Assessment Update

**Learning Goal 1 – Content Knowledge:  Key Concepts of Chemistry 121.**

*The student will understand key concepts of Reaction Stoichiometry, Equilibrium, Atomic and Molecular Structure and Acid – Base chemistry.*

We are also planning on having our students take a standardized General Chemistry final exam so that we 1) can have a more complete quantitative assessment of our student competency, and 2) can compare ourselves to students outside of Albion.  Our learning goal will NOT change based on the collected results. If any deficiencies in student learning are discovered, such that we do not achieve our learning goals, we hope to try new approaches to teaching these core areas that will increase our students learning of them.

The results of the American Chemical Society’s General Chemistry exam, which was given to students this spring semester indicate that we are slightly below the national average for this exam. The difference is not statistically significant given our small numbers (N = 59) relative to the national data (N = 3,262), but it reflects well on our curriculum that we are meeting the needs of entry – level chemistry students.



**Learning Goal 2 – Content Knowledge: Key Concepts of Chemistry 211/212.**

*The student will have mastered the key concepts of Chemical Bonding, organic nomenclature, stereochemistry, structure determination using NMR and IR Spectroscopy, specific organic chemical reactions and mechanisms, upon completion of chemistry 211 and 212.*

We have given the ACS Organic Chemistry final every Spring. This year, with help from the registrar’s office, we purchased the 2008 version (the most current) of the ACS Standardized Organci exam. Our student performance on this exam has improved every year over the past decade. We have been at or above the national average of this exam. We are very happy with where we are with respect to organic chemistry content understanding.

The 2010 Organic chemistry exam was given this year and once again Albion students scored well above the national average. This represents the sixth consecutive year we have seen an improvement in performance on this national exam.



**Learning Goal 4 – Content Knowledge: Core Chemistry**

*Our graduates will have obtained knowledge of the basic core of chemistry and the professional skill set needed to be successful in postgraduate chemical endeavors.  This would include graduate school in chemistry, professional employment as chemists, medical school, or other graduate programs with significant chemistry content.*

Our graduates are well-satisfied, according to their self assessment at zero, two, and five years post graduation. They continue to place into outstanding graduate and professional positions.; this year, Include Wisconsin, Stanford, Scripps, This year we gave an external assessment device to better evaluate our students core knowledge of chemistry; The ACS's **DUCK08** – The 2008 Diagnostic of Undergraduate Chemistry Knowledge. Designed for use at the end of an undergraduate chemistry major, our student performance on the DUCK exam met or exceeded our expectations.  WE are above the national average, though not significantly so, given our low N.



**Step 6: How will the data collected be used for decision-making, strategic planning, etc. (Due October 1, 2009 with preliminary data; due November 2, 2009 with final data for this assessment cycle)**

The Chemistry department has continued to use its assessment results to evaluate and make changes to its pedagogy with respect to our learning goals.  With the implementation of American Chemical Society Standardized rubrics -what are these?  the standardized tests? - in place, the department will use them to critically evaluate what and how we bring the curriculum to our students.

Chemistry 121 is a unique course in the Chemistry department. Recognized as the entryway to all higher level chemistry courses in our department, *all* members of the chemistry faculty have equal rights with respect to input on the structure, content and direction of the course. Additionally, *all* faculty members have taken active teaching roles in the lecture and laboratory sections of this course. As a result of this shared departmental ownership, any desired change to the course, lecture or lab, is proposed to all faculty members in the Chemistry department, discussed and decided on collectively. We find from our assessment plan that we are doing a good job of meeting the academic and experiential needs of our students. From the graduate survey data, and from our standardized exam data from this year, we feel we need not make any significant changes to our curriculum at this time. We ARE changing Chemistry 121 textbooks again this year, and look to continue with our ACS-supplied standardized exams in the future to gain better insight to our meeting the curricular expectations of our students. Because we have an external society that guides and assesses our curriculum, through these exams, and program reviews, we are encouraged that we are on the right track.