

## Chemistry

<b>Courses required for the first year:</b> CHEM-131 and CHEM-132 or CHEM-235
<b>Courses recommended for the first year:</b> MATH-160, MATH-220, or MATH-230 depending on math placement
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### The Major in Chemistry

**MAJOR IN CHEMISTRY.** 28 credits beyond CHEM-132/ CHEM-235, including CHEM-255, CHEM-322, CHEM-361 or CHEM-365, CHEM-441, CHEM-435 and one Senior Inquiry chosen from CHEM-474, CHEM-475 or CHEM-476. Required supporting courses: PHYS-151/PHYS-152 or PHYS-211/PHYS-212 and MATH-160, MATH-220, and MATH-230.

Recommended supporting courses: BIOL-130, MATH-260, MATH-320, MATH-250, COMP-211, COMP-212.

**ACS APPROVED MAJOR IN CHEMISTRY.** Students desiring an ACS-certified major must complete 36 credits beyond CHEM-132/CHEM-235, including CHEM-255, CHEM-322, CHEM-361, CHEM-365, CHEM-455, CHEM-441, CHEM-435 and one Senior Inquiry chosen from CHEM-475 or CHEM-476. Required supporting courses: PHYS-151/PHYS-152 or PHYS-211/PHYS-212 (recommended) and MATH-160, MATH-220, and MATH-230.

Recommended supporting courses: BIOL-130, MATH-260, MATH-320, MATH-250, COMP-211, COMP-212.

### Required Courses

Course Number	Course Name	Learning Perspective	Prerequisites	Credits
CHEM-131*	General Chemistry I	PN	None	4
CHEM-132*	General Chemistry II	PN	CHEM-131 or CHEM-235	4
CHEM-235*	Introduction to Inorganic Chemistry	PN	Two years high school chemistry or instructor permission	4
CHEM-255	Quantitative Analysis		CHEM-132 or CHEM-235	4
CHEM-321	Organic Chemistry I		CHEM-132 or CHEM-235	4
CHEM-322	Organic Chemistry II		CHEM-321	4
CHEM-361 or CHEM-365**	Physical Chemistry I or II		CHEM-131 or CHEM-235, PHYS-152 or PHYS-212, MATH-220 and MATH-230	4
CHEM-435	Advanced Inorganic Chemistry		CHEM-332	4
CHEM-441	Biochemistry I		CHEM-322 and BIOL-130 4 CHEM-442 Biochemistry II CHEM	4
CHEM-471	Inquiry in Chemistry		CHEM-322	2
CHEM-474, CHEM-475, or CHEM-476	Senior Inquiry		CHEM-471**	2

\*Placement in first-year chemistry courses depends on previous preparation. See below for more details.

\*\*May be taken as a co-requisite

### **Additional Courses (or Required Supporting Courses)**

<b>Course Number</b>	<b>Course Name</b>	<b>Learning Perspective</b>	<b>Prerequisites</b>	<b>Credits</b>
MATH-160	Calculus		Math placement or MATH-140	4
MATH-220 & MATH-230	Integration Methods and Infinite Series		MATH-160	2+2
PHYS-151 or PHYS-211	Principles of Physics I or Foundational Physics I	PN	PHYS-211 requires MATH-160	4
PHYS-152 or PHYS-212	Principles of Physics II or Foundational Physics II	PN	PHYS-212 requires MATH-220 (prerequisite) MATH-260 (co-requisite)	4
CHEM-442	Biochemistry II		CHEM-441 and BIOL-250	4
CHEM-455	Instrumental Analysis		CHEM-225 and CHEM-322	4

### **The Minor in Chemistry**

12 Credits in chemistry beyond CHEM-132/CHEM-235 at the 200-level or above. Required supporting course MATH-160 (Calculus I)

### **Major Overview**

Over the past 25 years, more than 65 percent of Augustana chemistry graduates have chosen to continue studies at major universities. Their graduate school placement is virtually 100 percent. The acceptance rate of students into pharmacy schools has been 95 percent over the past five years.

About a third of chemistry majors take jobs directly after graduation with the B.A. degree. These include those who eventually work in the chemical industry, technical sales, and teaching positions at the secondary level.

The department's success in producing students who eventually earn a Ph.D. in chemistry has been recognized by the Dow Chemical Company Foundation, which has chosen Augustana as one of 42 colleges to receive a four-year scholarship. This scholarship is awarded each year to one or two outstanding first-year students.

The department has established internships for chemistry majors to work part time and/or summers at a local city water treatment plant, an environmental analytical lab or a paint research lab.

### **A note on selecting first-year chemistry courses:**

Students with a strong high school chemistry background (i.e. two years of chemistry, AP chemistry) and who are considering majoring in chemistry or biochemistry should take CHEM-235 since this will put them on track to take Organic Chemistry I (CHEM-321) or Quantitative Analysis (CHEM-255) during spring semester of their first year. Students seeking to complete a year of general chemistry for professional school have several options:

1. Students with a typical high school science background (one year of chemistry) should plan to complete CHEM-131 and CHEM-132 (General Chemistry I and II).
2. Students who have earned AP scores of 4 or 5 in chemistry can receive credit for CHEM-132. In order to complete a year of general chemistry (required by many professional schools) they should take CHEM-131 or CHEM-235 (Introductory Inorganic Chemistry; preferred).
3. There will be one section of CHEM-131 offered each spring semester and CHEM-132 offered each fall semester (starting fall 2020) to accommodate student scheduling needs and provide flexibility.

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