

College of Science, Technology, Engineering and Mathematics
Program Requirements for:
BA 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) (Foreign Lang. is required for a BA in CHEM)	Minimum of 120 total sh for the degree
	Minimum 39 sh in major		Residency requirement (see notes)
	Minimum 18 sh in minor	Minimum 48 sh of upper-division credit	Minimum of 2.00 GPA

General Education Requirements (GER)				
Subject	Crs. #	Course Title	SH	Gr
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 & Lab	4+1	
PHYS	2611/L	General Physics 2 & Lab	4+1	
Social Sciences (SS): 2 courses (6 sh)				
Social & Personal Awareness (SPA): 2 courses (6 sh)				
General Education Elective: 1 course				
Bachelor of Arts Degree Requirement: Foreign Language (8 sh)				
FNLG	1550		4	
FNLG	2600		4	

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.yosu.edu/courses/>

General Education courses can be found at:
<https://cms.yosu.edu/general-education/ysu-general-education-courses>

BA Chemistry – Pre-Pharmacy Track

Required Hours for the Major	61
Required Hours for the Minor	18
Required Upper-Division Hours for the Degree	48
Total Hours Required for the Degree	121

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/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	Recitation for Organic Chem. 1 (concurrent CHEM 3719)	1	
CHEM	3720/L	Organic Chemistry 2 & Lab ("C" or better in CHEM 3719, concurrent 3720R)	4+0	
CHEM	3720R	Recitation for Organic Chem. 2 (concurrent CHEM 3720)	1	
CHEM	3739/L	Physical Chemistry 1 & Lab ("C" or better in CHEM 3720; PHYS 2611/2611L; MATH 1572)	4+0	

The following capstone is required (1 sh):

CHEM	4850	Chemistry Research	1	
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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	
STAT	3717	Statistical Methods (MATH 1549 or 1570 or 1571 or 1585H or equivalent)	4	
or STAT	or 3743	or Probability and Statistics (MATH 1572 or 1585H)		
PHYS	2610/L	General Physics 1 & Lab (HS physics or PHYS 1505 and 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 nine (9) sh of upper-level CHEM electives (3000 or higher) from the list below.

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	3764	Chemical Toxicology (CHEM 3720)	3	
CHEM	3785	Biochemistry 1 (CHEM 3720)	3	
CHEM	3786	Biochemistry 2 (CHEM 3785)	3	
CHEM	3790	Undergraduate Seminar (Prereq. or concurrent: CHEM 2604 and CHEM 3720)	1	
CHEM	4850L	Research Lab (Prereq. or concurrent: CHEM 4850 and approval of department chairperson)	2-4	
CHEM	4860	Regulatory Aspects of Industrial Chemistry (CHEM 3720)	1	
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 Chemistry (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	
CHEM	3785L	Biochemistry 1 Lab (Pre-req or concurrent: CHEM 3785)	1	
CHEM	4891	Special Topics	1-3	

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 1501, 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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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	Recitation for Gen. Chem. 1	1		CHEM	1516R	Recitation for Gen. Chem. 2	1	
MATH	1571	Calculus 1	4		MATH	1572	Calculus 2	4	
ENGL	1550	Writing 1	3		ENGL	1551	Writing 2	3	
	1550	Foreign Language - Elementary	4			2600	Foreign Language - Intermediate	4	
TOTAL			16		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	
CHEM	2604/L	Quantitative Analysis	5		PHYS	2611/L	General Physics 2 & Lab	5	
PHYS	2610/L	General Physics 1 & Lab	5		BIOL	2601/L	Molecules and Cells	4	
					GER			3	
TOTAL			15		TOTAL			17	

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	3786	Biochemistry 2	3	
CHEM	3785	Biochemistry 1	3		CHEM	5876	Enzyme Analysis	2	
CHEM	3785L	Biochemistry 1 Lab	1		BIOL	3702/L	Microbiology	4	
BIOL	2602/L	Organisms and Ecology	4		BIOL	3705/L	Human Gross Anatomy	4	
STAT	3717 or 3743	Statistical Methods or Probability and Statistics	4		GER			3	
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	5		ECON		ECON 2610 (SS Gen Ed Course)	3	
CMST	1545	Communication Foundations	3				GER	5	
		Upper Level GER	4						
TOTAL			13		TOTAL			12	

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