BACHELOR OF ARTS IN CHEMISTRY

		S.H.
YSU 1500	QUIREMENT -STUDENT SUCCESS Success Seminar	1-2
or YSU 1500		1-2
or HONB 150	··· j··· · · · · · · · · · · · · · · ·	
	on Requirements	
ENGL 1550	Writing 1	3-4
or ENGL 1549	5	5-4
ENGL 1551	Writing 2	3
	quirement (met with MATH in major)	5
	re categorized in more than one knowledge domain.	
	y be used once within the GE model.	
Arts and Human	ities (6 s.h.)	6
Natural Sciences	s (2 courses, 1 with lab) (6-7 s.h.)	
Requirement	is met through science courses in the major	
Social Science (6
General Education	on Electives (9 s.h.)	
CMST 1545	Communication Foundations	3
Any 2 Gen Ed Co	urses	6
Foreign Languag	je	8
FNLG 1501	Conversational Foreign Language 1	3
FNLG 1502	Conversational Foreign Language 2	3
The following CH	IEM core courses are required (29 s.h.):	
Grade of "C" or b	etter is required. Courses cannot be taken "CR/NC"	
CHEM 1515	General Chemistry 1	3
CHEM 1515L	General Chemistry 1 Laboratory	1
CHEM 1515R	Recitation for General Chemistry 1	1
CHEM 1516	General Chemistry 2	3
CHEM 1516L	General Chemistry 2 Laboratory	1
CHEM 1516R	Recitation for General Chemistry 2	1
CHEM 2604	Quantitative Analysis	5
& 2604L	and Quantitative Analysis Laboratory	
CHEM 3719	Organic Chemistry 1	3
CHEM 3719L	Organic Chemistry 1 Laboratory	1
CHEM 3719R	Organic Chemistry Recitation 1	1
CHEM 3720	Organic Chemistry 2	3
CHEM 3720L	Organic Chemistry 2 Laboratory	1
CHEM 3720R	Organic Chemistry Recitation 2	1
CHEM 3739	Physical Chemistry 1	3
CHEM 3739L	Physical Chemistry 1 Laboratory	1
	pstone is required (1 s.h.):	-
CHEM 4850	Chemistry Research	1
	on-CHEM courses are required (18 s.h.):	
MATH 1571	Calculus 1	4
MATH 1572	Calculus 2	4
PHYS 2610	General Physics 1	4
PHYS 2610L	General Physics Laboratory 1	1
PHYS 2611	General Physics 2	4
PHYS 2611L	General Physics laboratory 2	1
Electives:		
Select 9 s.h. of u	pper-level CHEM electives (3000 or higher) from the list	t 9

Select 9 s.h. of upper-level CHEM electives (3000 or higher) from the list below:

CHEM 3729	Inorganic Chemistry	
CHEM 3740	Physical Chemistry 2	
CHEM 3740L	Physical Chemistry 2 Laboratory	
CHEM 3761	Introduction to Polymer Chemistry	
CHEM 3764	Chemical Toxicology	
CHEM 3785	Biochemistry 1	
CHEM 3785L	Biochemistry Laboratory	
CHEM 3786	Biochemistry 2	
CHEM 3790	Undergraduate Seminar	
CHEM 4851	Chemistry Research Project	
CHEM 4860	Regulatory Aspects of Industrial Chemistry	
CHEM 4891	Special Topics	
CHEM 5804	Chemical Instrumentation	
& 5804L	and Chemical Instrumentation Laboratory	
CHEM 5821	Intermediate Organic Chemistry	
CHEM 5822	Advanced Organic Laboratory	
& 5822L	and Advanced Organic Laboratory	
CHEM 5830	Intermediate Inorganic Chemistry	
CHEM 5832	Solid State Structural Methods	
& 5832L	and Solid State Structural Methods Laboratory	
CHEM 5876	Enzyme Analysis	
29 s.h. of additiona	al electives required, 15 s.h. of which must be	29
upper level. These	electives should include courses needed to fulfill	
requirements of the	e minor, which is required.	
Total Semester Ho	urs	128-130
Year 1		
Fall		S.H.
YSU 1500	Success Seminar	1-2
or YSU 1500S	or Youngstown State University Success	1-2
	or Youngstown State University Success Seminar	1-2
or YSU 1500S or HONR 1500	or Youngstown State University Success Seminar or Intro to Honors	
or YSU 1500S or HONR 1500 CHEM 1515	or Youngstown State University Success Seminar or Intro to Honors General Chemistry 1	3
or YSU 1500S or HONR 1500 CHEM 1515 CHEM 1515L	or Youngstown State University Success Seminar or Intro to Honors General Chemistry 1 General Chemistry 1 Laboratory	3
or YSU 1500S or HONR 1500 CHEM 1515 CHEM 1515L CHEM 1515R	or Youngstown State University Success Seminar or Intro to Honors General Chemistry 1 General Chemistry 1 Laboratory Recitation for General Chemistry 1	3 1 1
or YSU 1500S or HONR 1500 CHEM 1515 CHEM 1515L CHEM 1515R MATH 1571	or Youngstown State University Success Seminar or Intro to Honors General Chemistry 1 General Chemistry 1 Laboratory Recitation for General Chemistry 1 Calculus 1	3 1 1 4
or YSU 1500S or HONR 1500 CHEM 1515 CHEM 1515L CHEM 1515R MATH 1571 ENGL 1550	or Youngstown State University Success Seminar or Intro to Honors General Chemistry 1 General Chemistry 1 Laboratory Recitation for General Chemistry 1 Calculus 1 Writing 1	3 1 1
or YSU 1500S or HONR 1500 CHEM 1515 CHEM 1515L CHEM 1515R MATH 1571	or Youngstown State University Success Seminar or Intro to Honors General Chemistry 1 General Chemistry 1 Laboratory Recitation for General Chemistry 1 Calculus 1 Writing 1 or Writing 1 with Support	3 1 1 4 3-4
or YSU 1500S or HONR 1500 CHEM 1515 CHEM 1515L CHEM 1515R MATH 1571 ENGL 1550 or ENGL 1549	or Youngstown State University Success Seminar or Intro to Honors General Chemistry 1 General Chemistry 1 Laboratory Recitation for General Chemistry 1 Calculus 1 Writing 1	3 1 1 4
or YSU 1500S or HONR 1500 CHEM 1515 CHEM 1515L CHEM 1515R MATH 1571 ENGL 1550 or ENGL 1549 Spring	or Youngstown State University Success Seminar or Intro to Honors General Chemistry 1 General Chemistry 1 Laboratory Recitation for General Chemistry 1 Calculus 1 Writing 1 or Writing 1 with Support Semester Hours	3 1 1 4 3-4 13-15
or YSU 1500S or HONR 1500 CHEM 1515 CHEM 1515L CHEM 1515R MATH 1571 ENGL 1550 or ENGL 1549 Spring CHEM 1516	or Youngstown State University Success Seminar or Intro to Honors General Chemistry 1 General Chemistry 1 Laboratory Recitation for General Chemistry 1 Calculus 1 Writing 1 or Writing 1 with Support Semester Hours General Chemistry 2	3 1 4 3-4 13-15 3
or YSU 1500S or HONR 1500 CHEM 1515 CHEM 1515L CHEM 1515R MATH 1571 ENGL 1550 or ENGL 1549 Spring CHEM 1516 CHEM 1516L	or Youngstown State University Success Seminar or Intro to Honors General Chemistry 1 General Chemistry 1 Laboratory Recitation for General Chemistry 1 Calculus 1 Writing 1 or Writing 1 with Support Semester Hours General Chemistry 2 General Chemistry 2 Laboratory	3 1 4 3-4 13-15 3 1
or YSU 1500S or HONR 1500 CHEM 1515 CHEM 1515L CHEM 1515R MATH 1571 ENGL 1550 or ENGL 1549 Spring CHEM 1516 CHEM 1516L CHEM 1516R	or Youngstown State University Success Seminar or Intro to Honors General Chemistry 1 General Chemistry 1 Laboratory Recitation for General Chemistry 1 Calculus 1 Writing 1 or Writing 1 with Support Semester Hours General Chemistry 2 General Chemistry 2 Laboratory Recitation for General Chemistry 2	3 1 4 3-4 13-15 3 1 1
or YSU 1500S or HONR 1500 CHEM 1515 CHEM 1515L CHEM 1515R MATH 1571 ENGL 1550 or ENGL 1549 Spring CHEM 1516 CHEM 1516R CHEM 1516R MATH 1572	or Youngstown State University Success Seminar or Intro to Honors General Chemistry 1 General Chemistry 1 Laboratory Recitation for General Chemistry 1 Calculus 1 Writing 1 or Writing 1 with Support Semester Hours General Chemistry 2 General Chemistry 2 Laboratory Recitation for General Chemistry 2 Calculus 2	3 1 4 3-4 13-15 3 1 1 1 4
or YSU 1500S or HONR 1500 CHEM 1515 CHEM 1515L CHEM 1515R MATH 1571 ENGL 1550 or ENGL 1549 Spring CHEM 1516 CHEM 1516L CHEM 1516R MATH 1572 ENGL 1551	or Youngstown State University Success Seminar or Intro to Honors General Chemistry 1 General Chemistry 1 Laboratory Recitation for General Chemistry 1 Calculus 1 Writing 1 or Writing 1 with Support Semester Hours General Chemistry 2 General Chemistry 2 Laboratory Recitation for General Chemistry 2	3 1 4 3-4 13-15 3 1 1 1 4 3
or YSU 1500S or HONR 1500 CHEM 1515 CHEM 1515L CHEM 1515R MATH 1571 ENGL 1550 or ENGL 1549 Spring CHEM 1516 CHEM 1516R CHEM 1516R MATH 1572	or Youngstown State University Success Seminar or Intro to Honors General Chemistry 1 General Chemistry 1 Laboratory Recitation for General Chemistry 1 Calculus 1 Writing 1 or Writing 1 with Support Semester Hours General Chemistry 2 General Chemistry 2 Laboratory Recitation for General Chemistry 2 Calculus 2 Writing 2	3 1 4 3-4 13-15 3 1 1 4 3 3 3
or YSU 1500S or HONR 1500 CHEM 1515 CHEM 1515L CHEM 1515R MATH 1571 ENGL 1550 or ENGL 1549 Spring CHEM 1516 CHEM 1516 CHEM 1516R MATH 1572 ENGL 1551 Gen Ed SS	or Youngstown State University Success Seminar or Intro to Honors General Chemistry 1 General Chemistry 1 Laboratory Recitation for General Chemistry 1 Calculus 1 Writing 1 or Writing 1 with Support Semester Hours General Chemistry 2 General Chemistry 2 Laboratory Recitation for General Chemistry 2 Calculus 2	3 1 4 3-4 13-15 3 1 1 1 4 3
or YSU 1500S or HONR 1500 CHEM 1515 CHEM 1515L CHEM 1515R MATH 1571 ENGL 1550 or ENGL 1549 Spring CHEM 1516 CHEM 1516L CHEM 1516R MATH 1572 ENGL 1551 Gen Ed SS	or Youngstown State University Success Seminar or Intro to Honors General Chemistry 1 General Chemistry 1 Laboratory Recitation for General Chemistry 1 Calculus 1 Writing 1 or Writing 1 with Support Semester Hours General Chemistry 2 General Chemistry 2 Laboratory Recitation for General Chemistry 2 Calculus 2 Writing 2	3 1 4 3-4 13-15 3 1 1 4 3 3 3
or YSU 1500S or HONR 1500 CHEM 1515 CHEM 1515L CHEM 1515R MATH 1571 ENGL 1550 or ENGL 1549 Spring CHEM 1516 CHEM 1516 CHEM 1516R MATH 1572 ENGL 1551 Gen Ed SS Year 2 Fall	or Youngstown State University Success Seminar or Intro to Honors General Chemistry 1 General Chemistry 1 Laboratory Recitation for General Chemistry 1 Calculus 1 Writing 1 or Writing 1 with Support Semester Hours General Chemistry 2 General Chemistry 2 General Chemistry 2 Calculus 2 Writing 2 Semester Hours Semester Hours	3 1 4 3-4 13-15 3 1 1 4 3 3 3 15
or YSU 1500S or HONR 1500 CHEM 1515 CHEM 1515L CHEM 1515R MATH 1571 ENGL 1550 or ENGL 1549 Spring CHEM 1516 CHEM 1516 CHEM 1516R MATH 1572 ENGL 1551 Gen Ed SS Year 2 Fall CHEM 3719	or Youngstown State University Success Seminar or Intro to Honors General Chemistry 1 General Chemistry 1 Laboratory Recitation for General Chemistry 1 Calculus 1 Writing 1 or Writing 1 with Support Semester Hours General Chemistry 2 General Chemistry 2 General Chemistry 2 Calculus 2 Writing 2 Semester Hours Semester Hours Organic Chemistry 1	3 1 4 3-4 13-15 3 1 1 4 3 3 15 3
or YSU 1500S or HONR 1500 CHEM 1515 CHEM 1515L CHEM 1515R MATH 1571 ENGL 1550 or ENGL 1549 Spring CHEM 1516 CHEM 1516R MATH 1572 ENGL 1551 Gen Ed SS Year 2 Fall CHEM 3719 CHEM 3719L	or Youngstown State University Success Seminar or Intro to Honors General Chemistry 1 General Chemistry 1 Laboratory Recitation for General Chemistry 1 Calculus 1 Writing 1 or Writing 1 with Support Semester Hours General Chemistry 2 General Chemistry 2 Laboratory Recitation for General Chemistry 2 Galculus 2 Writing 2 Semester Hours Semester Hours Organic Chemistry 1 Laboratory	3 1 4 3-4 13-15 3 1 1 4 3 3 15 3 1 5
or YSU 1500S or HONR 1500 CHEM 1515 CHEM 1515L CHEM 1515R MATH 1571 ENGL 1550 or ENGL 1549 CHEM 1516 CHEM 1516C CHEM 1516R MATH 1572 ENGL 1551 Gen Ed SS Year 2 Fall CHEM 3719 CHEM 3719L CHEM 3719R	or Youngstown State University Success Seminar or Intro to Honors General Chemistry 1 General Chemistry 1 Laboratory Recitation for General Chemistry 1 Calculus 1 Writing 1 or Writing 1 with Support Semester Hours General Chemistry 2 General Chemistry 2 Laboratory Recitation for General Chemistry 2 Calculus 2 Writing 2 Semester Hours Semester Hours Organic Chemistry 1 Dorganic Chemistry 1 Laboratory Organic Chemistry Recitation 1	3 1 4 3-4 13-15 3 1 1 4 3 3 15 3 1 1 1
or YSU 1500S or HONR 1500 CHEM 1515 CHEM 1515L CHEM 1515R MATH 1571 ENGL 1550 or ENGL 1549 Spring CHEM 1516 CHEM 1516C CHEM 1516R MATH 1572 ENGL 1551 Gen Ed SS Year 2 Fall CHEM 3719 CHEM 3719R CHEM 3719R	or Youngstown State University Success Seminar or Intro to Honors General Chemistry 1 General Chemistry 1 Laboratory Recitation for General Chemistry 1 Calculus 1 Writing 1 or Writing 1 with Support Semester Hours General Chemistry 2 General Chemistry 2 Laboratory Recitation for General Chemistry 2 Galculus 2 Writing 2 Semester Hours Semester Hours Organic Chemistry 1 Organic Chemistry 1 Laboratory Organic Chemistry Recitation 1 Quantitative Analysis	3 1 4 3-4 13-15 3 1 1 4 3 3 15 3 1 5
or YSU 1500S or HONR 1500 CHEM 1515 CHEM 1515L CHEM 1515R MATH 1571 ENGL 1550 or ENGL 1549 CHEM 1516 CHEM 1516 CHEM 1516R MATH 1572 ENGL 1551 Gen Ed SS Year 2 Fall CHEM 3719 CHEM 3719R CHEM 3719R CHEM 2604 & 2604L	or Youngstown State University Success Seminar or Intro to Honors General Chemistry 1 General Chemistry 1 Calculus 1 Writing 1 or Writing 1 with Support Semester Hours General Chemistry 2 General Chemistry 2 General Chemistry 2 Calculus 2 Writing 2 Semester Hours Semester Hours Organic Chemistry 1 Dorganic Chemistry 1 Calculus 2 Organic Chemistry 1 Corganic Chemis	3 1 4 3-4 13-15 3 1 1 4 3 3 15 3 1 1 5
or YSU 1500S or HONR 1500 CHEM 1515 CHEM 1515 CHEM 1515R MATH 1571 ENGL 1550 or ENGL 1549 CHEM 1516 CHEM 1516 CHEM 1516R MATH 1572 ENGL 1551 Gen Ed SS Year 2 Fall CHEM 3719 CHEM 3719R CHEM 3719R CHEM 3719R CHEM 2604 & 2604L PHYS 2610	or Youngstown State University Success Seminar or Intro to Honors General Chemistry 1 General Chemistry 1 Calculus 1 Writing 1 or Writing 1 with Support Semester Hours General Chemistry 2 General Chemistry 2 Calculus 2 Writing 2 Semester Hours Semester Hours Organic Chemistry 1 Corganic Chemistry 1 Cor	3 1 4 3-4 13-15 3 1 1 4 3 3 15 3 1 1 1 1
or YSU 1500S or HONR 1500 CHEM 1515 CHEM 1515L CHEM 1515R MATH 1571 ENGL 1550 or ENGL 1549 CHEM 1516 CHEM 1516 CHEM 1516R MATH 1572 ENGL 1551 Gen Ed SS Year 2 Fall CHEM 3719 CHEM 3719R CHEM 3719R CHEM 2604 & 2604L	or Youngstown State University Success Seminar or Intro to Honors General Chemistry 1 General Chemistry 1 Calculus 1 Writing 1 or Writing 1 with Support Semester Hours General Chemistry 2 General Chemistry 2 General Chemistry 2 Calculus 2 Writing 2 Semester Hours Semester Hours Organic Chemistry 1 Dorganic Chemistry 1 Calculus 2 Organic Chemistry 1 Corganic Chemis	3 1 4 3-4 13-15 3 1 1 4 3 3 15 3 1 1 5

Spring

	Total Semester Hours	120-122
	Semester Hours	15
Electives		7
Upper-Level Elect	tives	5
Upper-Level Cher	nistry Elective	3
Spring	Semester Hours	15
Upper-Level Elect		5
Gen Ed Elective		3
Upper-Level Cher	nistry Elective	3
CMST 1545	Communication Foundations	3
CHEM 4850	Chemistry Research	1
Fall		
Year 4	Semester Hours	14
Gen Ed Elective	Semester Hours	3
Upper-Level Elect	lives	5
Upper-Level Cher		3
FNLG 1502	Conversational Foreign Language 2	3
Spring	Our section of Family 1	
a .	Semester Hours	17
Elective		4
Gen Ed AH		3
Gen Ed AH		3
FNLG 1501	Conversational Foreign Language 1	3
CHEM 3739L	Physical Chemistry 1 Laboratory	1
CHEM 3739	Physical Chemistry 1	3
Fall		
Year 3		
	Semester Hours	16
Gen Ed SS		6
& 2611L	and General Physics laboratory 2	5
PHYS 2611	General Physics 2	5
CHEM 3720L	Organic Chemistry 2 Laboratory	1
CHEM 3720	Organic Chemistry 2 Organic Chemistry 2 Laboratory	1
CHEM 3720	Organic Chemistry 2	3

Electives must include courses to fulfill the students chosen minor. Typically for Chemistry majors, the minor will be in Mathematics, Physics or Biology.

Learning Outcomes

- Undergraduate students will demonstrate an understanding of the basic principles of the chemical disciplines included in their curriculum.
- Undergraduate students will demonstrate independent and critical thinking.
- Undergraduate students will demonstrate an understanding of the fundamentals of modern chemical instrumentation.
- Undergraduate students will effectively communicate their ideas both orally and in writing.