curriculum**](https://www.unco.edu/registrar/current-students/lac.aspx) **webpage for more information**

This worksheet is a recommended schedule to complete your bachelor’s degree in 4 years. Every UNC student must meet the following requirements in order to graduate with a bachelor’s degree: earn a minimum of 120 semester credit hours; possess a minimum of a 2.00 cumulative grade point average; have at least 31 credit hours in courses designated as Liberal Arts Curriculum; meet all degree requirements in the student’s major field of study. Each major and/or emphasis may have additional requirements necessary for graduation. **Students must consult with their major advisor to receive information on any additional graduation requirements.**

**Admission Requirement –** No separate admission requirement.

**Minor Required –** No Minor required.

**Contact Information –** Department of Chemistry & Biochemistry

 Ross Hall Room 3480, 970-351-2559

 Department Web Page: <http://www.unco.edu/nhs/chemistry-biochemistry/>

**Notes -** See page 2

**Notes**

1. A total of 15 credits are required in Arts & Humanities (2 courses, minimum 3 credits each), History (1 course, minimum 3 credits), Social & Behavioral Sciences (1 course, minimum 3 credits), one additional course (minimum 3 credits) in Arts & Humanities or History or Social & Behavioral Sciences. You must also have U.S. Multicultural Studies (1 course, minimum 3 credits), International Studies (1 course, minimum 3 credits). Six total credits must be double counted.
2. Students who lack sufficient preparation in mathematics may need to start in MATH 124 College Algebra (4), MATH 125 Plane Trigonometry (3), or MATH 127 Elementary Functions (4). Consult your advisor.
3. With advisor approval, students can substitute ENG 123 for SCI 291 (3)—Scientific Writing.
4. **Take two of these three** (lecture + lab) combinations (CHEM 421, CHEM 442/443, and CHEM 452/452L) as in-depth courses.
5. Recommended Electives:
Take two of the following courses:

BIO 220 Genetics (3)

BIO 351 Microbiology (4)

BIO 450 Cell Physiology (4)

5 All students must take a chemistry major assessment exam prior to graduation.

A minor in Biology may be declared and earned by completing BIO 110, BIO 111, and nine additional hours of appropriate BIO courses. See your advisor for suggested coursework to complete this minor.

Students receiving this degree, designed to give students a broad background in chemistry and biology, will be certified by the American Chemical Society. Students will work with a faculty member on an independent research project in chemistry.

Students graduating with this emphasis will be prepared to pursue graduate study in chemistry, biochemistry, molecular biology, environmental health, professional schools (e.g., medicine, dentistry, veterinary medicine and other health related areas) or obtain an entry-level position within the chemical or biotechnological industry.

A. The four-year plan described on the other side of this sheet is a suggested track for completing this major. You must meet with your advisor each semester to determine an appropriate plan.

B. Upper-level courses are generally taught only one semester per year and are marked on the sheet as F (Fall) or S (Spring). In this plan, courses are listed in order of required prerequisites first.

C. Some upper-level courses are separate from laboratory; e.g., CHEM 481/CHEM 481L General Biochemistry I and Experimental Biochemistry I and CHEM 482/CHEM 482L General Biochemistry II and Experimental Biochemistry II. In these cases, CHEM 481/481L are taught in the Fall and CHEM 482/482L are taught in the Spring.

D. All students in the program must take an assessment examination before graduation.

E. Graduate level CHEM courses are recommended for juniors and seniors. Other recommended electives include MATH 221, MATH 335, STAT 150, PHYS 321, and PHYS 343.

F. Students majoring in chemistry must earn a grade of “C” or better (C- is not acceptable) in all courses having a CHEM prefix which count toward the major.

G. It is recommended that students have a fundamental background in computers.

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| **\*Liberal Arts Curriculum Course Indicators** |
| LAA1 | Arts & Humanities: Arts & Expression | LAIS | International Studies |
| LAA2 | Arts & Humanities: Literature & Humanities | LAMS | U.S. Multicultural Studies |
| LAA3 | Arts & Humanities: Ways of Thinking | LAS1 | Natural & Physical Sciences |
| LAA4 | Arts & Humanities: World Languages | LASL | Natural & Physical Sciences LAB |
| LAB1 | Social & Behavior Sciences: Economic or Political Systems | LAW1 | Introductory Written Communication |
| LAB2 | Social & Behavior Sciences: Geography | LAW2 | Intermediate Written Communication |
| LAB3 | Social & Behavior Sciences: Human Behavior, Culture or Social Frameworks | LAW3 | Advanced Written Communication |
| LAH1 | History | LAX1 | Mathematics |