

Program Learning Outcomes and Curriculum Map for BA and BS Degrees in Chemistry

Chemistry BA/BS Program Learning Outcomes ¹		Intro	Advanced	ULG ²	Faculty	Direct Measures	Results that indicate success	F12	S13	F13	S14	F14	S15	F15	S16	F16	S17
1	Demonstrate understanding of core concepts, methods and limits of scientific investigation to effectively solve problems in inorganic chemistry.	1A/B	145,146	1.1,2.2, 3.1,3.2, 4.1,4.2, 4.3	Cheruzel, Muller, Silber, Singmaster	Chem 1B - ACS standardized test.	Chem 1B - Performance at or above the national average on the ACS test			C	C						
2	Demonstrate understanding of core concepts, methods and limits of scientific investigation to effectively solve problems in organic chemistry.	1A/B	112A/B, 113A/B, 114	1.1,3.1, 3.2,4.1, 4.2,4.3	Okuda, Straus, Brook	Chem 112B - ACS standardized test, need something else maybe associated with 112A	Performance at or above the national average on the ACS test					C	C				
3	Demonstrate understanding of core concepts, methods and limits of scientific investigation to effectively solve problems in analytical chemistry.	1A/B 101	55, 101, 155	1.1,3.1, 3.2,4.1, 4.2,4.3	Pesek, Terrill											C	C
4	Demonstrate understanding of core concepts, methods and limits of scientific investigation to effectively solve problems in physical chemistry.	1A/B 101	160 161A/B 162L	1.1,3.1, 3.2,4.1, 4.2,4.3	van Wyngarden, Stone, Singmaster	Chem 1B - ACS standardized test; Chem 161A - Exam questions on selected core concepts; Chem 161B - ACS standardized test	75+% score on exam questions on core concept to be evaluated; Performance at or above the national average on the ACS test	C	ER								
5	Demonstrate understanding of core concepts, methods and limits of scientific investigation to effectively solve problems in biochemistry.	1A/B	130 A/B/C 131A/B	1.1,3.1, 3.2,4.1, 4.2,4.3	D'Alarcao, Eggers, Rascon									C	C		
6	Answer questions regarding safe practices in the laboratory and chemical safety.	1A/B	120S 121S 162L 146, 155	1.1, 4.2	All lab coordinators and instructors	Performance on lab safety quiz	Scores of 80% or higher on safety quizzes	C	ER								
7	Demonstrate safe laboratory skills (including proper handling of materials and chemical waste) for particular laboratory experiments.	1A/B	55, 155, 113A/B, 114, 131A/B, 146, 162L, 180	4.1 4.2	All lab coordinators and instructors	Monitor accident reports	No accidents									C	C
8	Effectively present a scientific paper that applies the scientific approach to address a chemical problem in a poster session, as at an American Chemical Society symposium.	100W	180 162L	1.1,2.1, 3.1,3.2, 4.1,4.2, 4.3	100W instructor, van Wyngarden, Terrill, Stone	Poster presentations evaluated with an appropriate rubric				C	C						
9	Effectively present a scientific paper orally, as per at an American Chemical Society symposium.	100W	131B, 146, 162L, 180	1.1,2.1, 3.1,3.2, 4.1,4.2, 4.3	100W instructor, van Wyngarden, Terrill, 131B and 146 instructors	Oral reports evaluated with an appropriate rubric						C	C				
10	Write a formal scientific laboratory report which applies the scientific approach to address a chemical problem and follows the format and style of an article in a peer-reviewed American Chemical Society journal. Society journal	100W	131B, 146, 162L, 180	1.1,2.1, 3.1,3.2, 4.1,4.2, 4.3	100W instructor, van Wyngarden, Terrill, 131B and 146 instructors	Written reports evaluated with an appropriate rubric								C	C		
								C-Collection, E-Evaluated; R-Report submitted to CoS									
Notes																	
1 - Requirement for BA and BS degrees are similar except that the BA requires a minor and the BS requires more advanced math course work to support PLO 5.																	
2 - University Learning Goals 2.3, 5.1 and 5.2 not addressed in a detailed manner by Chemistry Program PLOs but are purposefully address by GE course work required by the degrees.																	
Introductory work (Chem 1A/B) also addresses 2.2 and 5.1 as applied to chemical problems																	