**August, 2009 Assessment Committee Feedback: Chemistry**

**Assessment Committee Contact Person: Beth Lincoln**

**Plan also reviewed by: Melissa Mercer-Tachick**

Thank you for the hard work that went into your assessment plan. As we carefully reviewed your Steps, it became clear just how much thought and effort went into your work. There were some real strengths in your work, and we celebrate these with you!

In general, there were a few themes that the Assessment Committee noticed. First, it is most helpful when the progression from Step 2 to Step 3 and Step 3 to Step 4 are clear. That is, after you have articulated your learning goals, the clearest proposals are explicit in how the courses/experiences in Step 3 directly support the learning goals. And Step 4 should take full advantage of all of the places in Step 3 where data might be collected. Second, make strategic use of both direct and indirect measures[[1]](https://docs.google.com/a/albion.edu/Doc?docid=0AUaAHaCO2ORDZGh0bWJ0NXJfMWNoYnJudzM1&hl=en" \l "_ftn1" \o "" \t "_self), and think about whether data can be collected at the beginning, during the program of study, and at the end. This gives a richer sense of where and when your work contributes strongly to learning goals and where improvements might be made. Third, make your plan manageable! All data need not be collected annually; some can be done every other year. And you may choose not to measure for all of your learning goals right now. Make claims that you can (a) intellectually, ethically stand behind and (b) find resources to measure.

Please feel free to contact either of us with questions about your feedback. We want to help your assessment plan be successful in collecting relevant data to inform your work! We will be happy to work with you toward timely completion revisions to the first four steps, submission of preliminary findings, and/or completion of this iteration of data collection.

Comments specific to your plan:

Steps 1 (Mission) and 2 (Learning Goals) are well done.  You have a nice blend of specific content- related outcomes and general skills- related ones.   It would be useful if you could make the linkage between the departmental mission and your Learning Goals more explicit.  Do you ever assess the “informed citizenry” part of your mission?  **No, we feel that the "informed citizenry" clause is created by satisfactory progress toward our other learning goals.**

Step 3, Program Components, is a copy of the Chemistry catalog course listing.  It would be more useful to have the program elements grouped by the outcome to which they relate, as you have done in Step 4.***Required courses, elective courses,out-of-classroom or other experiences that are designed to achieve each educational objective. NOTE: Every class will not, nor is it expected to,achieve each outcome. The goal is to get an even distribution of experiences that achieve the outcomes.  The instructions come with NO requirement to group them this way. Useful to whom, Since learning goals 1 and 2 are course specific, reordering seems a bit of a waste of time.***

In Step 4 on Methods you have done an excellent job of linking outcomes to courses to methods for the first three Learning Goals.  You are to be commended for using what you are already doing in classes for the purposes of assessment.  In this way your plan should be sustainable.

Learning goals 1-3 are concrete and measurable.  We do have a few questions, however.   Under the method for assessing Learning Goal #1, the target is set at 50% of the students taking Chemistry 121 attaining an 85% score on the identified questions.  In Chemistry’s report from 2005, it was reported that the department felt that 50% of the students passing Chemistry 121 might be a better measure. Have you decided to return to setting 50% of the entire population as the goal?  **Yes, we have made that return.  Given out students' preparedness coming to Albion and given a desire to NOT encourage Grade inflation (as is, 50% reaching a score of 85% suggests and average (or median) of 85%, a 3.3 for a grade.**

The evaluation of research projects and poster sessions is an important part of assessing Goal #3.  The department uses a common form for soliciting evaluations for posters, but is there a common rubric that all use to assign the scores?  **No, there is not a common rubric to assign the scores.  Because the students in 206 are typically Juniors and in 212 students are mostly sophomores, the expectations are different (higher for Juniors than sophomores) also the course content and expectations are different, so again, difficult to standardize grades.  Within a course, is there a rubric given to all the peer evaluators so that they each know what excellence at that level looks like?**

The heading for Learning Goal #4 is Content Knowledge: Core Chemistry, and its description mentions knowledge of the basic core as well as acquisition of a professional skill set.  However, these are not defined.   Has the department agreed on the elements of the basic core of chemistry and the requisite professional skill set?  The only specific skills mentioned are writing acceptable reports, keeping adequate lab notebooks, and presenting research results.**Learning goal 4 does not mention specific skills.  In assessment of our alumni, we ask IF they are in research, we assume that they know how to identify the problem, design and carry out experiments.**Is this the definition, or does the skill set also include skills specific to chemistry? **Yes, obviously, Core Chemistry includes skill related to chemistry knowledge and understanding. They are vague because the skills are varied and extensive depending on what area of chemistry they are pursuing.**

**The department defines basic core of chemistry to be content specific to our 206 and 300-level courses, in addition to those mentioned in Learning Goals 1 and 2.  It would be useful for outside readers if you add this definition to the learning goal.**

Direct as well as indirect measures are used for Learning Goals 2 and 3.  Learning Goal 1 has only a direct measure, which may be appropriate here, and the only method of assessment given for Learning Goal 4 is surveys of alumni, which are indirect.  Once this goal is better defined, assessment methods can be revisited. **We are planning on adding the ACS-DUCK08 exam, the 2008 Diagnostic of Undergraduate Chemistry Knowledge Exam.  This exam is designed for use at the end of an undergraduate chemistry major**. **ACS Chemistry graduate exam to our assessment plan, much like Biology does.  If we have an assessment day, this will be easy to implement.**

We look forward to reading how the data collection and analysis has gone, including how the data compare to that collected previously, and to learning how you have used the data.

[[1]](https://docs.google.com/a/albion.edu/Doc?docid=0AUaAHaCO2ORDZGh0bWJ0NXJfMWNoYnJudzM1&hl=en" \l "_ftnref1" \o "" \t "_self) *In assessing student learning, there are direct and indirect sources of evidence. Direct evidence is clear and convincing information about student learning, such as: tests, examinations, papers, projects, assignments, field experience assessments, and portfolios. These are particularly strong sources of evidence especially when accompanied by articulated standards (such as a rubric). On the other hand, with indirect evidence there is room for other factors to affect the outcomes either positively or negatively. Examples of indirect evidence include: retention, graduation, and placement rates (may be impacted by economic conditions or college policies); surveys of students and alumni (may indicate feelings about college experience); grades (standards and even content may differ across instructors and institutions).*

**Fall 2009**

**Chemistry Department:**  
I've finished reviewing your department's assessment report for fall 2009, and want to commend you for your excellent work.  I've marked your plan on Google docs with some comments in a pinkish color, but they are mostly quibbles.  Your department has a history of taking assessment seriously, and your use of nationally standardized measures is excellent.  My main comment is a request for you to include the data in your report next spring, showing, for example, the results of your survey of alumni.    
  
Overall, though, Chemistry is exemplary for conducting assessment at both the course and program level, and from the introductory to the alumni level.