

**CHEMISTRY BS-SECONDARY EDUCATION** (WITH EDUCATION MAJOR AND TEACHABLE MINOR)THIS IS A **GENERAL** CURRICULUM GUIDE AND IS NOT APPLICABLE TO EVERY STUDENT. IT IS IMPORTANT TO MEET WITH YOUR ADVISOR.**A 2.7 cumulative GPA in the Chemistry major is required for admission to the apprenticeship and internship semesters**

Year One			
CHM 115 Principles of Chemistry I Prerequisites: High school chemistry and (MTH 110 or MTH 122 or MTH 125 or MTH 201) <sup>1</sup> MTH 124 Precalculus: Functions and Models Prerequisite: MTH 110 or proficiency through math placement <b>SEE NOTE BELOW REGARDING OPTIONS FOR THIS COURSE</b> Gen Ed or WRT 120 Strategies in Writing Stretch I <sup>1</sup> PSY 101 Introductory Psychology	4  5 3 3	CHM 116 Principles of Chemistry II Prerequisites: CHM 115 and (MTH 122 or MTH 125 or MTH 201) BIO 120 General Biology I or BIO 121 General Biology II Prerequisites: BIO 120: High school chemistry, CHM 109, or CHM 115 strongly recommended (CHM 109 or 115 may be taken concurrently) BIO 121: MTH 110 or higher (may be taken concurrently) WRT 150 Strategies in Writing or WRT 130 Strategies in Writing Stretch II <sup>1</sup> Optional Electives	5  4 4/3 1-2
<i>Total</i>	15/16*	<i>Total</i>	15/16*
Spring/Summer			
BIO 120 General Biology I or BIO 121 General Biology II Prerequisites: BIO 120: High school chemistry, CHM 109, or CHM 115 strongly recommended (CHM 109 or 115 may be taken concurrently) BIO 121: MTH 110 or higher (may be taken concurrently) Gen Ed	4 3	<sup>4</sup> Minor Courses	6
Year Two			
CHM 273 Principles of Inorganic Chemistry Prerequisites: CHM 116; Corequisite: CHM 241 or CHM 245 <sup>2</sup> CHM 245 Principles of Organic Chemistry I CHM 246 Principles of Organic Chemistry I Lab Prerequisites: CHM 116; CHM 245 and 246 must be taken concurrently MTH 201 Calculus I Prerequisites: MTH 122 and MTH 123 or proficiency through math placement EDF 315 Diverse Perspectives on Education	3 4 1 4 3	CHM 221 Survey of Analytical Chemistry Prerequisites: CHM 116 <sup>2</sup> CHM 247 Principles of Organic Chemistry II CHM 248 Principles of Organic Chemistry II Lab Prerequisites: CHM 245 and CHM 246; CHM 247 and 248 must be taken concurrently PSY 301 Child Development Prerequisites: PSY 101 <sup>4</sup> Minor Course	4 3 1 3 3
<i>Total</i>	15	<i>Total</i>	14
Year Three			
<sup>6</sup> PHY 220 General Physics I Prerequisites: MTH 122 and MTH 123 CHM 351 Introduction to Physical Chemistry Prerequisites: CHM 116, MTH 201, & PHY 220 (may be taken concurrently) CHM 351 Introduction to Physical Chemistry Prerequisites: CHM 116, MTH 201, & PHY 220 (may be taken concurrently) Gen Ed Issue	5 3 1 3 3	CHM 391 Chemistry Seminar Prerequisites: 18 credits of chemistry and junior status <sup>6</sup> PHY 221 General Physics II Prerequisite: PHY 220 <sup>4</sup> Minor Course Gen Ed EDI 339 Assessment in Secondary Schools	1 5 3 3 3
<i>Total</i>	15	<i>Total</i>	15
Year Four			
CHM 461 Biochemistry I Prerequisites: CHM 242, CHM 247 or CHM 248 Gen Ed <sup>4</sup> Minor Course <sup>4</sup> Minor Course <sup>5</sup> EDS 379 Universal Design for Learning: Secondary Prerequisites: Sophomore Standing, EDF 315, and EDI 339. B- or better required.	4 3 3 3 3	CHM 491 Chemistry Seminar II (Capstone) Prerequisites: CHM 391 and senior standing GEO 111 Exploring the Earth SCI 440-Physics and Chemistry in Secondary Education Prerequisites: Junior Standing, CHM 116, and PHY 220 or PHY 221 (PHY 221 may be taken concurrently) <sup>4</sup> Minor Course Issue	1 4 3 3 3 3
<i>Total</i>	16*	<i>Total</i>	14
Year Five			
<b>Student Assisting Apprenticeship:</b> EDI 331 Methods and Strategies of Secondary Teaching EDI 310 Organizing and Managing Classroom Environments EDR 321 Content Area Literacy EDT 476 Technology in Education Must be taken with or after EDI 331 but before EDI 431	5 3 3 3	<b>Student Teaching Internship:</b> EDI 431 Student Teaching: Secondary EDI 432 Student teaching: Secondary Content EDF 495 The Context of Educational Issues Must be taken with or after EDI 431	8 2 3
<i>Total</i>	14	<i>Total</i>	13

See reverse for additional footnotes

**MTH 124 is designed for calculus-bound students as a replacement for MTH 122 & 123. While students can still fulfill the MTH 201 prerequisite by taking MTH 122 & 123, MTH 124 is strongly recommended for students who plan to complete MTH 201.**

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

It is imperative to meet with your faculty advisor and an advisor in the CLAS Academic Advising Center regularly.  
The CLAS Academic Advising Center is located in C-1-140 MAK, 616-331-8585. Online at: <http://www.gvsu.edu/clasadvising>

<sup>1</sup> Students who self-place into WRT 120 should take this course in the fall semester and then take WRT 130 in the winter semester of their first year. Students who self-place into WRT 150 should normally take this course in the winter semester of their first year.

Students will not need to take WRT 150 (or 120 & 130) if they have earned credit for the course through AP/Dual Enrollment. A grade of C or better is required.

<sup>2</sup> CHM 241 and CHM 242 may substitute for CHM 245/246/247/248 with advisor approval. Please speak with your faculty advisor about this option.

<sup>3</sup> Students must complete a total of two courses with an SWS attribute.

<sup>4</sup> A teachable minor is required for students pursuing secondary teacher certification. See below for minor options.

<sup>5</sup> EDS 379 may be taken prior to the Apprenticeship Semester but must be completed prior to the Internship Semester. Permit required (Education – 616-331-6650).

<sup>6</sup>For students with the Advanced Waiver/Override for Mathematics based on ACT scores, it is **STRONGLY RECOMMENDED** that proficiency in MTH 123 – Trigonometry – be demonstrated by either taking the MTH 123 course or by achieving a passing score on the GVSU math placement test **PRIOR** to taking PHY 220 and 221.

The BS degree requirements are incorporated into the major requirements and include MTH 201, PHY 220, and PHY 221.

### Declaring the Chemistry and Education Major with Teachable Minor:

1. Log into myBanner from the GVSU homepage
2. Once logged in select “Student,” “Student Records,” and then “Change Major”
3. Click on the “Change Major 1/Program” box
4. Click on the down arrow in the box next to “New Major 1/Program,” from here scroll down and choose “Chemistry Teaching - BS Secondary Education”
5. Click “Submit.” The system will automatically declare your 2<sup>nd</sup> major in “Education” and give you the option to declare a minor. Choose an appropriate minor from the list and then click “Change to New Program”

### General Education Overlap

General Education Categories fulfilled by the Chemistry Major for Secondary Education:	
Mathematical Sciences: MTH 201	Physical Science with Lab: CHM 115
Social and Behavioral Sciences: PSY 101	Life Science with Lab: BIO 120
U.S. Diversity: EDF 315	Issues; EDT 476

### Teachable Majors and Teachable Minors for Secondary Education

Teachable Majors		Teachable Minors	
Biology	Latin	Applied Linguistics - ESL	German-Teaching
Chemistry	Mathematics	Biology-Teaching	History-Teaching
Earth/Space Science	Music (K-12)	Chemistry-Teaching	Mathematics-Secondary Education
English	Health & Physical Education(K-12)	Earth/Space Science-Teaching	Physics-Teaching
French	Physics	Economics-Teaching	Political Science-Teaching
German	Social Studies	English-Teaching	Psychology-Teaching
History	Spanish	French-Teaching	Spanish-Secondary Teaching
Integrated Science	Visual Arts (K-12)	Geography-Teaching	

### Second Major in Education

#### Education Major Prerequisites (9 credits)

A 2.7 cumulative GPA in the Education Major Prerequisites is required with no grade lower than a C

— EDF 315 Diverse Perspectives on Education (3)	— PSY 301 Child Development (3)
— EDI 339 Assessment in Secondary Schools (3)	Prerequisite: PSY 101
<b>Teacher Assisting (14 - 17 credits)</b>	<b>Student Teaching (13 credits)</b>
— EDI 331 Teacher Assisting-Secondary (5)	— EDI 431 Student Teaching, Secondary (8)
— EDI 310 Organizing and Managing Classroom Environments (3)	— EDI 432 Student Teaching, Secondary Content (2)
— EDR 321 Content Area Literacy (3)	— EDF 495 The Context of Educational Issues (3)
— EDT 476 Technology in Education (3)	Must be taken with or after EDI 431
Must be taken with or after EDI 331 but before EDI 431	
— EDS 379 Universal Design for Learning: Secondary (3)**	
EDS 379 may be taken prior to the Teacher Assisting semester but <b>must</b> be completed prior to Student Teaching	

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