

# B.S. in Chemistry with Chemical Education Option/Michigan Teacher Cert.

## A Five Year Outline

FALL			SPRING		
<b>FIRST YEAR</b>					
CH1150 University Chemistry I	AND	3	CH1160 University Chemistry II	AND	3
CH1151 University Chemistry Lab I	AND	1	CH1161 University Chemistry Lab II	AND	1
CH1153 University Chemistry I Recitation		1	CH1163 University Chemistry II Recitation		1
	OR			OR	
CH1112 University Chem-Studio Lab I		5	CH1122 University Chem-Studio Lab II		5
CH1130 Orientation		1	MA2160 Calculus II		4
PH1100 Physics by Inquiry I		1	PH1200 Physics by Inquiry II		1
MA1160 Calculus I		4	PH2100 Univ. Physics I -Mechanics		3
UN1001 Perspectives on Inquiry		3	UN1002 World Cultures		4
<b>TOTAL</b>		<b>14</b>	<b>TOTAL</b>		<b>17</b>
<b>SECOND YEAR</b>					
CH2410 Organic Chemistry I		3	CH2420 Organic Chemistry II		3
CH2411 Organic Chemistry Lab I		1	CH2212 Quantitative Analysis		5
PH2200 University Physics II – E&M		3	MA3160 Multivariable Calculus		4
MA2330 Introduction Linear Algebra		3	MA3520 Elementary Differential Eq.		2
UN2001 Revisions		3	PSY2000 Introduction to Psychology		3
UN2002 Institutions		3			
<b>TOTAL</b>		<b>16</b>	<b>TOTAL</b>		<b>17</b>
<b>THIRD YEAR</b>					
CH3510 Physical Chemistry I		3	CH3520 Physical Chemistry II		3
CH3511 Physical Chemistry Lab I		2	ED/HU4150 Literacy in the content Areas		4
CH4710 Biomolecular Chemistry I		3	ED3110 Psychological Foundation of Learning		3
General Education Distribution		3	ED3210 Foundations of Education		2
HU2830 Introduction Speech Communication		3	ED3410 Clinical Experience		1
			MA2910 Mathematical Experimentation		3
<b>TOTAL</b>		<b>14</b>	<b>TOTAL</b>		<b>16</b>
<b>FOURTH YEAR</b>					
CH4310 Inorganic Chemistry I		3	CH3020 Laboratory Teaching Internship		2
CH4311 Inorganic Chemistry Laboratory		2	CH4810 Design/Operation of HS Chem Lab		2
CH4900 Senior Seminar I		1	MA2720 Statistical Methods		4
MA3924 College Geometry with Technology		3	MA3910 Techniques of Teaching Mathematics		2
General Education Distribution		3	ED3100 Instructional Technology		2
			ED4700 Fundamentals of Instruction		3
<b>TOTAL</b>		<b>12</b>	<b>TOTAL</b>		<b>15</b>
<b>FIFTH YEAR</b>					
ED4710 Science/Math Methods		3	<b>NOTE: This outline includes a secondary education MA minor. Also note that for Michigan Teaching Certification, you must be certified in First Aid and CPR for child and adult by completing either EH3985, Red Cross training or American Heart Association training.</b>		
ED4910 Directed Teaching and Methods of Teaching Science		12			
<b>TOTAL</b>		<b>15</b>			
<b>GRAND TOTAL = 136 Credits</b>					

**NOTE: 3 Units of co-curricular activities are required (P.E. courses are taught in 0.5 unit classes. Thus, 6 of these are needed for 3 units). It is highly recommended that students take at least one P.E. class during each semester of their first year, if possible.**