

**Students choosing chemistry for their major can follow one of three tracks:****B.S. in Chemistry (4-years/120 credits)**

- **American Chemical Society (ACS) Certified Degree** – Recommended for students who want the best preparation for a chemistry career, including graduate school. A strong high-school background in chemistry and algebra is recommended or the program may be delayed.

**B.S. with a Major in Chemistry (4-years/120 credits)**

- **Physical Science Option** – Also recommended for students who want a chemistry career or graduate school, but there are fewer requirements than the ACS Certified track. This track is a good fit for students who are pre-education or who want to minor with another program. Students choosing this option will be able to fit pre-med course requirements around this curriculum.
- **Biochemistry Option** – Recommended for students who are pre-health professional or who want to double-major with another program. Because of the lower level of math required, this track is not suitable for students who are thinking of graduate school in chemistry.

**B.S./M.S. with a Major in Chemistry (5 years/140-152 credits)**

Students in any of the B.S tracks can apply to BS/MS typically during 3<sup>rd</sup> or 4<sup>th</sup> year of B.S. study with allowing to co-count 6-12 credits for both degrees. This program may serve as a bridge program towards any graduate/medical program improving student's prospects in the next career steps

If students are unsure which track they want to pursue, we recommend start with the ACS Certified track – it is easier to fall back into one of the other tracks than to catch-up. First-semester advising differs by only two courses (Chemistry and Math).

**Chemistry Minor (20 credits)**

Chemistry 20 semester hours unless all twenty are required for the student's current major. If all twenty hours are required by the student's major, a minor may be achieved by taking 2 semester hours at or above the 300 level beyond the chemistry courses required for the major.

The pathways to the minor include

**Required General Chemistry courses (8 credits)**

Chem 121 & L & Chem 122 & L or Chem 221 & L & Chem 254 & L or Chem 221 & 221L & Chem 122 & 122L

**Required Foundation Chemistry courses (12 credits)**

Organic Chem 341 & L, Chem 342 & L or Organic Chemistry 340 &L and Biochemistry BIMD 301

Analytical Chemistry Chem 333 &L

**Optional course work**

Instrumental Analysis courses (Chem 44x) or Physical Chemistry Chem 466

## Chemistry Major 1<sup>st</sup> Semester Freshman Courses

### I. **Must Be Taken First Semester (or program will be delayed)**

#### ACS Certified Track:

Chem 221/221L*	Fundamentals of Chemistry & Lab	4 cr. Pre-req of Math 103 or higher
Math 165**	Calculus I	4 cr. (or highest math for which student is eligible)

#### Physical Science Option Track:

Chem 121/121L*	General Chemistry I & Lab	4 cr. Co-req of Math 103
Math 165**	Calculus I	4 cr. or highest math student is eligible for

#### Biochemistry Option Track:

Chem 121/121L*	General Chemistry I & Lab	4 cr. Co-req of Math 103
Math 146**	Applied Calculus I	4 cr. or highest math student is eligible for

\* Lecture courses Chem 121 and 221 must be taken concurrently with the corresponding laboratory courses, Chem 121L and 221L. Students choosing either the Physical Science Option or Biochemistry Option Tracks are encouraged to enroll in the more challenging Chem 221/221L courses instead of Chem 121/121L if they have a solid background in chemistry and algebra.

Students choosing the ACS Certified Track may take Chem 121/121L & Chem 122/122L instead of Chem 221/221L. Chem 221 offers a placement test during the first week of class to help students decide whether Chem 121/121L is a better fit. Students who are unsure of their high-school background in chemistry should initially sign up for Chem 221/221L so they can take the placement test. If a student switches to Chem 121/121L, they must take Chem 122/122L. For ACS track students will need to take Chem 254/254L later on.

\*\* An appropriate ACT score or the Math Placement Test <https://und.edu/academics/testing-services/math-placement.html> is required for all math classes. If the Mathematics Department determines that the student is not eligible for Math 165 (ACT  $\geq$  28 required), he/she should enroll in Math 107 or the highest mathematics course for which the student is eligible. Math 146 (ACT  $\geq$  26) is required for the Biochemistry Option Track; however, students are encouraged to enroll in Math 165 (or follow the course sequence leading to Math 165) if they want the option to switch into one of the other two tracks. It is important to register for the mathematics courses as soon as possible as the classes usually fill quickly.

### II. Strongly Encouraged First Semester

Engl 110*	Composition I	3 cr. (Engl 130 will be required later)
Lang 101	(Any) Foreign Language	4 cr. (Lang 201 will be required later)

\* Engl 110 is waived for students with ACT  $\geq$  27; they may enroll directly in Engl 130.

### III. Other Course Choices/Requirements

Arts & Humanities or Social Science *Essential Studies* courses can fill schedule.

### IV. Other Program/Major Information

It is important that each chemistry freshman meets his/her chemistry and academic advisor promptly.

## Other Chemistry Info for Non-Majors

Chem 221/221L is NOT restricted to chemistry or chemical engineering majors. It is appropriate for any students with solid high-school background in chemistry and algebra. These students may find Chem 221 more appealing than Chem 121 due to the smaller enrollment (40 versus 200).

All freshmen chemistry lecture classes (i.e., Chem 115, 121, and 221) should be taken concurrently with the corresponding laboratory course (Chem 115L, 121L, and 221L). It is now possible for students to register in Chem 115 or 121 without registering in the corresponding lab course (Chem 115L or 121L). *However, they should be STRONGLY discouraged from this practice* because the lab is a pre-requisite for the next chemistry course in the sequence (Chem 116 or Chem 122) and it is probably needed for their major.

For the fall semester, Chem 115 is limited to pre-nursing students or those in a program that specifically requires this course (e.g. pre-OT, PEXW). Other students wishing to take this lower level chemistry course should select it in the spring semester.