Assessment report for the 2012/2013 academic year

Department of Chemistry and Biochemistry

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During the 2012/2013 academic year, the assessment that was performed in the Department of Chemistry and Biochemistry was focused on three major learning outcomes involving the advanced undergraduate students. In all cases, the students’ proficiencies were evaluated during their CHMY 494 and BCH 494 capstone seminar courses. They were also evaluated during the department’s annual undergraduate research poster symposium.

Learning Outcome 1

Professional, biochemistry, and teaching options: Students will be able to clearly communicate research findings in an oral presentation and poster session format.

Assessment for Learning Outcome 1

Twenty-two senior undergraduate students and one junior were evaluated for clarity and depth of oral presentation during a 25 minute PowerPoint presentation to their peers in CHMY 494 and BCH 494 senior capstone seminar during the spring semester of 2013. These students also presented posters (which were evaluated) at the Undergraduate Research Poster Symposium that is held annually by the Department of Chemistry and Biochemistry in April. All of the students successfully communicated their research findings in both formats.

Learning Outcome 2

Professional, biochemistry, and teaching options: Students will be able to solve problems related to chemistry and biochemistry.

Assessment for Learning Outcome 2

The ability of twenty-two senior undergraduate students and one junior to comprehensively solve problems related to chemistry and biochemistry were evaluated during their 25 minute oral PowerPoint presentations to their peers in CHMY 494 and BCH 494 senior capstone seminar during the spring semester of 2013. These students also presented posters (which were evaluated) at the Undergraduate Research Poster Symposium that is held annually by the Department of Chemistry and Biochemistry in April. All of the students demonstrated successful mastery of this task. Through their presentations, it was clear that two of the students were less comfortable with independent problem solving related to chemistry and biochemistry than the rest of the students, although they were able to succeed in the end. All students mastered the problem solving learning objective as demonstrated by their presentation of the progress that they were able to make and then describe for their research projects.

Learning Outcome 3

Biochemistry option: Students will understand the problems in another biological science (e.g., microbiology, cell biology, neuroscience, plant or animal science) that biochemical techniques help solve.

Assessment for Learning Outcome 3

Twenty-two senior undergraduate students and one junior were evaluated for clarity and depth of oral presentation during a 25 minute PowerPoint presentation to their peers in CHMY 494 and BCH 494 senior capstone seminar during the spring semester of 2013. All of the students demonstrated extremely high mastery of this learning option.

Additional assessment information

I am including the following assessment information in this document because I don’t have a record of it ever being recorded in a previous report. To supplement the information below, we will reassess the organic chemistry learning outcomes at the end of the 2014 spring semester for our majors.

In the spring of 2011, the American Chemical Society (ACS) organic subject exam was administered to chemistry and biochemistry option majors at the end of their sophomore year as the final exam for CHMY 333 (Honors Organic Chemistry II; no teaching option students were enrolled in this class). The average score earned on the test was at the 73rd percentile for the nationally accrued scores, as posted on the ACS website. The mean student score was at the 75th percentile. 77% of the students in the class scored 61% or better. Clearly, the Montana State chemistry and biochemistry option majors dramatically out-performed national averages and norms on this test.