

Assessment of Student Learning Plan (ASLP): Academic Programs

2016-17 Academic Year

University of Southern Maine

Reminder: All Department Chairs will be responsible for completing an ASLP form by the end of this academic year for each academic program in your department. This campus-wide (annual) form is used to document the ongoing program assessment activities in each department/program. The form was designed to align with the NEASC accreditation- assessment standards.

If you have questions about this form, or need assistance with your program assessment plans during this academic year, please contact Susan King, Director of Academic Assessment, 780-4681, susank@maine.edu. Please email this form by May 31, 2017.

**To review your department's ASLP form from last year, please use this link below for the ASLP webpage on the assessment website, then click on departmental ASLP's: <https://www.usm.maine.edu/assessment/campus-wide-assessment-student-learning-asl-plan>*

A. College, Department, Date

College _____ CSTH _____
Department _____ Chemistry _____
Date _____ May 30, 2017 _____

B. Contact Person for the Assessment Plan

Name and title _____ Caryn Prudenté, Professor and Department Chair _____

C. Degree Program

Name of Degree Program _____ Chemistry (BS and BA) and Biochemistry (BS) _____

D. Assessment of Student Learning: Program Assessment

Step 1: Identify the Student Learning Outcomes (SLO's)

- a. Do you have your student learning outcomes published on your department's website? Yes/**No**

- i. If yes, please indicate the url: _____
- ii. If no, please list 3-5 of the most important student learning outcomes for your program. **What will students know by the end of your program?**

1. Students will have firm foundation in the fundamentals and application of current chemical and scientific theories.
2. Students will be able to design, carry out, record and analyze the results of chemical experiment.
3. Students will be able to use modern instrumentation and classical laboratory techniques, to design experiments, and to properly record the results of their experiments.
4. Students will be able to identify and solve chemical problems and explore new areas of research.
5. Students can use modern library searching and retrieval methods to obtain information about a topic, chemical, chemical technique, or an issue relating to chemistry.

- b. Please identify **which of your student learning outcome(s) were assessed this past academic year**. (One or more of the outcomes and corresponding assessment plans could come from your department's CORE Course Blueprint(s).

All of the outcomes listed above were assessed this past year

- c. Do you have a **matrix or curriculum map** showing when your student learning outcomes are assessed and in which courses? Yes/**No**
- i. If yes, do you have this map published on your website? Please indicate url or attach a copy of the curriculum map.

Assessment Resources link, scroll down to the assessment information list to see examples on "Curriculum Map templates, Curriculum Map SLO's example, and Curriculum Map Embedded Assignments"

<https://usm.maine.edu/assessment/assessment-resources>

Step 2: Assessment Methods Selected and Implemented

- d. Identify which direct measures (other than course grades), that were used to determine whether students achieved the stated learning outcomes for the degree.

Assessment Resources link: scroll down and select, "Direct and Indirect Measures-Strategies for Assessing Learning", or "Creating & Using Rubrics, and Rubric Grading & Examples"

<https://usm.maine.edu/assessment/assessment-resources>

Please note: Generally, the goal of grading is to evaluate individual students' learning and performance. The goal of assessment is to systematically examine patterns of student learning across courses and programs for purposes of improving educational practices. Grades may be the basis of assessment--for example, when a program agrees on a common assignment and rubric for assessment purposes, and grades are aggregated to develop a picture of average student performance. However, by themselves grades awarded in an individual course do not constitute assessment data.

- e. Briefly describe when you implemented the assessment activity, and if a scoring rubric was used to evaluate the expected level of student achievement. (This information may be shown on your curriculum map).

Typically most faculty administer 3-4 exams per semester in addition to cumulative final exams in each chemistry course. Laboratory work is assessed weekly, and rubrics are sometimes used.

Specifics: Outcome 1 was assessed in the spring semester in CHY 115 and CHY 253 – students in these classes take 3 exams during the semester and the American Chemical Societies (ACS) standardized exam in the appropriate topic. The ACS exams are cumulative and test student knowledge gained over the entire academic year (113 and 115, and 251 and 253). Students in CHY 113 are provided a pre / post survey to gauge their perceptions and misconceptions about basic theory and concepts.

Outcome 2 was assessed weekly, both fall and spring (CHY 116, 251, 253, 233, 374, and 378), by evaluating notes recorded in student's laboratory notebooks and pre-laboratory quizzes. Upper level courses (462, 464 and 470) require students to write a publication style manuscript describing semester-long research projects they undertook.

Outcome 5 was assessed during the spring semester in CHY 254 and 470. In 470, students retrieve literature on current research topics, as well as papers discussing roles of chemistry and science in society, using SciFinder and other electronic

databases. In-class group discussion follows. Early in the semester, students enrolled in CHY 254 are tasked with retrieving a journal article that describes extraction of a natural product (ex caffeine or salicylic acid). Using the article as a resource, students design their own natural product extraction experiment. Toward the end of the semester students undertake the experiment they designed. Students learn to navigate several electronic literature retrieval databases, read scientific literature, and adapt publish experimental information to their specific experiment. Student's ability to interpret the literature and to successively design an experiment is evaluated.

Example: Outcome 1 was measured during the fall semester -- all majors completed a problem-solving case study during the ___ course. Case studies were graded on a rubric by two faculty members.

Example: Outcome 2 was measured during the spring semester -- all majors in the capstone course completed a research project. Research projects will be reviewed and graded by a group of faculty.

Step 3: Using the Assessment results to Improve Student Learning

- a. *Briefly describe your unit's process of reviewing the program assessment results (i.e. annual process by faculty committee, etc).* **Discussed at Department meetings. Capstone courses are reviewed annually.**
- b. *What specific changes have been or will be made to improve student learning, as a result of using the program assessment results?* **We are in the process of adding an additional 50 minute recitation into foundation courses (CHY 115 and 251) following the successful model implemented in CHY 113.**
- c. *Date of most recent program review/self-study?* **Spring 2015**

E..Course Assessment Activities: *Is your program able to report any assessment-related activities at the Course-Level... (i.e. created grading rubrics to use in required courses, examined student progress in entry-level courses, developed a new course, etc)? Please briefly explain any assessment projects.*

F. Community Engagement Activities in your departmental curriculum:

a. Does your department have a student learning outcome that is related to any community engagement activities? If so, please state the outcome.

1. Able to communicate the results of their work to chemists and non-chemists

2. Find gainful employment in industry or government, be accepted at graduate or professional schools, or find employment in school systems as instructors or administrators.

b. Please indicate if any of the community engagement activities listed below are included in your program's curriculum, by noting which activities are required or optional for students in your major.

<u>Community Engagement Activity</u>	<u>Required/Optional</u>	
Student Research (related to a community-based problem)	R	<u>O</u>
Student-Faculty Community Research Project	R	<u>O</u>
Internship, or a Field Experience	R	<u>O</u>
Independent Study (community-related project)	R	O
Capstone Course (community-related project)	R	<u>O</u>
Service-Learning (course-based)	R	O
Study Abroad, or an International Program	R	O
Interdisciplinary Collaborative Project (community related)	R	O
Student Leadership Activities (related to a team project)	R	<u>O</u>
Students/Faculty Community Leadership (advisory boards, committees, conference presentations)	R	O
Other Activities (not mentioned above):		

c. Please list any courses (i.e. EDU 400) that have a community engagement activity in your program.

Entry-level courses: CHY 113 and 114

Mid-level courses: CHY 233

Upper-level courses: CHY 385 and 470

G. Additional Comments (Optional): Please feel free to give suggestions or feedback on what would help you with the program assessment process.