Youngstown State University
B.S. Degree in Chemistry*
Biochemistry Option

YEAR ONE	SH		SH
Fall Semester		**Spring Semester**	
CHEM 1515/L ,GenChem1/Lab	4	CHEM 1516/L,GenChem.2/Lab	4
CHEM1515R,Recitation Gen Chem 1	1	CHEM 1516R, Recitation Gen Chem 2	1
MATH 1571[1], Calculus 1	4	MATH 1572, Calculus 2	4
ENGL 1550[1], Writing 1	3	ENGL 1551, Writing 2	3
A&S Foreign Language[1]	4	A&S Foreign Language	4
Total	**16**	**Total**	**16**

YEAR TWO			
Fall Semester		**Spring Semester**	
CHEM 3719/L, Organic Chem 1/Lab	4	CHEM 3720/L, OrganicChem 2/Lab	4
CHEM 3719R,Recitation/Org Chem 1	1	CHEM 3720R,Recitation/Org Chem 2	1
CHEM 2604/L, QuantAnalysis/Lab	5	PHYS 2611/L[2] , GenPhysics 2/Lab	5
PHYS 2610/L[2] , GenPhysics 1/Lab	5	BIOL 2601/L[3], Molecules and Cells	4
Total	**15**	GER[4]	3
		Total	**17**

YEAR THREE			
Fall Semester		**Spring Semester**	
CHEM 3785, Biochemistry 1	3	CHEM 3786, Biochemistry 2	3
CHEM 3785L, Biochemistry 1 Lab	1	CHEM 5876, Enzyme Analysis	2
BIOL 2602/L, Organisms and Ecology	4	CHEM 3737/L, Biophysical Chem/Lab	4
BIOL 3711, Cell Biology	3	BIOL 3721[5], Genetics	3
GER	6	GER	3
Total	**17**	**Total**	**15**

YEAR FOUR			
Fall Semester		**Spring Semester**	
CHEM 4850,Chemistry Research	1	Upper-Level CHEM Electives	6
CHEM 4850L,Chemistry Research Lab	2	GER	9
CHEM 3729, Inorganic Chemistry	3	**Total**	**15**
Upper-Level CHEM Electives[6]	4		
Upper-Level BIOL Electives[7]	4		
GER Speech – COMST 1545	3		
Total	**17**		

*128 total semester hours (sh) required for the BS degree, biochem option, of which 54 sh are in Chemistry.

[1]Placement exams in English, Math, and Foreign Language (FNLG) are required before registration in classes. ENGL 1550 & 1551 must be completed by 62 sh. FNLG through level 2600 required unless satisfied through placement exam.

[2]Courses in physics may be applied to the GER Natural Science (NS) requirement.

[3]Biology minor is included in the curriculum and is strongly recommended.

[4]GER requirements in the Knowledge Domain: 2-3 courses in Societies & Institutions (SI); 2 courses in Personal & Social Responsibilities (PS); 2-3 courses in Artistic & Literary Perspectives (AL). For BS CHEM majors, SI + PS + AL must equal seven courses, all other requirements for the GER Knowledge Domain are met through the major.

[5]BIOL 3721, Genetics, is designated as a critical thinking-intensive course. To complete the Basic Skills GER requirements, BS Biochemistry students therefore need to take another critical thinking-intensive course, two writing-intensive classes, and one oral communication-intensive course, which they should take from their electives or GER courses in the Knowledge Domain.

[6]In addition to BS core, BS majors must complete *ten (10)* hours of upper-level chemistry electives (from the list below), four (4) hours of which must be in upper-level laboratory. All majors must also complete the capstone sequence (4850 – 1 hour and 4850L – 2 hours).

[7]Upper level biology electives may be selected from the list below.

B.S. BIOCHEM ELECTIVES:

CHEM	BIOL
4850L Chemistry Research Laboratory (2-3)	4890, Molecular Genetics (3)
5804/L Chemical Instrumentation (4)	4890L, Molecular Genetics Lab (1)
5821 Intermediate Organic Chemistry (3)	5827, Gene Manipulation (2)
5822/L Advanced Organic Lab (4)	5836, Cell Biology: Molecular Mechanisms (4)
5830 Intermediate Inorganic Chemistry (2)	

NOTES:

- Grades of C or better are required in the major and minor.
- Classes taken or repeated out of sequence will not count toward graduation. **Check prerequisites.**
- Residency rule states that the last 30 sh must be completed at YSU; 16sh in major, 21 sh in upper division courses.
- "Intent to Graduate" Form must be filed by 93 sh.