

# Chemistry (2012-2013)

## Biochemistry and Biotechnology Emphasis

(This emphasis prepares students for entry level employment in biotechnical or biomedical laboratories or for entry into medical or dental schools)  
This is a **general curriculum** guide and is not applicable to every student and is not a replacement for meeting with your advisor.

**-Student needs MTH 110 prerequisite-**

Fall Semester – Year One	credits	Winter Semester – Year One	credits
MTH 110: Algebra	4	CHM 115: Principles of Chemistry I ( <i>Gen Ed</i> )	5
WRT 150: Strategies in Writing	4	MTH 122: College Algebra ( <i>Gen Ed</i> )	3
BIO 120: General Biology I ( <i>Gen Ed</i> )	4	MTH 123: Trigonometry	3
Gen Ed.	3	Gen Ed.	3
<b>Total</b>	<b>15</b>	<b>Total</b>	<b>14</b>
Spring Semester – Year One	credits	Summer Semester – Year One	credits
CHM 116: Principles of Chemistry II	5		
Fall Semester – Year Two	credits	Winter Semester – Year Two	credits
CHM 245: Principles of Organic I <sup>1</sup>	3	CHM 222: Quantitative Analysis	3
CHM 246: Principles of Organic I Lab	1	CHM 247: Principles of Organic II <sup>1</sup>	3
MTH 201: Calculus I	5	CHM 248: Principles of Organic II Lab	1
Gen Ed.	3	BIO 375/376: Genetics w/Lab	4
Gen Ed.	3	Gen Ed.	3
<b>Total</b>	<b>15</b>	<b>Total</b>	<b>14</b>
Fall Semester – Year Three	credits	Winter Semester – Year Three	credits
PHY 220: General Physics I <sup>3</sup>	5	CHM 225: Instrumental Analysis I	3
CHM 391: Chemistry Seminar I <sup>2</sup>	0	PHY 221: General Physics II <sup>3</sup>	5
CHM 461: Biochemistry I	4	CHM 391: Chemistry Seminar I <sup>2</sup>	1
Cognate Elective*	3	CHM 462: Biochemistry Techniques	3
Gen Ed.	3	CHM 463: Biochemistry II (Capstone)	3
<b>Total</b>	<b>15</b>	<b>Total</b>	<b>15</b>
Fall Semester – Year Four	credits	Winter Semester – Year Four	credits
CHM 351: Introduction to Physical Chemistry <sup>3</sup>	3	CHM 352: Applied Physical Chemistry (SWS) <sup>3</sup>	1
CHM 491: Chemistry Seminar II <sup>2</sup>	0	CHM 491: Chemistry Seminar II <sup>2</sup>	1
Cognate Elective*	3	Cognate Elective*	4
Cognate Elective*	3	Elective	3
Elective	3	Gen Ed. or Theme	3
Gen Ed. or Theme	3	Gen Ed. or Theme	3
<b>Total</b>	<b>15</b>	<b>Total</b>	<b>15</b>

**The block tuition rate is for 12-15 credits. You will pay additional tuition for any credits over 15.**

### Notes:

\*Students should consult with your faculty advisor to determine the most appropriate cognate electives.

<sup>1</sup> CHM 241 and CHM 242 may substitute for CHM 245/246/247/248. However, students must also take CHM 249 plus 28 additional lab-hour electives.

<sup>2</sup> Required of all chemistry majors. Two semesters of seminar are required for one credit. Students should register for zero credits in their first semester and one credit in their second semester.

<sup>3</sup> Students interested in Graduate School should take CHM 356, 353, 358 and 355 or 455 instead of CHM 351 and 352. PHY 230/231 should be taken in place of PHY 220/221 and MTH 202 should also be taken.

### Special Notes:

A. This is a **general** curriculum guide and will not work for everyone, especially those students who have AP, IB or CLEP credit. For students without high school chemistry, CHM 109 is strongly encouraged.

B. Courses that have (*Gen Ed*) written after them are classes that are required in the major and also fulfill a section of the general education program.

C. Students must complete a total of two courses with an SWS attribute.

**It is imperative to meet with your faculty advisor or an advisor in the CLAS Academic Advising Center early in your career.**

**The CLAS Academic Advising Center is located in C-1-140 MAK, 616-331-8585.**

Online at: <http://www.gvsu.edu/clasadvising>

Prepared by CLAS Academic Advising Center – 1/23/12