

**College of Science**  
 Department of Chemistry  
 Bachelor of Science (B.S.) in Chemistry  
 For students graduating in calendar year 2009

First Year		Fall	Spring
CHEM 1055, 1056*	General Chemistry for Chem Majors	4	4
CHEM 1065, 1066*	General Chemistry for Chem Majors Lab	1	1
ENGL 1105, 1106*	Freshman English	3	3
MATH 1114*	Elementary Linear Algebra	2	-
MATH 1224*	Vector Geometry	-	2
MATH 1205, 1206*	Calculus	3	3
	Electives <sup>‡</sup>	3	3
	Semester Total	16	16
Second Year			
CHEM 2154*	Analytical Chemistry for Chem Majors	4	-
CHEM 2164*	Analytical Chemistry for Chem Majors Lab	1	-
CHEM 2565, 2566*	Principles of Organic Chemistry	3	3
CHEM 2555*	Organic Synthesis & Techniques Lab	-	2
CHEM 4014 <sup>†</sup>	Survey of the Chemical Literature	-	1
CHEM 2424	Descriptive Inorganic Chemistry	-	3
MATH 2214	Introduction to Differential Equations	-	3
MATH 2224*	Multivariable Calculus	3	-
PHYS 2305,* 2306	Foundations of Physics	4	4
	Semester Total	15	16
Third Year			
CHEM 2556	Organic Synthesis & Techniques Lab	2	-
CHEM 3615, 3616	Physical Chemistry	3	3
CHEM 3625	Physical Chemistry Lab	-	1
BCHM 3114 or 4115	biochemistry elective	3	-
STAT or CS	Statistics or Computer Science (not CS 1004)	3	-
	Electives <sup>‡</sup>	6	8
	Semester Total	14	15
Fourth Year			
CHEM 3626 <sup>†</sup>	Physical Chemistry Lab	1	-
CHEM 4114	Instrumental Analysis	3	-
CHEM 4124	Instrumental Analysis Lab	1	-
CHEM 4404	Physical Inorganic Chemistry	3	-
CHEM 4414	Inorganic Synthesis & Techniques Lab	-	2
CHEM 4xxx	CHEM/BIOC/CHE elective, 4000-level or higher	-	3
	Electives <sup>‡</sup>	6	9
	Semester Total	14	14

- \* For "satisfactory progress toward degree" these courses and their prerequisites must be completed by the time the student has attempted 72 hours.
- † These two courses satisfy the University Writing-Intensive and ViEWS (Visual Expression, Written and Spoken) communication requirement.
- ‡ Electives must include "Curriculum for Liberal Education" requirements (Area 2: two 3-credit courses; Area 3: two 3-credit courses; Area 6: one 3-credit course; and Area 7: one 3-credit course). See the guidebook at <http://www.uaac.vt.edu/coreguides/> for specific courses in each area.

Credit hours and GPA requirements: Graduation requires completion of a minimum of 120 credit hours with a GPA of 2.0 or greater for all hours attempted. In addition, students must have an in-major GPA of 2.0 or greater. The in-major GPA is calculated from all chemistry courses except that not more than 6 hours of CHEM 2974, 4974, and 4994 will be included.

Prerequisites: The course sequence suggested above places required courses after their prerequisites. A student taking a course out of the recommended sequence should check the course catalog for the course prerequisites before enrolling.

Language study requirement: The College of Science language requirement may be met by:

- (1) Completing 3 units of a single foreign or classical language in high school;
- (2) Earning 6 semester hours of college-level foreign or classical language credit or American Sign Language; or
- (3) Receiving credit-by-examination for a foreign or classical language or American Sign Language. (See the Undergraduate Catalog for more information.)

Credits to satisfy the Language Study Requirement are in addition to the 120-credit graduation requirement for the Chemistry degree.

Substitutions: Students with chemistry credits due to transferring into the major, taking summer classes, or transferring credits from elsewhere may substitute the non-majors chemistry courses for the majors chemistry courses. These and other common substitutions are given in the table. Since CHEM 2545,2546 does not satisfy the prerequisite for CHEM 2556 (due to training on specific instrumentation), two or more credits of CHEM 4994 may substitute for CHEM 2556 to meet the requirement of 400 lab hours beyond general chemistry for an ACS-approved degree.

Required Courses	Equivalent Substitution
MATH 1205	MATH 1016
MATH 1206	MATH 2015