

<b>Program Learning Outcome</b>	<b>Student Learning Outcome</b>	<i>Courses where each SLO is addressed (one of the bolded courses will be assessed; selection depends on prior data)</i>	<i>Assessment activity (signature assignment) used to measure each SLO</i>	<i>Assessment tool used to measure outcome success</i>	<i>How assessment data will be reported as evidence SLO performance criteria have been met</i>	<i>Designated personnel to collect, analyze, interpret SLO data for the program</i>	<i>Student learning outcome data dissemination schedule</i>	<i>Closing the loop strategies</i>
<b>Theory and Practice (PLO 1):</b> Students will apply fundamental chemical principles to solve problems, interpret data and explain outcomes.	<b>SLO 1.</b> Students will compare, contrast and predict physical and chemical properties based on atomic and molecular structure. Students will apply these principles to the chemistry of living systems and demonstrate the ability to solve quantitative, interdisciplinary, and real-world problems.	<b>CHM 1210/L, 1220/L, CHM 2210/L, CHM 3140, 3150 CHM 3270/L, CHM 3420/L, CHM 3430/L, CHM 3520L, CHM 3270</b>	<i>embedded exam questions, ACS standardized final, periodic MFT test</i>	<i>grading rubric</i>	<i>% of students met or exceeded competent performance</i>	<i>collected by course instructor(s); analyzed by Curriculum Committee</i>	<i>Department assessment meeting Spring semester</i>	<i>developing active-learning strategies focused on LO</i>
<b>Laboratory Skills and Safety (PLO 2):</b> Students will use a variety of laboratory techniques to safely conduct chemical experiments and procedures.	<b>SLO 2.</b> Students will be able to design and execute an experimental procedure, work independently, interpret experimental results, and draw a reasonable, accurate conclusion. Students will synthesize, isolate, purify and characterize compounds using modern methods and instrumental techniques.	<b>CHM 1210L, 1220L CHM 2210L, CHM 3420L, CHM 3430L, CHM 3520L</b>	<i>sample laboratory reports</i>	<i>grading rubric</i>	<i>% of students met or exceeded competent performance</i>	<i>collected by course instructor(s); analyzed by Curriculum Committee</i>	<i>Department assessment meeting Spring semester</i>	<i>modifying lab exercises and experiments</i>
	<b>SLO 3.</b> Students will observe safe practices in the laboratory and will know how to respond in an emergency. Students will learn to gather hazardous materials information and will recognize and respond properly to potential hazards of handling chemicals and chemical waste.	<b>CHM 1210L, 1220L, CHM 2210L, CHM 3140L, 3150L CHM 3270L, CHM 3420L, CHM 3430L, CHM 3520L</b>	<i>sample laboratory report, embedded quiz questions</i>	<i>grading rubric</i>	<i>% of students met or exceeded competent performance</i>	<i>collected by course instructor(s); analyzed by Curriculum Committee</i>	<i>Department assessment meeting Spring semester</i>	<i>modifying lab exercises and experiment; improving training and resources</i>
<b>Communication and Information Literacy (PLO 3):</b> Students will develop and utilize effective computer, written and oral communication skills in a scientific setting.	<b>SLO 4.</b> Students will use computer technology to gather, process, analyze, and present chemical data, and communicate critical analysis of scientific information through written reports, laboratory notebooks, and oral presentations.	<b>CHM 2210/2210L, CHM 2910A, CHM 3140L, 3150L CHM 3270L, CHM 3420/L, CHM 3430/L, CHM 3520L</b>	<i>sample laboratory report/notebooks</i>	<i>grading rubric</i>	<i>% of students met or exceeded competent performance</i>	<i>collected by course instructor(s); analyzed by Curriculum Committee</i>	<i>Department assessment meeting Spring semester</i>	<i>modifying lab exercises, training and resources</i>
	<b>SLO 5.</b> Students will use chemical literature and computer resources to gather research information.	<b>CHM 2210/L, CHM 2910A, CHM 3270L, CHM 3420/L, CHM 3430/L, CHM 3520L</b>	<i>oral presentation</i>	<i>presentation rubric</i>	<i>% of students met or exceeded competent performance</i>	<i>collected by course instructor(s); analyzed by Curr. Committee</i>	<i>Department assessment meeting Spring semester</i>	<i>modifying lab exercises, training and resources</i>
<b>Readiness for Career or Advanced Degree (PLO 4):</b> Chemistry major graduates will be prepared to pursue a career or an advanced degree in chemistry or a chemistry-related field.	<b>SLO 6.</b> Students will demonstrate the ability to function as practicing chemists, through activities such as undergraduate research, Senior Project and Co-op. Through coursework and laboratory experiences, students will work successfully both independently and as part of a team.	<b>CHM 3420L, CHM 3430L, CHM 3520L, CHM 4410, CHM 4610, 4620, 4630</b>	<i>Exit survey for graduating seniors, laboratory reports</i>	<i>survey analysis, grading rubric</i>	<i>% of students participating in UG research, team projects</i>	<i>collected by course instructor(s); analyzed by Curriculum Committee</i>	<i>Department assessment meeting Spring semester</i>	<i>implement suggestions from survey</i>
	<b>SLO 7.</b> Students will benefit from faculty mentoring and academic advising. Through organizations and activities such as the SMACS Chemistry Club, alumni panels, seminars, and Professor for a Day, students will explore career opportunities and participate in career and graduate school planning.	<b>CHM 2910A</b>	<i>Exit survey for graduating seniors</i>	<i>survey analysis,</i>	<i>% of students reporting benefit</i>	<i>collected by course instructor(s); analyzed by Curriculum Committee</i>	<i>Department assessment meeting Spring semester</i>	<i>implement suggestions from survey</i>

PLOs reflect the core themes and discipline content areas of the major and should be natural outgrowths of the university ILOs. Program outcomes are best written with a strong focus on describing the characteristics of an ideal program graduate within the specific discipline. Five or six program outcomes tend to be both adequate and manageable.

Student learning outcomes clearly state the specific and measurable behaviors students will display to verify learning has occurred. Key characteristics of student learning outcomes include 1) clarity, 2) specificity, (this means they are worded with active verbs stating observable behaviors) and, 3) measurability. Every student learning outcome should be directly aligned with and related to one or more program learning outcomes. SLOs should be limited in number (eight or less) to maintain manageability. An SLO (or a combination of two SLOs) should be assessed with only one assignment (oftentimes called a signature assignment) and in only one course.