

College of Science, Technology, Engineering and Mathematics
Program Requirements for:
BA Degree in Chemistry – Pre-Pharmacy Track

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.yosu.edu/
Dept. Phone #	(330) 941-3662	Effective Date of Program Requirements	

Requirements for Graduation:			
	GER model complete	Foreign Language through 2600 level (8 sh) (Required for BA Chemistry majors.)	Minimum of 120 total sh for the degree
	Minimum 39 sh in major		Residency requirement (transfer students only)
	Minimum 18 sh in minor	Minimum 39 sh of upper-division credit	Minimum of 2.00 GPA

General Education Requirements (GER)				
Subject	Crs. #	Course Title	SH	Gr
YSU	1500	Success Seminars	1	
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 <u>once</u> within the General Education model. Consult the GER website or your advisor for the list of approved courses meeting General Education requirements: https://cms.yosu.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		3	
Bachelor of Arts Degree Requirement: Foreign Language (8 sh)				
FNLG	1550	Elementary		
FNLG	2600	Intermediate		

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	1500	Mathematics Preparation for Algebra Placement	2	

The Undergraduate Catalog is found at:

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

General Education courses can be found at:

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

	Required Hours for the Major	57
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BA Chemistry – Pre-Pharmacy Track

Required Hours for the Minor	18
Required Upper-Division Hours for the Degree	39
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 (29 sh)

Subj.	Crs. #	Course Title	SH	Gr
CHEM	1515	General Chemistry 1 ("C" or better in CHEM 1501 or equivalent; "C" or better in Math 1513 or "C" or better in Math 1510; concurrent: CHEM 1515L and CHEM 1515R)	3	
CHEM	1515L	General Chemistry 1 Lab (concurrent: CHEM 1515)	1	
CHEM	1515R	Recitation for Gen. Chemistry 1 (concurrent: CHEM 1515)	1	
CHEM	1516	General Chemistry 2 ("C" or better in CHEM 1515; "C" or better in CHEM 1515L; concurrent CHEM 1516L and CHEM 1516R)	3	
CHEM	1516L	General Chemistry 2 Lab (concurrent: CHEM 1516)	1	
CHEM	1516R	Recitation for Gen. Chemistry 2 (concurrent: CHEM 1516)	1	
CHEM	2604/L	Quantitative Analysis (Prereq: 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)	4+0	
CHEM	3720R	Organic Chemistry Recitation 2 (concurrent: CHEM 3720)	1	
CHEM	3739	Physical Chemistry 1 ("C" or better in CHEM 3720; PHYS 2610; MATH 1572)	3	
CHEM	3739L	Physical Chemistry 1 Lab (Prereq or concurrent CHEM 3739)	1	

The following capstone is required (1 sh):

CHEM	4850	Chemistry Research (CHEM 2604 or CHEM 3719 and approval of dept. chairperson)	1	
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The following support courses are required (18 sh):

MATH	1571	Calculus 1 (Prereq: "C" or better in MATH 1510 or "C" or better in both MATH 1510 and MATH 1511 or at least 70 on MPT)	4	
MATH	1572	Calculus 2 (Pre-req: "C" or better in either Math 1571 or MATH 1581H)	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 (Pre-req: PHYS 2610; prereq or concurrent: MATH 1572)	4+1	

Electives:

Select nine (9) hours of upper-division CHEM electives from the list below

CHEM	3729	Inorganic Chemistry (Prereq or concurrent: CHEM 3739)	3	
CHEM	3740	Physical Chemistry 2 ("C" or better in CHEM 3739; PHYS 2611; MATH 2673)	3	
CHEM	3740L	Physical Chemistry 2 Lab (Prereq or coreq: CHEM 3740)	1	
CHEM	3761	Intro to Polymer Chemistry (Prereq: CHEM 3720)	1	
CHEM	3764	Chemical Toxicology (Prereq: CHEM 3720)	3	
CHEM	3785L	Biochemistry 1 Lab (Prereq or concurrent: CHEM 3785)	1	
CHEM	3786	Biochemistry 2 (Prereq: "C" or better in CHEM 3785)	3	
CHEM	3790	Undergraduate Seminar (Prereq or concurrent: CHEM 2604 and CHEM 3720)	1	
CHEM	4851	Chemistry Research Project (Prereq or concurrent: CHEM 4850 & approval of dept chair)	2-4	

CHEM	4860	Regulatory Aspects of Industrial Chem (Prereq: CHEM 3720)	2	
CHEM	4891	Special Topics	1-3	
CHEM	5804/L	Chemical Instrumentation (Prereq: CHEM 3739)	2+2	
CHEM	5821	Intermediate Organic Chemistry (Prereq: CHEM 3720)	3	
CHEM	5822/L	Advanced Organic Lab (Prereq: CHEM 3720)	2+2	
CHEM	5830	Intermediate Inorganic Chem (Prereq: CHEM 3729; pre-req or concurrent: CHEM 3740)	2	
CHEM	5831	Inorganic Lab (Prereq or concurrent: CHEM 3729 and CHEM 3739)	2	
CHEM	5832/L	Solid State Structural Methods (Prereq: CHEM 3729)	2+1	
CHEM	5836	Quantum Chemistry (Prereq: CHEM 3740)	3	
CHEM	5861/L	Polymer Science 1 (Prereq: CHEM 3739)	2+1	
CHEM	5862/L	Polymer Science 2 (Prereq: CHEM 5861)	2+1	
CHEM	5876	Enzyme Analysis (Prereq: 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 120 sh to graduate (at least 60 sh must be completed at the 2600 level or higher and 39 sh must be at the 3700 level or higher).
- The following courses do NOT count as hours toward graduation: MATH 1500; 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 100 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).

College of Science, Technology, Engineering and Mathematics

Program Requirements for:

†BA Degree in Chemistry – Pre-Pharmacy Track

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	General Chemistry 1	3		CHEM	1516	General Chemistry 2	3		
CHEM	1515L	General Chemistry 1 Lab	1		CHEM	1516L	General Chemistry 2 Lab	1		
CHEM	1515R	Recitation for Gen. Chem. 1	1		CHEM	1516R	Recitation for Gen. Chem. 2	1		
MATH	1571	Calculus 1	4		MATH	1572	Calculus 2	4		
YSU	1500	Success Seminars	1		ENGL	1550	Writing 1	3		
*STEM	1500	STEM Careers (recommended)	1		FNLG	2600	Foreign Language - Intermediate	4		
FNLG	1550	Foreign Language - Elementary	1							
TOTAL			12		TOTAL			16		

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	Recitation for Organic Chem. 1	1		CHEM	3720R	Recitation for Organic Chem. 2	1		
BIOL	2601/L	Molecules and Cells	4		CHEM	2604/L	Quantitative Analysis & Lab	5		
PHYS	2610/L	General Physics 1 & Lab	5		PHYS	2611/L	General Physics 2 & Lab	5		
ENGL	1551	Writing 2	3							
TOTAL			17		TOTAL			15		

Year 3 - Fall Semester					Year 3 – Spring Semester					
Subj.	Course #	Course Title	SH	Gr	Subj.	Course #	Course Title	SH	Gr	
CHEM	3739	Physical Chemistry 1	3		CHEM	3786	Biochemistry 2	3		
CHEM	3739L	Physical Chemistry 1 Lab	1		CHEM	5876	Enzyme Analysis	2		
CHEM	3785	Biochemistry 1	3		BIOL	3702/L	Microbiology & Lab	4		
CHEM	3785L	Biochemistry 1 Lab	1		BIOL	3705/L	Human Gross Anatomy & Lab	4		
BIOL	2602/L	Organisms and Ecology and Lab	4				GER	3		
STAT	3717 or 3743	Statistical Methods or Probability and Statistics	4							
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		BIOL		4800 or 5800-level elective	4		
BIOL	3730/L	Human Physiology & Lab	5				GER	9		
CMST	1545	Communication Foundations	3							
		GER	6							
TOTAL			15		TOTAL			13		

*If you choose not to take STEM 1551 you will need to complete 1 sh of course work elsewhere in your curriculum

Required Hours for the Major	57
Required Hours for the Minor	18
Required Upper-Division Hours for the Degree	39
Total Hours Required for the Degree	120

†A biology minor is built into the degree.