CHEMISTRY (B.A.)

This curriculum allows students to major with a maximum of forty-six credits in chemistry while providing flexibility for exposure in other cognate fields. This degree is appropriate for students in science-oriented pre-professional programs such as medicine and dentistry, as well as for students entering secondary science teaching. For individuals interested in entering a graduate program in chemistry or pursuing a position in the chemical industry upon graduation, it is recommended that the additional requirements for professional certification by the American Chemical Society (see *Requirements* tab) be completed.

Admission Requirements

Admission requirements for this program are satisfied by the general requirements for undergraduate admission (http://bulletins.wayne.edu/undergraduate/general-information/admission/) to the University. Students planning to major in chemistry should consult with an advisor in the Chemistry Department not later than the beginning of their sophomore year.

Program Requirements

Candidates must complete 120 credits in course work including satisfaction of the University General Education Requirements (http://bulletins.wayne.edu/undergraduate/general-information/general-education/) and the College of Liberal Arts and Sciences Group Requirements (http://bulletins.wayne.edu/undergraduate/college-liberal-arts-sciences/bachelors-degree-requirements/), as well as the departmental major requirements cited below. All course work must be completed in accordance with the regulations of the University (http://bulletins.wayne.edu/undergraduate/general-information/academic-regulations/) and the College (http://bulletins.wayne.edu/undergraduate/college-liberal-arts-sciences/academic-regulations/) governing undergraduate scholarship and degrees.

Major Requirements

Those who wish to follow the general curriculum in the College of Liberal Arts and Sciences for the B.A. degree with a major in chemistry must complete the following courses:

Code	Title	Credits
CHM 1100	General Chemistry I	4
CHM 1130	General Chemistry I Laboratory	1
CHM 1140	General Chemistry II	4
CHM 1150	General Chemistry II Laboratory	1
CHM 1240	Organic Chemistry I	4
CHM 1250	Organic Chemistry I Laboratory	1
CHM 2220	Organic Chemistry II	4
CHM 2230	Organic Chemistry II Laboratory	1
CHM 3020	Intermediate Inorganic Chemistry I	3
or CHM 3000	Metals in Biology	
CHM 3120	Analytical Chemistry	3
CHM 3130	Analytical Chemistry Laboratory	1
CHM 5400	Biological Physical Chemistry	3
or CHM 5420	Physical Chemistry I	
CHM 5550	Physical Chemistry Laboratory	2-3
or CHM 5510	Chemical Synthesis Laboratory	
or CHM 5020	Intermediate Inorganic Chemistry II	
CHM 5600	Survey of Biochemistry	3
or CHM 6620	Metabolism: Pathways and Regulation	
Select at least one of the following that is not being used in a different category:		3-4
CHM 5020	Intermediate Inorganic Chemistry II	
CHM 5160	Instrumental Analytical Chemistry	
CHM 5440	Physical Chemistry II	
CHM 5510	Chemical Synthesis Laboratory	
CHM 6060	Materials Chemistry and Engineering	
CHM 6070	Advanced Bioinorganic Chemistry	
CHM 6090	Organometallic Chemistry	
CHM 6100	Theory of Analytical Chemistry	
CHM 6120	Electroanalytical Chemistry	
CHM 6160	Separation Science	
CHM 6170	Advances in Bioanalytical Chemistry	
CHM 6180	Mass Spectrometry	
CHM 6200	Organic Structures and Mechanisms	
CHM 6220	Organic Reactions and Synthesis	
CHM 6240	Organic Spectroscopy	
CHM 6270	Advanced Bioorganic Chemistry and Drug Design	
CHM 6410	Statistical Thermodynamics	
CHM 6440	Computational Chemistry	
CHM 6500	Modern Methods in Experimental Chemistry	
CHM 6620	Metabolism: Pathways and Regulation	
CHM 6635	Tools of Molecular Biology	
CHM 6640	Molecular Biology	
CHM 6680	Clinical and Molecular Aspects of Cancer	
CHM 6700	Green Chemistry: Mindful Design in Science, Engineering, and Medicine	
PHY 2170	University Physics I for Scientists and Engineers	4
PHY 2171	University Physics I Experimental Laboratory	1
PHY 2180	University Physics II for Scientists and Engineers	4
PHY 2181	University Physics II Experimental Laboratory	1
MAT 2010	Calculus I	4
MAT 2020	Calculus II	4
MAT 2250	Elementary Linear Algebra	3
Total Credits		**59-61**

A minimum grade of 'C' is required in prerequisite chemistry courses.

At least fifteen credits in chemistry must be earned at Wayne State University.

ACS Certification

B.A. candidates may receive certification by the American Chemical Society upon graduation by completing the following in addition to the Chemistry courses required for the B.A. degree:

Code	Title	Credits
MAT 2030	Calculus III	4
CHM 5420	Physical Chemistry I	3
CHM 5440	Physical Chemistry II (rather than CHM 5400)	4
CHM 5160	Instrumental Analytical Chemistry	3
Select two of the following:		4-5
CHM 5510	Chemical Synthesis Laboratory	
CHM 5570	Instrumental Analytical Chemistry Laboratory	
CHM 5999	Research in Chemistry	
Total Credits		**18-19**

To receive certification, students must submit an application along with a transcript to the Chemistry Department Curriculum Committee prior to the end of the final term.

Chemistry Honors (B.A. Program)

1. All B.A. requirements in chemistry must be fulfilled.
2. Minimum g.p.a.: 3.3 overall; 3.3 in chemistry courses.
3. Minimum of four credits in independent research (CHM 5998). Research should commence in the junior year (or earlier).
4. Completion of one semester of an Honors Program 4200-level seminar (consult the Schedule of Classes under 'Honors Program'). This course may be used in partial fulfillment of College Group Requirements and can be elected in either the junior or senior year.
5. At least twelve credits in honors-designated course work.
6. Submission of a B.A. thesis or of a manuscript suitable for publication in a refereed chemical journal (covering the undergraduate research project) to the Honors Subcommittee in Chemistry which will act to accept or reject the thesis (or manuscript).
7. An oral examination covering the B.A. Honors Research Project, by the Honors Subcommittee in Chemistry.