

College of Science, Technology, Engineering and Mathematics

Program Requirements for:

BS Degree in Chemistry

Student Name		Banner #	
Cell Phone #		E-Mail Address	
Street Address		City/State/Zip Code	
Birth Date	Date Entered YSU	Date Declared Major	

Department	Chemistry	Dept. Location	5053 Ward Beecher Hall
Chairperson	Dr. Timothy Wagner trwagner@ysu.edu	Dept. Web Address	http://chemistry.ysu.edu/
Dept. Phone #	(330) 941-3662	Effective Date of Program Requirements	

Requirements for Graduation:

GER model complete		Foreign Language through 2600 level (8 sh) (Not required for BS Chemistry majors.)	
Minimum 54 sh in major			Minimum of 120 total sh for the degree
Minimum 18 sh in minor		Minimum 48 sh of upper-division credit	Residency requirement (transfer students only)
			Minimum of 2.00 GPA

General Education Requirements (GER)

Subject	Crs. #	Course Title	SH	Gr
STEM	1520	STEM First Year Orientation	2	
ENGL	1550	Writing 1 (CRPT or ENGL 1539/1540)	3	
ENGL	1551	Writing 2 (ENGL 1550)	3	
CMST	1545	Communication Foundations (eligibility for ENGL 1550)	3	
MATH	1571	Calculus 1 (Level 70 on the MPT or MATH 1513)	4	

A variety of MATH courses may satisfy the MATH GER, although your major may require a specific one.

General Education Knowledge Domains

Some courses are categorized in more than one knowledge domain.

Courses can only be used once within the General Education model.

Consult the GER website or your advisor for the list of approved courses meeting General Education requirements: <https://cms.ysu.edu/general-education/ysu-general-education-courses>

Arts & Humanities (AH): 2 courses (6 sh)

Natural Sciences (NS): 2 courses, one must be include a lab

PHYS	2610/L	General Physics 1 & L	4+1	
PHYS	2611/L	General Physics 2 & L	4+1	

Social Sciences (SS): 2 courses (6 sh)

Social & Personal Awareness (SPA): 2 courses (6 sh)

General Education Elective: 1 course

CHEM	1515/L	General Chemistry	4	
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Bachelor of Arts Degree Requirement: Foreign Language (8 sh)

(May not be required for your major - check major/college requirements.)

		NOT REQUIRED		
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Advisement:

Freshman, athletes, and students on warning and probation are **required** to meet with an advisor before registration.

It is recommended that all majors meet with a faculty advisor every semester.

Remedial Coursework

Students take the following coursework based on scores from their placement exams or ACT/SAT scores. Please see your advisor to determine which courses you are required to complete.

These courses do NOT count toward graduation hours.

Subject	Crs. #	Course Title	SH	Gr
RSS	1510A	Advanced College Success Skills	3	
RSS	1510B	Basic College Success Skills	3	
RSS	1510C	STEM Adv College Success Skills	3	
ENGL	1509/12	Aca Conv for Non-native Speakers	3	
ENGL	1512	Eng Conv for Non-native Speakers	1	
ENGL	1539	Fundamentals of College Writing	4	
ENGL	1540	Introduction to College Writing	3	
MATH	1501	Elementary Algebraic Models	5	
MATH	1505	Intermediate Algebra with Applications	5	
MATH	1507	Intermediate Algebra	3	

The Undergraduate Catalog is found at:

<http://catalog.ysu.edu/courses/>

General Education courses can be found

at: <https://cms.ysu.edu/general-education/ysu-general-education-courses>

BS Chemistry

Required Hours for the Major	76
Required Hours for the Minor	18
Required Upper-Division Hours for the Degree	48
Total Hours Required for the Degree	120

Grade of "C" or better is required. Courses cannot be taken "CR/NC".

The following CHEM core courses are required (39) sh

Subj.	Crs. #	Course Title	SH	Gr
CHEM	1515/L	General Chemistry 1 & Lab (CHEM 1501 or equivalent; Math 1513 or equivalent; concurrent 1515R)	4+0	
CHEM	1515R	Recitation for Gen. Chemistry 1 (concurrent CHEM 1515)	1	
CHEM	1516/L	General Chemistry 2 & Lab ("C" or better in CHEM 1515; concurrent 1516R)	4+0	
CHEM	1516R	Recitation for Gen. Chemistry 2 (concurrent CHEM 1516)	1	
CHEM	2604/L	Quantitative Analysis (CHEM 1516)	5+0	
CHEM	3719/L	Organic Chemistry 1 & Lab ("C" or better in CHEM 1516; concurrent 3719R)	4+0	
CHEM	3719R	Organic Chemistry Recitation 1 (concurrent CHEM 3719)	1	
CHEM	3720/L	Organic Chemistry 2 & Lab ("C" or better in CHEM 3719; concurrent 3720R)	4+0	
CHEM	3720R	Organic Chemistry Recitation 2 (concurrent CHEM 3720)	1	
CHEM	3739/L	Physical Chemistry 1 & Lab ("C" or better in CHEM 3720; PHYS 2611; PHYS 2611L; MATH 1572)	4+0	
CHEM	3729	Inorganic Chemistry (Pre-req or concurrent: CHEM 3739)	3	
CHEM	3740/L	Physical Chemistry 2 & Lab ("C" or better in CHEM 3739; MATH 2673)	4+0	
CHEM	3785	Biochemistry 1 (CHEM 3720)	3	

The following capstone is required (3 sh):

CHEM	4850/L	Chemistry Research and Lab	1+2	
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The following non-CHEM courses are required (22 sh):

MATH	1571	Calculus 1 (MATH 1513 or level 50 on MPT)	4	
MATH	1572	Calculus 2 (Math 1571)	4	
MATH	2673	Calculus 3 (Math 1572)	4	
PHYS	2610/L	General Physics 1 & Lab (HS physics or PHYS 1501; prereq. or concurrent: MATH 1571)	4+1	
PHYS	2611/L	General Physics 2 & Lab (PHYS 2610; prereq. or concurrent: MATH 1572)	4+1	

Electives:

Select 12 hours of upper-division chemistry electives (from the list below) 4 hours of which must be in upper-division laboratory.

CHEM	3764	Chemical Toxicology (CHEM 3720)	3	
CHEM	3785L	Biochemistry 1 Lab (Pre-req or concurrent: CHEM 3785)	1	
CHEM	3786	Biochemistry 2 (CHEM 3785)	3	
CHEM	3790	Undergraduate Seminar (Prereq. or concurrent: CHEM 2604 and CHEM 3720)	1	
CHEM	4850L	Chemistry Research Lab (Prereq. or concurrent: CHEM 4850 and approval of department chairperson)	2-3	

CHEM	4860	Regulatory Aspects of Industrial Chem (CHEM 3720)	1	
CHEM	4891	Special Topics	1-3	
CHEM	5804/L	Chemical Instrumentation (CHEM 3739)	2+2	
CHEM	5821	Intermediate Organic Chemistry (CHEM 3720)	3	
CHEM	5822/L	Advanced Organic Lab (CHEM 3720)	2+2	
CHEM	5830	Intermediate Inorganic Chem (CHEM 3729; pre-req or concurrent: CHEM 3740)	2	
CHEM	5831	Inorganic Lab (Pre-req or concurrent: CHEM 3729 and CHEM 3739)	2	
CHEM	5832/L	Solid State Structural Methods (CHEM 3729)	2+1	
CHEM	5836	Quantum Chemistry (CHEM 3740)	3	
CHEM	5861/L	Polymer Science 1 (CHEM 3739)	2+1	
CHEM	5862/L	Polymer Science 2 (CHEM 5861)	2+1	
CHEM	5876	Enzyme Analysis (CHEM 3785 or equivalent and CHEM 3785L or equivalent)	2	

Important Notes:

- View the online YSU *Undergraduate Catalog* (<http://catalog.ysu.edu/courses/>) for information including course descriptions and prerequisites, major and minor requirements, academic policies, etc.
- An accumulated GPA of 2.00 or above is required to graduate.
- All students must satisfy General Education requirements; some majors prescribe specific GE courses.
- A grade of "C" or better is required in all required major and minor courses. Courses taken as "CR/NC" will not count towards the major or minor. Courses taken out of sequence will not count toward graduation.
- Courses cannot count toward both the major and minor.
- Courses taken for the major and minor may be applied toward satisfying General Education requirements but credit hours toward graduation cannot be double counted.
- Eight semester hours of foreign language through the 2600 level are required of some majors; check your major requirements.
- Course numbers of 3700 and higher are considered upper-division courses.
- You must complete coursework totaling a minimum of 124 sh to graduate (at least 60 sh must be completed at the 2600 level or higher and 48 sh must be at the 3700 level or higher).
- The following courses do NOT count as hours toward graduation: MATH 1500, 1501, 1502, 1503, 1504, 1505 and 1507; ENGL 1509, 1512, 1539 and 1540; and RSS 1510A, 1510B and 1510C.
- The residency rule requires the last 30 sh of your degree and at least 16 sh in your major and 21 sh in upper-division courses to be completed at YSU.
- Eligibility to continue receiving federal financial aid is affected by your "satisfactory academic progress." Carefully review details on the Office of Financial Aid and Scholarship website: <http://www.ysu.edu/content/office-financial-aid-and-scholarships>
- Meet with your advisor on a regular basis to ensure you are meeting requirements for graduation.

Graduation Process

- **One Year Before Expected Graduation**
 - Request a Graduation Evaluation after you have completed 80-85 sh from the STEM Advising Center, 2325 Moser Hall, 330-941-2512.
 - When your evaluation is complete, make an appointment with the chairperson of your department.
- **Semester You Plan To Graduate**
 - Apply for graduation during the *first three weeks of the semester* you plan to graduate (you must have a graduation evaluation completed in advance).

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BS Degree in Chemistry

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Suggested 4-Year Semester Plan

Year 1 - Fall Semester					Year 1 – Spring Semester					
Subj.	Course #	Course Title	SH	Gr	Subj.	Course #	Course Title	SH	Gr	
CHEM	1515/L	General Chemistry 1 / Lab	4		CHEM	1516/L	General Chemistry 2 / Lab	4		
CHEM	1515R	General Chemistry 1 Recitation	1		CHEM	1516R	General Chemistry 2 Recitation	1		
MATH	1571	Calculus 1	4		MATH	1572	Calculus 2	4		
ENGL	1550	Writing 1	3		ENGL	1551	Writing 2	3		
STEM	1520	STEM First Year Orientation	2				GER	3		
TOTAL			14		TOTAL			15		

Year 2 - Fall Semester					Year 2 – Spring Semester					
Subj.	Course #	Course Title	SH	Gr	Subj.	Course #	Course Title	SH	Gr	
CHEM	3719/L	Organic Chemistry 1 / Lab	4		CHEM	3720/L	Organic Chemistry 2 / Lab	4		
CHEM	3719R	Organic Chemistry 1 Recitation	1		CHEM	3720R	Organic Chemistry 2 Recitation	1		
CHEM	2604/L	Quantitative Analysis/Lab	5		CHEM	2611/L	General Physics 2 / Lab	5		
PHYS	2610/L	General Physics 1 / Lab	5		MATH	2673	Calculus 3	4		
TOTAL			15		TOTAL			14		

Year 3 - Fall Semester					Year 3 – Spring Semester					
Subj.	Course #	Course Title	SH	Gr	Subj.	Course #	Course Title	SH	Gr	
CHEM	3739/L	Physical Chemistry 1 / Lab	4		CHEM	3740/L	Physical Chemistry 2 / L	4		
CHEM	3729	Inorganic Chemistry	3		CHEM		Upper Level Chemistry Electives	6		
		Elective	3				GER	6		
		GER	6							
TOTAL			16		TOTAL			16		

Year 4 - Fall Semester					Year 4 – Spring Semester					
Subj.	Course #	Course Title	SH	Gr	Subj.	Course #	Course Title	SH	Gr	
CHEM	4850	Chemistry Research	1		CHEM		Upper Level CHEM Electives	3		
CHEM	4850L	Chemical Research Lab	2				Upper Level Electives	9		
CHEM	3785	Biochemistry 1	3				GER	3		
CHEM		Upper Level Chemistry Electives	3							
COMST	1545	Speech Communications	3							
GER		GER	3							
TOTAL			15		TOTAL			15		

Required Hours for the Major	76
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Total Hours Required for the Degree	120

Electives must include courses to fulfill the requirements of the student's chosen minor.