



Interdisciplinary Chemical Sciences

Major

University of Michigan - Department of Chemistry

Effective 9/2019

The *Interdisciplinary Chemical Sciences* (ICS) major allows students the flexibility to supplement a core study of chemistry with courses in complementary fields. This major can be an effective preparation for graduate study in the sciences, for graduate studies in an interdisciplinary area that might benefit from a strong science background, for medical, law, and business schools, or for direct entry into the job market. Because students pursuing the ICS degree have a wide variety of career goals, advising from a chemistry departmental advisor is especially important.

Interdisciplinary Chemical Sciences: General principles

The *Interdisciplinary Chemical Sciences* major allows students substantial flexibility to define the thematic focus of their study. This flexibility comes with a responsibility: each student must work with a chemistry departmental advisor to select the proper upper level chemistry classes and define a cognate course plan when declaring the ICS major. The plan defined when a student declares the major need not be final. In fact, it is quite likely it will evolve as the student learns more and understands better where they want to go with their degree. However, changes must be discussed in advance with a chemistry departmental advisor and approved by the advisor.

To help with this process and to illustrate the range of options available within this major, we have provided a few examples of major and cognate plans. Each is meant to illustrate how students focusing in a particular area might best prepare themselves for the future. These are only examples. Even within the areas described, we expect that a student would define his or her own plan differently.

A departmental advisor will be designated to help students design a coherent plan and to oversee the development and completion of this plan. Additional dedicated advisors will be designated as required by the size of the program.

Prerequisites:

As a prerequisite for the major students must complete the following courses in Mathematics and Physics, or their equivalents. Some plans will include courses that require additional prerequisite courses including the second term of physics, additional math courses, and/or introductory biology courses but these are not explicitly required for the major.

Course #	Course Description	Term Completed	Term Typically Offered	Credits
MATH 115	Calculus I		<i>F, W, Sp, Su</i>	4
MATH 116	Calculus II		<i>F, W, Sp, Su</i>	4
One of the following groups; 135/136 or 140/141:				
PHYS 135/136 OR PHYS 140/141	Physics for the Life Sciences I		<i>F, W, Sp</i>	4/1
	General Physics I/ Elementary Laboratory I		<i>F, W, Sp</i>	4/1

The Interdisciplinary Chemical Sciences Program must include the following:

The Interdisciplinary Chemical Sciences program requires a minimum of 27 credits in chemistry. These classes must be completed with a minimum grade of a C- in each one. The major includes required core courses covering the major areas of chemistry: organic, inorganic, analytical and physical.

Core courses:

Course #	Course Description	Term Completed	Term Typically Offered	Credits
CHEM 210	Structure and Reactivity I		<i>F, W, Sp</i>	3
CHEM 211	Investigations in Chemistry		<i>F, W, Sp</i>	2
CHEM 260	Chemical Principles		<i>F, W</i>	3
One of the following groups; (241 and 242) OR (245, 246 and 247):				
CHEM 241	Introduction to Chemical Analysis		<i>F, W</i>	2
CHEM 242 OR CHEM 245	Introduction to Chemical Analysis Laboratory		<i>F, W</i>	2
CHEM 246/247	Biomedical Analytical Chemistry		<i>F, W</i>	2
	Biomedical Analytical Chemistry Laboratory I and II		<i>F, W</i>	1/1
One of the following; 302 or 303:				
CHEM 302 OR CHEM 303	Inorganic Chemistry: Principles of Structure, Reactivity, and Function		<i>W</i>	3
	Introductory Bioinorganic Chemistry: The Role of Metals in Life		<i>F, W</i>	3

