### B.S. in CHEMISTRY (Comprehensive Major, ACS-Certified degree requirements noted in parentheses)

#### 2014 FOUR YEAR CURRICULUM GUIDE

**DEPARTMENT OF CHEMISTRY/GEOLGY/PHYSICS**

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**Competency Requirement.** See substitute other elective courses to complete their degree studies. Students may need as many as 4 courses to fulfill the Global Competency Requirement. See http://www.ashland.edu/students/academics/core-curriculum/gps for details.

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### Core Requirement (Core 1)

**CHEM 103** Gen. Chem. I (fa only, Core 1) **Cr.** 4  
**MATH 205** Calculus I (fa only, Core 2) **Cr.** 5  
**ENG 101** Composition I (Core 3) **Cr.** 3  
**CORE/GPS** Inst. Requirement (Core 4) **Cr.** 3

**TOTAL** 15

### Core Requirement (Core 2)

**CHEM 307** Organic Chem I (fa only) **Cr.** 3  
**CHEM 307L** Organic Chem I Lab (fa only) **Cr.** 1  
**PHYS 205** University Physics (fa only) **Cr.** 5  
**CORE/GPS** Inst. Requirement (Core 9) **Cr.** 3

**CORE** Inst. Requirement (Core 10) **Cr.** 3

**TOTAL** 15

### Core Requirement (Core 3)

**CHEM 411/411L** Phys. Chem I w. lab (fa odd) or CHEM elective (ACS = CHEM 429/429L Biochem, fa only) **Cr.** 4  
**CHEM 320** Quantitative Analysis (fa only) **Cr.** 4

**MATH** MATH 305** (Calc. III, fa only) or Inst. Requirement (Core 12) **Cr.** 3

**CORE** Inst. Requirement (Core 13) **Cr.** 3

**CORE** Inst. Requirement (Core 14) **Cr.** 3

**TOTAL** 16-18

### Core Requirement (Core 4)

**CHEM 4XX** CHEM elective (ACS = CHEM 429/429L Biochem., fa only) or CHEM 411/411L (fa odd) **Cr.** 3

**CHEM** CHEM Elective (ACS = CHEM 4XX) or General Elective **Cr.** 3

**CORE** Inst. Requirement (Core 16) **Cr.** 3

**CORE** Inst. Requirement (Core 17) **Cr.** 3

**TOTAL** 12-13

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120 total credit hours required for degree

Important information continues on page 2 of this curriculum guide.

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*The Global Competency Requirement offers three tracks to completion. Students must complete one track. Three GPS courses are included in this guide, but students completing the requirement with fewer courses, or with study abroad, can substitute other elective courses to complete their degree studies. Students may need as many as 4 courses to fulfill the Global Competency Requirement. See http://www.ashland.edu/students/academics/core-curriculum/gps for details.*

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language courses in the Modern Languages track are advised to start those courses in Year 1. The Global Studies or Study Abroad tracks can be taken Year 2 or later. In any case, discuss your options early with your faculty advisor or the professional advisor.

Students planning to attend graduate school should plan on conducting an independent research project (CHEM 497) or participate in a summer research program or internship. Develop a plan for this with your academic adviser.

**Math: MATH 205/206 and either MATH 305 or 307 are required for major

***Science elective: For the Chemistry major, another 400-level CHEM, GEOL or BIO or 300-level MATH or PHYS should be taken if needed to reach at least 60 hrs in major. The ACS-certified degree requires CHEM 416, 420, 429, 429L + 3 additional hrs at 400-level including CHEM 497; GEOL 403 may substitute as a 400-level Chemistry elective (by permission).